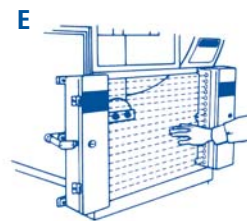
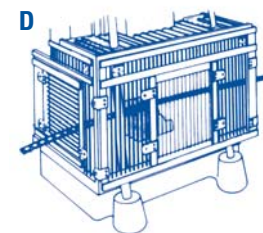
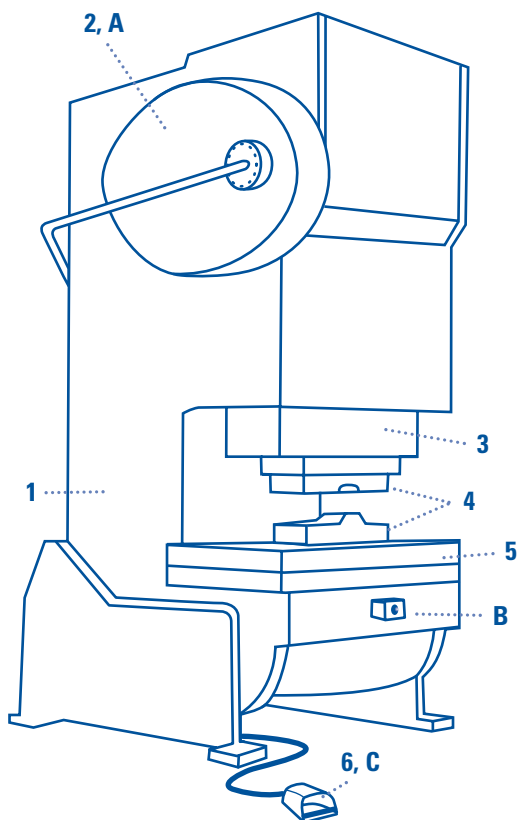


Equipment identification:

Date :

# Punch Press

- POSITIVE CLUTCH (FULL REVOLUTION MECHANICAL PRESS)**
  - The slide action is controlled by a flywheel.
  - It is **impossible** to stop the slide until the cycle has been completed.
- FRICTION CLUTCH (PARTIAL REVOLUTION MECHANICAL PRESS)**
  - The slide action is controlled by a flywheel.
  - It is **possible** to stop the slide before the cycle has been completed.
- HYDRAULIC MECHANICAL PRESS**
  - The slide action is controlled by hydraulic rams.



## Friction Clutch (Part Revolution Mechanical Press) Parts

- 1 Frame
- 2 Flywheel
- 3 Slide
- 4 Die Shoes
- 5 Bed
- 6 Pedal Control

## Safety Devices

- A Flywheel Guard
- B Emergency Cut-Off Switch
- C Side- And Top-Capped Pedal Control
- D Guard
- E Photo detector Security Screen
- F Two-Hand Control



Association paritaire pour la santé et la sécurité du travail  
Secteur fabrication de produits en métal et de produits électriques  
[www.aspme.org](http://www.aspme.org)



Institut de recherche Robert-Sauvé en santé et en sécurité du travail  
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**SELF-ASSESSMENT FORM**  
For Occupational Health And Safety

## LEGEND

### Preventative Measures

- ▶ Procedural Measures
- Orders/instructions

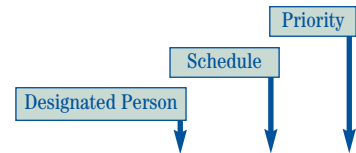
### Priority Codes for applying risk measures:

- A. Immediate stoppage and resolution
- B. Resolution as soon as possible
- C. Resolution according to normal company procedures

The suggested preventative measures are based in part from the Occupational Health And Safety Regulations (RSST, S – 2.1, r.19.01), from An Act Respecting Occupational Health and Safety (Quebec LSST-S-2.1), as well as CSA Standard Z142-M 90 and EN 954 -1

