WORKSAFE
NEW ZEALAND | MAHI HAUMARU AOTEAROA

FACT SHEET

POWER PRESSES

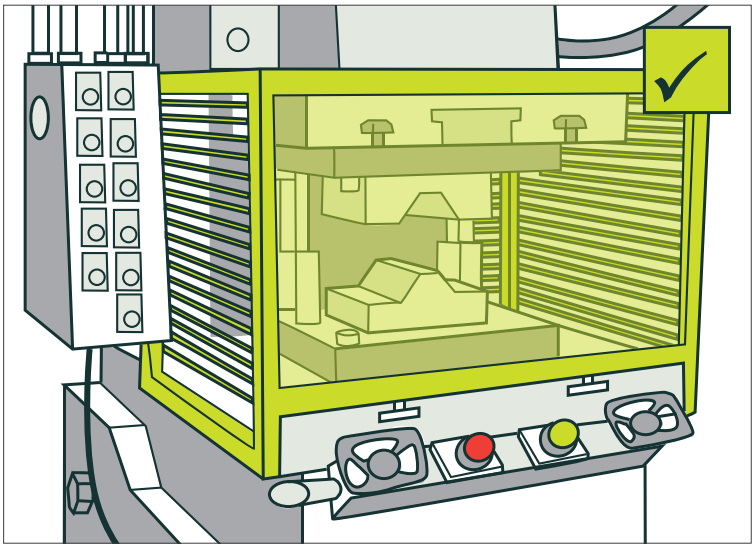
Power presses that shear, punch, form, or assemble metal or other material by means of tools or dies attached to slides. Power presses can be mechanical, hydraulic or pneumatic. In mechanical power presses, tools and dies are mounted on a slide or ram, and move away from the stationary bed containing the lower die. The upper and lower dies press together to punch, shear or form the workpiece.

Improper use of mechanical power presses cause a large number of workplace amputations. Crush injuries and fractures to the fingers, hands and arms are also common injuries.

The two types of power presses are:

> full revolution (positive clutch) – once activated, it cannot be stopped until the press cycle is completed by lowering and raising of the slide or ram. Presence-sensing devices will not work on these machines. Operators must be protected by fixed guards or mechanical interlock guards during the entire operating cycle.
> part revolution or friction clutch – can be disengaged at any time before it completes the down stroke. Can be guarded with presence-sensing devices.

FIGURE 1: PUNCH POWER PRESS



Ensure the power press is suitably guarded to prevent access. Fit the machine with an interlock safety device to ensure the machine stops when the guard is lifted.

HAZARDS:

> Handling sheet metal
> Entanglement when placing workpiece
> Contact, impact or entanglement during operation
> Noise
> Slip, trips and falls
> Contact, impact or entanglement from moving parts
> Faulty or altered machinery

PPE:

WSNZ_00011.40_APR 14

TASK – INSERT WORKPIECE AND START OPERATION

Hazard	Harm	Controls
Handling sheet metal	> Sharp edges may cut > Strain injury	> Use mechanical aids to lift materials, when necessary, like automated material handling or robots. > ALWAYS WEAR protective gloves.
Entanglement when placing workpiece	> Deep cuts or amputation > Crush injuries	> USE closed tools and static fixed guards. > FIT interlock safety devices that prevent access and stop machinery movement immediately when opened. > USE presence sensing devices. > USE light curtains with fixed and interlocked guards on part revolution power presses. > USE two handed controls as a back-up system. > FIT emergency stops.
Contact impact or entanglement during operation	> Deep cuts or amputation > Crush injuries > Bruising > Fractures	**Mechanical power presses** > KEEP interlock guards locked in the closed position, without gaps. They must remain locked until the crankshaft has completed at least one revolution, and stopped. > Provide an anti-free-fall device, to prevent involuntary descent of the ram, and/or any other slide due to over-run or fall-back of the crankshaft. > COVER the operator foot pedal or two-handed control to prevent accidental start-up. This applies to both fixed and floating foot pedals. **Hydraulic power presses** > Presence-sensing devices can only be used on hydraulic power presses that are designed and constructed to meet the requirements of *AS 4024:3002 – Safety of machinery – material forming and shearing – hydraulic power presses.* > Provide mechanical back-up protection for an electrical interlock. If this is not possible, use two independent anti-free-fall devices to prevent ram free-fall. > USE a fixed or interlocked guard. > COVER the operator foot pedal or two-handed control to prevent accidental start-up. This applies to both fixed and floating foot pedals.

