

Guard safety scale assessment

The guard safety scale is a machine guard opening assessment tool that is designed to measure a guard or barrier opening size and distance from a mechanical hazard. This assessment tool can be used on a new machine installation, existing machine installation or whenever there have been modifications to a machine prior to its use. The scale on the guard safety scale is in compliance with CSA and ANSI guidelines for machine guard safety standards.



The guard safety scale should be made available to all workers who use tools, machines or equipment that have guarding or barriers in place to prevent contact with hazardous components. When used correctly, the guard safety scale will assure that the guard or barrier is designed and adjusted properly to protect the worker from incidental contact with a mechanical hazard.

How to use the guard safety scale

Warning

Before using the guard safety scale, lockout power and make sure the machine is secured.

The guard safety scale is a tool based on the measurements of the human body. It is intended to be representative of a finger, hand or arm. The guard safety scale is a two-dimensional representation of these three-dimensional human body parts. As such, the tool must be used correctly to ensure the guard or barrier is located at a sufficient distance from the hazard.

Orientation for proper use

The guard safety scale is placed perpendicular to the smallest dimension in the guard material and inserted toward the hazard. The guard should prevent the tip of the tool from reaching the hazard. When multiple openings of various sizes exist in the guard, each opening should be tested with the tool according to this procedure.

When the guard safety scale touches the machine hazard, it means the machine guarding has failed to meet the CSA standard. Corrective actions must be implemented.

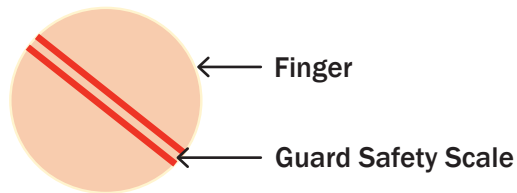


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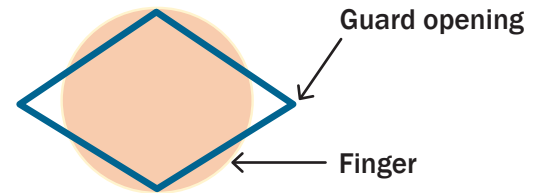


WorkSafe
SASKATCHEWAN

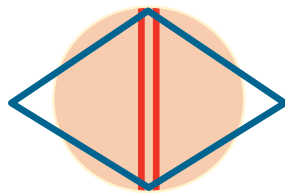
Work to live.



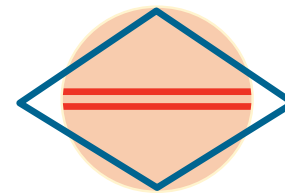
Guard Safety Scale
(Representative of human dimension)



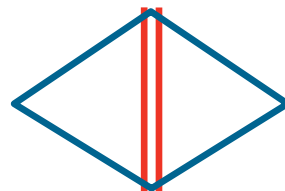
Human Shape does not fit
through barrier guard opening



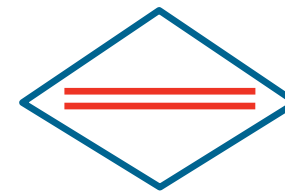
Correct orientation of
the guard safety scale



Incorrect orientation of the
guard safety scale (penetrates
barrier guard opening even though
human shape does not)



Correct orientation



Incorrect orientation

Measuring size and distance

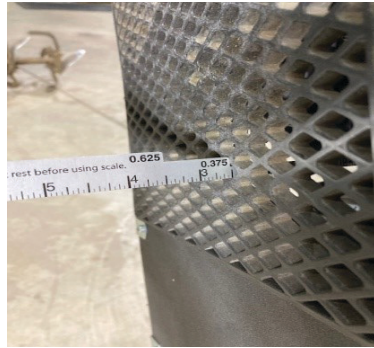
The minimum safe distance from a hazard as a function of a guard opening size will be referenced to the standards as presented in the CSA Z432-16, Safeguarding of Machinery, Table 10.2, page 111.

This table defines the safe distance for machine guards that are manufactured as slotted opening guards and square openings.

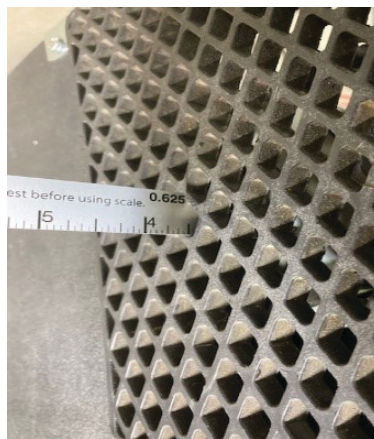
Slotted openings are used on machines where material is fed into it on a table such as punches, breaks, shears or planers.

Square openings are used on machines where guards are in place to prevent contact with moving parts, pinch points or rotating components such as a power press, power transmission systems using belts, chains or gears, cooling fans or ventilation blowers.

Example: measuring an air compressor drive belt guard



The guard safety scale is inserted into the air compressor drive belt guard perpendicular to the smallest dimension. It is measuring slightly larger than one-quarter inch or 0.6 mm. Measuring in this orientation, the guard safety scale has not come in contact with any moving components. **The guard is adequate to protect a worker.**



In this picture, the guard safety stick is inserted into the air compressor drive belt guard **incorrectly** and is measuring the largest dimension. It is measuring slightly larger than three-eighths of an inch or 11 mm. The guard safety stick enters the guard by another one-inch or 26 mm and can come in contact with the drive belt, pulley or pinch point. This incorrect method of measurement would indicate that **the guard is inadequate and would require replacement or modification to provide adequate guarding to protect a worker.**



This picture shows a finger cannot enter the guard and does not present a hazard in the workplace. When measured across the smallest dimension the results are accurate. **The air compressor drive belt guard is adequate.**

Reference the CSA Z432-16, Safeguarding of Machinery for more information.