# Mechanical Hazards

Most likely injuries: **Crushing, fractures, cuts and foreign bodies.**



Preventative measures	Applicable <input checked="" type="checkbox"/>	Not applicable <input type="checkbox"/>	Notes	Desig.	Sched.	Prior.
<b>Risk Factor: Access To Danger Zone (die shoes)</b>						
<b>On a Positive Clutch (Full Revolution Mechanical Press)</b>						
▶ Install fixed guards.	<input type="checkbox"/>					
▶ Install moveable guards with an interlocking device that: - neutralizes the slide controls when the guard is opened, AND - maintains the guard in the closed position while the slide is descending, AND - does not provoke press start-up at guard closure.	<input type="checkbox"/>					
▶ Install two-hand controls (only for presses with a stroke rate of over 100 strokes per minute). The operator must simultaneously depress both buttons to activate one press stroke. For automatic mode, add fixed or moveable guards.	<input type="checkbox"/>					
▶ Install a clearly marked emergency stop button located near each operator.	<input type="checkbox"/>					
<b>Risk Factor: Access To Danger Zone (die shoes)</b>						
<b>On a Hydraulic or Friction Clutch (Part Revolution Mechanical Press)</b>						
▶ Install fixed guards.	<input type="checkbox"/>					
▶ Install moveable guards with an interlocking device that: - stops the slide controls when the ram descender slide descent is open and neutralizes the slide control when the guard is open, AND - maintains the guard in the closed position while the slide is descending, AND - does not provoke press start-up at guard closure.	<input type="checkbox"/>					
▶ Install photo detectors approved for safety device use (category 4).	<input type="checkbox"/>					
▶ Install two-hand controls where: - the operator must simultaneously depress both buttons to activate one press stroke, AND - the slide descent is halted as soon as the operator releases one of the buttons.. For automatic mode, add fixed or moveable guards.	<input type="checkbox"/>					

# Mechanical Hazards (Continued)

Most likely injuries: Crushing, fractures, cuts and foreign bodies.

Preventative measures	Applicable <input checked="" type="checkbox"/>	Not applicable <input type="checkbox"/>	Notes	Desig.	Sched.	Prior.
<b>Risk Factor: Access To Danger Zone (Die Shoes)</b>						
<b>On a hydraulic or Friction Clutch (Part Revolution Mechanical Press)</b>						
▶ Install safety devices (e.g., two-hand controls, etc.) at a safe enough distance from the danger zone so that no one can reach the danger zone before the slide has stopped.	<input type="checkbox"/>					
▶ Install devices that maintain the workpiece in position relative to the die shoes (or bolster plates) without the need of hands.	<input type="checkbox"/>					
▶ Install a clearly marked emergency stop button located near each operator.	<input type="checkbox"/>					
<b>Risk Factor: Involuntary Action On The Pedal Or Button Controls</b>						
▶ Install recessed or flush-mounted control buttons.	<input type="checkbox"/>					
▶ Install a side and top-capped pedal control.	<input type="checkbox"/>					
▶ Install as many controls as there are workers simultaneously using the press. All workers must maintain their control devices depressed to initiate a press stroke.	<input type="checkbox"/>					
▶ Install a by-pass device in order to make any unused control devices inoperative.	<input type="checkbox"/>					
<b>Risk Factor: Repeat Stroke</b>						
<b>On a positive-clutch (full revolution mechanical press )</b>						
▶ Install a single-action mechanism that: - deactivates the pedal, the lever, the hydraulic power control unit or the control solenoid after each press stroke, AND - stops the start of a new cycle until the end of the previous cycle.	<input type="checkbox"/>					
▶ Install compression springs in the clutch mechanism. These must be located around a rod or within a guide and the space between the coils must be smaller than the wire diameter.	<input type="checkbox"/>					
▶ Replace defective parts by OEM parts. When this is not possible, replace with parts that meet or exceed OEM specifications. Using welded replacement parts in the clutch is forbidden.	<input type="checkbox"/>					
● Adjust the brake so the clutch does not knock nor make ratcheting noises.	<input type="checkbox"/>					
<b>Risk Factor: Repeat Stroke</b>						
<b>On a friction-clutch (part revolution mechanical press)</b>						
▶ Install an anti-repeat stroke device.	<input type="checkbox"/>					
▶ Install a dual-body safety valve in the clutch-brake hydraulic or pneumatic circuit.	<input type="checkbox"/>					
▶ Add a second switch to the braking system. In case of failure in one of the switches, the press trips in the top dead centre position and a new cycle cannot be actuated.	<input type="checkbox"/>					
<b>Risk Factor: Repeat Stroke</b>						
<b>On a hydraulic clutch mechanical press</b>						
▶ Install an anti-repeat stroke device.	<input type="checkbox"/>					

# Mechanical Hazards (Continued)

Most likely injuries: Crushing, fractures, cuts and foreign bodies.

