

Operating Machines Safely









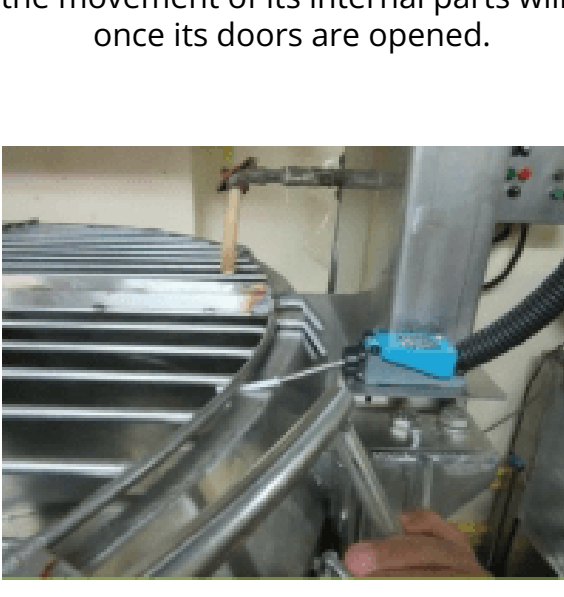
The use of machines is an integral part of many industrial operations, bringing about operational efficiency and enhanced productivity. However, exposed moving machine parts have caused many workplace injuries.

In the upcoming months, the Ministry of Manpower (MOM) will be conducting inspections targeting machinery safety in high-risk industries such as manufacturing and construction.

The following are good workplace safety and health (WSH) practices commonly adopted by companies to prevent machine-related injuries. The WSH Council urges companies who have yet to adopt these good practices to do so to be well prepared for MOM's upcoming inspections.

- **Automate machine operations:** Automation reduces the need for and/or frequency of human-machine interaction. This translates to reduced operator exposure to machine hazards.
- **Buy only safer machines:** Acquire machines designed to be inherently safer. For example, a machine that is designed with no access to moving parts, or the forces exerted by its moving parts are limited to reduce harm to the operator.
- **Review existing machines:** Inspect each machine to identify the parts that are exposed while in operation. Design and install customized machine guards at all locations with exposed moving parts and ensure such guards are not deliberately removed during operations.

The following are examples of the common types of machine guards. Good machine guards are those designed to be difficult to remove and positioned in a way that does not obstruct the operator's view or interfere with the normal operation of the machine.

Common Types of Machine Guarding	
<p>Fixed Guard</p> <p>Physical barriers permanently attached to a machine to prevent access to the hazard zone.</p>	 <p>A fixed guard that protects the operator from the rotating chuck of a lathe machine.</p>  <p>A fixed guard at a drilling station that travels with the drill bit.</p>  <p>A fixed guard on a food mixer with a built-in funnel for adding ingredients without opening the guard.</p>  <p>A fixed guard on a milling machine enclosing a bigger area to account for the rotating spindle and cutting bit's wide movement.</p>
<p>Adjustable Guard</p> <p>Physical barriers that can be moved or reconfigured to the dimension of a workpiece.</p>	 <p>An adjustable guard (equipped with a local exhaust ventilation duct) placed over a table saw blade.</p>  <p>A self-adjustable blade guard on a circular saw which retracts when the sawblade is moved downwards for cutting works and automatically springs back to cover the blade once the cutting is done.</p>  <p>A height-adjustable blade guard for a vertical bandsaw with a pusher stick to minimise the risk of contact with the saw blade.</p>
<p>Interlocking Guard</p> <p>Power to the machine is cut once any access point (e.g. the machine's door or cover) is opened.</p>	 <p>A machine where the movement of its internal parts will automatically stop once its doors are opened.</p>  <p>A machine with a guard cover fitted with an interlock switch that cuts off power supply once the cover is open.</p>

- **Verify machine safety:** Verify the safety of existing machines by putting them through an inspection programme. Find out more about the Ministry of Manpower's Inspection Programme for Safe Machines at <https://www.mom.gov.sg/workplace-safety-and-health/inspection-programme-for-safe-machines>. The inspection programme verifies that machines used meet the requirements of SS 537: 2008 Code of Practice for Safe Use of Machinery – Part 1: General Requirements and the relevant WSH legislation.

For more information:

WSH Legislation

WSH (General Provisions) Regulations

Singapore Standard

SS ISO 12100: 2024 Safety of Machinery – General Principles for Design – Risk Assessment and Risk Reduction

Risk Reduction

SS 537: 2008 Code of Practice for Safe Use of Machinery - Part 1: General requirements

International Standard

ISO 14120: 2015 Safety of machinery - Guards - General Requirements for the Design and Construction of Fixed and Movable Guards

Library of Photos on Machinery Safety

Ministry of Manpower

[Inspection Programme for Safe Machines](#)

Workplace Safety and Health Council

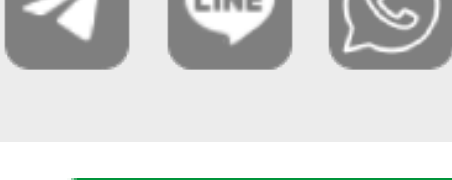
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[Activity Based Checklist on Working Safely with Machines](#)

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