

Workplace Health and Safety Queensland

Metal product manufacturing industry – Power presses

What are the problems associated with power presses?

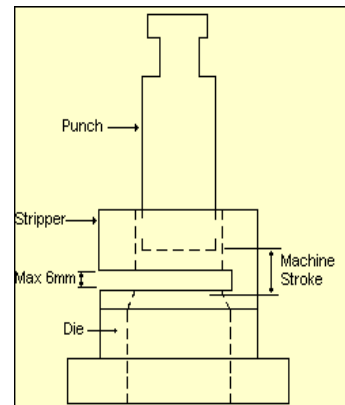
Injuries from power presses are among the most common in metal manufacturing workplaces. In most cases, it is the machine set-up, such as it being either unguarded, having poorly adjusted guards or malfunctioning guards, which leads to serious injury, commonly amputated finger tips and crushed hands. Very often these injuries are caused by relying on the operator to synchronise the movement of their hand with the operation of the foot pedal. Even the most experienced operators can be injured in this manner.

How can you address the problem?

Adequately guarding the power press to prevent fingers, hands and other body parts from entering the danger zone, is the best way to reduce the chance of injury. Ensure you have taken one or more of the following measures:

- tools are designed to prevent access to any dangerous parts, such as limiting the press stroke, or designing the die or stripper so the maximum clearance between moving parts does not exceed 6mm (refer to figure below)
- fixed guards that prevent access to any dangerous parts
- interlocking guards that prevent the press operating, unless the guard is closed
- non-contact guards (e.g. light curtains, laser devices etc).

Note: Non-contact guards are **not** considered an option on mechanical-type power presses.



Source: Department of Consumer and Employment Protection.

If you intend to use or already have fixed guards, ensure they are strong and rigid, prevent access to dangerous parts from any direction (front, back and sides) and are designed and fitted to ensure that no new entrapment point is created.

If a press guard has to be opened during normal operation, make sure it is an interlocking guard. If you use an interlocking guard, ensure the press cannot cycle while the guard is open; the guard cannot open until the stroke is finished and is fail safe (i.e. if the guard fails, the press will not cycle).

Where fixed guards are to be adjusted or removed in any way (e.g. for maintenance), the removal of the guard must require the use of a tool that is not normally accessible to the worker. There should be no wing nuts, knurled knobs, or hexagon nuts. Other moving parts of the power press that usually

require guarding include the flywheel, gears, shafts and foot controls.

With any type of plant and equipment, other controls should be in place to complement guarding, such as:

- instruction, information and training
- supervision
- inspection and maintenance
- safe work procedures
- personal protective equipment (PPE)

Operators should be given comprehensive training and instruction to ensure they are completely familiar with the press, its controls, guards and safety devices, hazards associated with the press and any other control measures. Extra care should be taken to ensure that each operator fully understands and can **demonstrate** the safe operation of the press. Furthermore, extra attention should be paid to young and inexperienced workers and workers returning from absence.

Supervision must be provided, based on the competence of the operator (e.g. direct and constant supervision for a new worker) and complexity of the task being performed.

Maintenance activities should only be carried out when the machine is fully **isolated and locked-out** from all power (electrical, hydraulic and pneumatic) sources and appropriate warning signs should be securely attached to the controls. Manufacturer and suppliers have an obligation to provide relevant information. If you do not have the information you need about the press, contact the manufacturer or supplier.

Poor maintenance often results in a 'foul stroke', which is when the tool descends without the machine being operated. Inspection and maintenance of the press, including guards and other critical safety devices, must be done regularly. For guards and safety devices, this should be done at the start of each day or shift and whenever there is a change to the press's working configuration. The people responsible for inspection and maintenance should be familiar with the press and all requirements as per the manufacturer's specifications (found in the manufacturer's instruction manual).

Safe work procedures should be written to cover such things as:

- operating the brake press (including work involving two operators)
- die changing and tool setting
- lifting, lowering and turning the block or bottom of the press
- inspection and maintenance
- emergency situations (including where a person gets trapped between the blade and press block)
- reporting faulty or defective equipment.

These safe work procedures should be developed in consultation with the workers.

Other ways that can contribute to reducing the chance or severity of injury further, may include:

- using automatic or semi-automatic feed and ejection systems, helping to avoid the need for the operator to reach into the hazard area
- making all controls fail safe (if they fail, the machine is left in a safe state)
- ensuring all start and stop controls are clearly marked
- ensuring there is an appropriate 'power on' indicator provided
- ensuring foot-operated controls are shrouded (guarded) to prevent accidental operation
- ensuring realistic production demands are set, providing sufficient variety of work to avoid monotony and fatigue
- ensuring there is adequate space provided for working at the press, handling materials and for changing and maintaining dies
- ensuring guards or safety devices are not removed or altered in any way and adjustable guards are only re-adjusted by a competent person.

Although personal protective equipment (PPE) is generally considered the last line of defence, appropriate PPE is important when using power presses. The PPE needed is based on the hazards that exist when using the press, which include (but not limited to) noise, projectiles, dropped tools and material and sharp edges of material.

Refer AS 4024 and AS 1219, which provide detailed information about the use and safeguarding of power presses.

For further information on plant and equipment and other workplace health and

safety issues call 1300 369 915 or visit www.deir.qld.gov.au.

© *The State of Queensland (Department of Justice and Attorney-General) 2011*

Copyright protects this document. The State of Queensland has no objection to this material being reproduced, but asserts its right to be recognised as author of the original material and the right to have the material unaltered.

The material presented in this publication is distributed by the Queensland Government as an information source only. The State of Queensland makes no statements, representations, or warranties about the accuracy or completeness of the information contained in this publication, and the reader should not rely on it. The Queensland Government disclaims all responsibility and all liability (including, without limitation, liability in negligence) for all expenses, losses, damages and costs you might incur as a result of the information being inaccurate or incomplete in any way, and for any reason.