

Food preparation mixer guarding

This bulletin provides a guide on the use of guarding to control risks faced by people working with rotating shafts and mixing attachments in restaurants, food manufacturing, and processing workplaces.

What the law says

Employers and people who are self-employed have a range of general duties under the *Occupational Safety and Health Act 1984* (OSH Act), one of which is to ensure equipment is safe.

Employers and people who are self-employed should take particular note of their obligations to guard dangerous parts of machinery under the OSH regulations.

Employees also have responsibilities under the OSH Act. They must take care to protect their own safety and health at work and avoid putting others at risk by anything they do or don't do.

A risk management approach

Injuries like cuts, fractures and amputations, occur when employees get their hands or parts of the body, clothing or jewellery caught in the bowl during operation.

Most injuries can be prevented if the mixers are fitted with guarding.

First step

Identify hazards

Tasks common in food preparation include:

- > reaching into the bowl to remove product or scrape the sides;
- > cleaning the mixer; and
- > adding extra product or ingredients during the mixing process.

There are many hazards in the use of mixers which must be identified.

Attachments like whisks, dough hooks and flat beaters can be a hazard when the mixer is working.

If attachments are moving, a worker's hand and fingers can come into direct contact with the attachments. Aprons, gloves and ties have been known to tangle themselves around moving parts of machinery and cause serious injury by dragging the operator into the mixer. Spatulas, spoons and other hand-held tools can make contact with the moving parts causing them to eject or to draw the operator's hand into the attachment.

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Second step

Assessing risks

For each hazard you identify, work out the consequences that may arise if an accident were to occur and the seriousness of any potential injury as well as the likelihood of an accident occurring to workers. You can then use this information to assess the risk and work out your priorities and ways to control the risks.

Third step

Controlling risks

Controlling risk is the most important step in managing risks. Your hazard identification and risk assessment should have helped you understand exactly what risks are involved in using the equipment and to then work out what options are open to you to either eliminate the risk or, if that's not practical, to make the risk as low as possible.

Guarding

Fitting purpose-built guarding to the mixer is the most effective means to prevent access to rotating shafts and attachments. If access to the shaft and attachments is required during operation, eg for maintenance, cleaning or changing attachments, then designers, suppliers, manufacturers, importers and employers must ensure that the guarding system being used is fully operational to stop the rotation of the shaft once the guard has been lifted.

1. Interlocked guarding system

An interlocked guarding system is a physical barrier which is connected to either the power or control system of the machine. The interlock prevents the machine from operating unless the guard is closed. The interlocking system may be mechanical, electrical, hydraulic, pneumatic or a combination of these.

Can the mixer attachments operate normally when the bowl is not fitted to the mixer or when the bowl is not in contact with the guard? If the bowl needs to be raised into its operating position, the interlock guarding system must prevent the attachments from moving until the bowl is in the raised position and/or the bowl and guard meet. A practical solution to prevent attachments rotating without the bowl in place is to install an interlock switch on the mixer frame or guard such that the bowl activates the switch when it is in the correct position.

Do the attachments keep rotating for a time after the mixer is switched off? Ideally, the interlock system will prevent the guard from separating from the bowl until the moving parts have stopped. Work instructions can also specify a waiting time that must be taken before the bowl is detached. The employer has a duty to monitor work practices to ensure that employees are correctly following such a work instruction.

If there is an interruption to the power supply, is the mixer capable of re-starting automatically when power is restored? To prevent this risk of unintentional start-up a practical solution could be the installation of a re-set button on the mixer that must be activated after power is lost.

Note: The reliance on a magnetic proximity switch alone is an inadequate safety measure since there is no way of knowing if the switch is working properly or not. See *Australian Standard AS 4024 2006: Safeguarding of machinery - Part 1* for selection of category of control system for the interlocking system.

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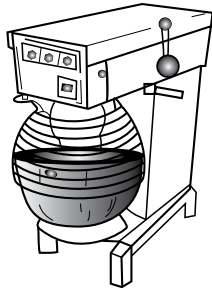
2. The design and construction of a physical guard

A physical guard must:

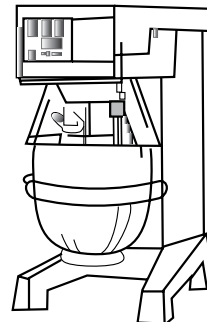
- prevent body parts and hair, or items such as clothing or jewellery, coming into contact with the rotating attachments;
- be solidly constructed and securely mounted;
- follow the contour of the machinery to prevent access;
- not be able to be by-passed or disabled;
- not allow the build-up of product;
- not create a manual handling hazard associated with maintenance and cleaning; and
- not cause an injury in itself.

In addition, if the process requires batch adding without stopping the mixer, the guarding must be provided with a chute or similar device that prevents fingers etc coming into contact with the moving parts.

Note: Guards built to the safety design information in AS 4024 2006 may not provide sufficient protection for users such as teenagers or young adults of small body and limb size. In these circumstances, solid and clear physical guarding is recommended.



Examples of mixers with wire or solid guarding



Examples of mixers with chutes for adding ingredients

Further information

Further information can be obtained from:

Worksafe Bulletin 13 /2005 Machine Guarding.

The First Step - managing safety and health hazards in your workplace. This is a WorkSafe Publication that assists small business to manage OSH in the workplace. It provides practical advice on risk management and a range of checklists to help identify hazards in your workplace

Download a free copy at www.worksafe.wa.gov.au.

Alternatively, copies are available directly from WorkSafe (small fee applies).

Acknowledgement

WorkSafe Western Australia has based the information in this bulletin on a WorkSafe Victoria Guidance Note: *Guarding of food preparation mixers.*

This bulletin is available on request in other formats to assist people with special needs.

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