



Types of Machine Safeguards



This leaflet is a brief guide to the OSH Act (Chapter 88:08).
It provides guidance on safeguards for machines.

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INTRODUCTION

This leaflet aims to provide guidance to both employers and employees in identifying various types of machine guards and safety devices that are commonly used in industries, particularly the manufacturing industry. Section 25A, 25B, 25C & 25D of the Occupational Safety & Health Act (Chapter 88:08) set out the requirements for the effective safeguarding of machinery.

TYPES OF MACHINE SAFEGUARDS

1. Fixed
2. Interlocked
3. Adjustable
4. Self-adjusting
5. Safety devices

FIXED

As its name implies, a fixed guard is a permanent part of the machine. This guard is usually preferable to all other types because of its relative simplicity and permanence.



INTERLOCKED

Interlocked guards are interconnected with the power or control system of the machine. The interlock prevents the machinery from operating unless the guard is closed. They cannot be opened until the dangerous parts of the machine have come fully to rest. Interconnections are usually mechanical, electrical, hydraulic or pneumatic. They provide an effective safeguard where access to the point of operation is required between each cycle of the machine or regular access is needed.



In the event of electrical failure, loss of power or malfunction, the machine's guarding system should 'fail to safe', and render the machine or part inoperable until the power is restored or the guarding mechanism is repaired.

ADJUSTABLE



Adjustable guards are useful because they allow flexibility in accommodating various sizes of stock.

SELF-ADJUSTING

The openings of self-adjusting guards are determined by the movement of the stock. As the operator moves the stock into the danger area, the guard is pushed away, providing an opening which is only large enough to admit the stock. After the stock is removed, the guard returns to the rest position. This guard protects the operator by placing a barrier between the danger area and the operator.



SAFETY DEVICES



In addition to machine guards, safety devices can also be used to prevent access to danger areas.

Here is how:

1. Presence sensing devices

photoelectric, radio frequency and electromechanical - these provide a barrier which is synchronized with the operating cycle of the machine in order to prevent entry to the danger area during the hazardous part of the cycle. The machine automatically shuts off once the "sensing field" is broken.

2. Pullback - these devices utilise a series of cables attached to the operator's hands, wrists, and/or arms. A mechanical linkage automatically assures withdrawal of the hands from the point of operation between cycles.

3. Restraint - these utilise cables or straps that are attached to the operator's hands at a fixed point. The cables or straps must be adjusted to let the operator's hands travel within a predetermined safe area. Additionally, hand-feeding tools are often necessary if the operation involves placing material into the danger area.



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Copies of the OSH Act (Chapter 88:08).
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OSHA IS A STATUTORY AGENCY of the Ministry of Labour and
Small and Micro Enterprise Development

Published Date: March 2014