OTHER (NON-MECHANICAL) HAZARDS

Hazard	Harm	Controls
Noise	> Hearing damage or loss	> REDUCE noise levels by isolating machines or enclosing within noise barriers. > ASSESS noise levels. > ARRANGE hearing screenings. > ALWAYS WEAR hearing protection.

A safe noise level over an eight hour day is 85dB(A). A power press may exceed this noise intensity.

Slips, trips and falls	> Cuts > Bruising > Fractures	> KEEP up-to-date housekeeping procedures. > PROVIDE non-slip mats and suitable flooring. > WEAR suitable footwear.

TASK – MAINTENANCE, CLEANING & REPAIRS

Hazard	Harm	Controls
Contact, impact or entanglement from moving parts Faulty or altered machinery	> Deep cuts > Amputations > Bruising > Fractures	> LOCK-OUT all power supplies, before maintenance, cleaning and repairs. > LOCK-OUT procedures that cannot be overridden should be in place. > INSPECT and TEST power presses and their safety systems daily, including interlock guards, clutch locks and clutch breaks mechanisms. > CARRY out regular maintenance as per the manufacturer's instructions. > ENSURE guards are in place before testing the press's automatic mode. > USE a safety lock, or lock-out the disconnect switch.

FIGURE 2: EXCESSIVE OPENING SIZE IN FIXED FRONTAL GUARD

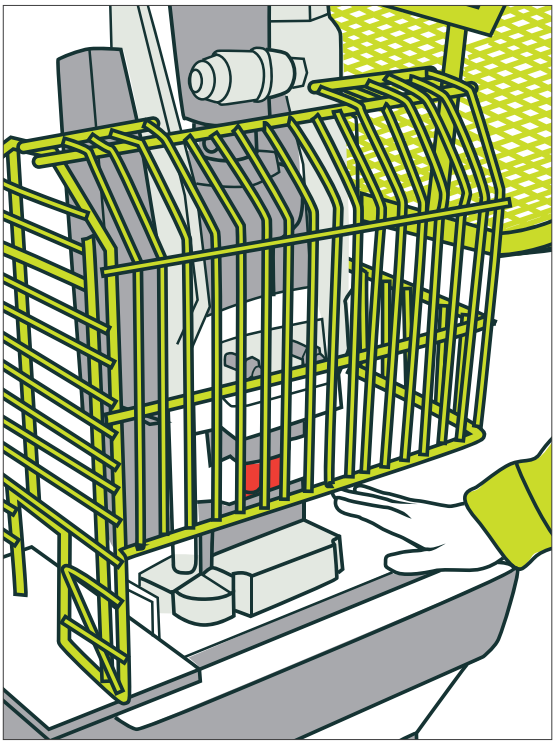
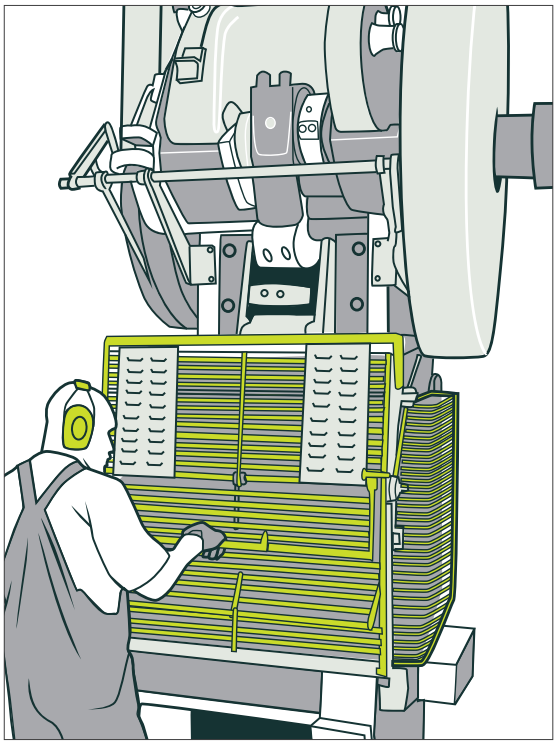


FIGURE 3: MECHANICAL POWER PRESS GUARDED WITH HINGED INTERLOCK GUARD AND ANTI-FREE FALL DEVICE



References, current standards and further information can be found on the Safe Use of Machinery project page at: **www.worksafe.govt.nz**

PUBLISHED: APRIL 2014. CURRENT UNTIL REVIEW IN 2017