

Pros and Cons of Safeguards Tool

Fixed Guards		
Safeguarding Action	Pros	Cons
• Provides a barrier	• Can be constructed to suit many specific applications • In-plant construction is often possible • Can provide maximum protection • Usually requires minimum maintenance • Can be suitable to high production, repetitive operations	• May interfere with visibility • Can be limited to specific operations • Machine adjustment and repair often require its removal, thereby necessitating other means of protection for maintenance personnel
Interlocked Guards		
Safeguarding Action	Pros	Cons

• Shuts off or disengages power, stops the moving parts and prevents starting of the machine when the guard is open; should require the machine to be stopped before the worker can reach into the danger area	• Can provide maximum protection • Allows access to the machine for removing jams without time consuming removal of the fixed guards	• Requires careful adjustment and maintenance • May be easy to disengage
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Adjustable Guards

Safeguarding Action	Pros	Cons
• Provides a barrier that may be adjusted to facilitate a variety of production operations	• Can be constructed to suit many specific applications • Can be adjusted to admit varying sizes of stock	• Hands may enter danger area – protection may not be complete at all times • May require frequent maintenance and/or adjustment • The guard may be made ineffective by the operator • May interfere with visibility

Self-adjusting Guards

Safeguarding Action	Pros	Cons
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• Provides a barrier that moves according to the size of the stock entering the danger area	• Off-the-shelf guards are often commercially available	• Does not always provide maximum protection • May interfere with visibility • May require frequent maintenance and adjustment
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Photoelectric Devices

Safeguarding Action	Pros	Cons
• Machine will not start cycling when the light field is interrupted • When the light field is broken by any part of the operator's body during the cycling process, immediate machine braking is activated	• Can allow freer movement for operator • Simplicity of use • Used by multiple operators • Provide passerby protection • No adjustment required	• Does not protect against mechanical failure • Limited to machines that can be stopped

Radiofrequency Devices

Safeguarding Action	Pros	Cons
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- Machine cycling will not start when the capacitance field is interrupted. - When the capacitance field is disturbed by any part of the operator's body during the cycling process, immediate machine breaking is activated	Can allow freer movement for operator	- Does not protect against mechanical failure - Antennae sensitivity must be properly adjusted; this adjustment must be maintained properly - Limited to machines that can be stopped
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Electromechanical Devices

Safeguarding Action	Pros	Cons
- Contact bar or probe travels a predetermined distance between the operator and the danger area. - Interruption of this movement prevents the starting of machine cycle.	Can allow access at the point of operation	- Limits movement of operator - May obstruct work space around operator - Adjustments must be made for specific operations and for each individual - Requires frequent inspections and regular maintenance - Requires close supervision of the operator's use of the equipment

Pullback Devices

Safeguarding Action	Pros	Cons
As the machine begins to cycle, the operator's hands are pulled out of the danger area	Eliminates the need for auxiliary barriers or other interferences at the danger area	- Limits movement of operator - May obstruct work space around operator - Adjustments must be made for specific operations and for each individual - Requires frequent inspections and regular maintenance - Requires close supervision of the operator's use of the equipment

Restraint Devices

Safeguarding Action	Pros	Cons
Prevents the operator from reaching into the danger area	Little risk of mechanical failure	- Limits movement of operator - May obstruct work space - Adjustments must be made for specific operations and each individual - Requires close supervision of the operator's use of the equipment

Safety Trip Controls		
Safeguarding Action	Pros	Cons
Stops machine when tripped	Simple to use	- All controls must be manually activated - May be difficult to activate controls because of their location - Only protects the operator - May require special fixtures to hold work - May require a machine brake
Two-Hand Control		
Safeguarding Action	Pros	Cons
Concurrent use of both hands is required, preventing the operator from entering the danger area	- Operator's hands are at a pre-determined location - Operator's hands are free to pick up a new part after first half of the cycle is completed	- Requires a partial cycle machine with a brake - Some two-hand controls can be rendered unsafe by holding with arm or blocking, thereby permitting one-hand operation - Protects only the operator
Two-Hand Trip		
Safeguarding Action	Pros	Cons

• Concurrent use of two hands on separate controls prevents hands from being in the danger area when machine cycle starts	• Operator's hands are away from danger area • Can be adapted to multiple operations • No obstruction to hand feeding • Does not require adjustment for each operation	• Operator may try to reach into danger area after tripping machine • Some trips can be rendered unsafe by holding with arm or blocking, thereby permitting one-hand operation • Protects only the operator • May require special fixtures
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Gates		
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Safeguarding Action	Pros	Cons
• Provides a barrier between danger area and operator or other personnel	• Can prevent reaching into or walking into the danger area	• May require frequent inspection and regular maintenance *May interfere with operator's ability to see the work

Sources:

<https://www.osha.gov/SLTC/etools/machineguarding/devices.html>

<https://www.osha.gov/SLTC/etools/machineguarding/guards.html>