Preventative measures	Applicable <input checked="" type="checkbox"/>	Not applicable <input type="checkbox"/>	Notes	Desig.	Sched.	Prior.
<b>Risk Factor: Accidental Selection Of Automatic Mode</b>						
► Indicate the function of all buttons and function selector switches.		<input type="checkbox"/>				
● Lock the selector in single stroke mode and remove the key.		<input type="checkbox"/>				
<b>Risk Factor: Accidental Descent Of The Slide During Start-Up</b>						
● Apply lock-out procedures: - disconnect all sources of energy (except power supply to pneumatic counterweight) - dissipate (purge) all residual energies (except power supply to pneumatic counterweight) and wait for the flywheel to come to a complete stop - lockout all sources of energy - validate to ensure start-up is no longer possible and that all power has been dissipated (purged).		<input type="checkbox"/>				
● Place safety chocks between the slide and the bed.						
<b>Risk Factor: Access To Press Moving Parts</b>						
► Install fixed guards around moving parts: flywheel, belts, gears, counterweights, etc.		<input type="checkbox"/>				
<b>Risk Factor: Flying Particles Or Fragments (Slivers)</b>						
Keep the die shoes safe from cracking: ● properly adjust the clearance at the time of tooling up the die shoes.		<input type="checkbox"/>				
● Properly secure the die shoes on both the slide and the bed.		<input type="checkbox"/>				
Avoid an overload situation when more than one workpiece is fed at a time. ► Install a workpiece ejection system or a stripper plate to keep workpieces from adhering to the die shoes.		<input type="checkbox"/>				
► Install a detection device to monitor workpieces and waste movement during automatic feed mode.		<input type="checkbox"/>				
● Use grasping tools made of soft metal (e.g., aluminum or magnesium).		<input type="checkbox"/>				
● Wear CSA-approved safety glasses with lateral protection.		<input type="checkbox"/>				
<b>Risk Factor: Handling Non-Deburred Plates</b>						
● De-burr plate workpieces		<input type="checkbox"/>				
● Wear cut-resistant gloves.		<input type="checkbox"/>				
<b>Risk Factor: Falling Metal Plate</b>						
● Wear CSA-approved safety footwear with steel-capped toes and steel upper plate.		<input type="checkbox"/>				

# Ergonomic Hazards

Most likely injuries: Musculo skeletal disorders, backaches, fractures, strains and sprains, etc.

Preventative measures	Applicable <input checked="" type="checkbox"/>	Not applicable <input type="checkbox"/>	Notes	Desig.	Sched.	Prior.
<b>Risk Factor: Handling Heavy And Bulky Workpieces</b>						
▶ Supply mechanical handling devices (hoist, suction cups, etc.) suitable to the weight and dimensions of the workpiece.	<input type="checkbox"/>					
Install equipment:						
▶ to aid the feeding of workpieces, such as roller conveyor, roller-ball table, trestles, elevating table, etc.	<input type="checkbox"/>					
▶ to assist in removing workpieces, such as a gently sloping surface or motorized conveyor.	<input type="checkbox"/>					
● Ask for help from another worker when help is needed.	<input type="checkbox"/>					
<b>Risk Factor: Straining Working Positions and Repetitive Movements</b>						
▶ Supply reclining baskets, elevating tables or receptacles to assist in accessing workpieces.	<input type="checkbox"/>					
▶ Install a system of springs or air jets to assist in the removal of pressed pieces.	<input type="checkbox"/>					
▶ Install an adjustable stand to enable work height adjustments.	<input type="checkbox"/>					
<b>Risk Factor: Strain During Tooling and Re-Tooling Of Die shoes</b>						
▶ Supply a dolly with lift table.	<input type="checkbox"/>					
▶ Install a retooling system with retractable roller or ball tracks in the bed.	<input type="checkbox"/>					
<b>Risk Factor: Insufficient Lighting</b>						
▶ Install sufficient lighting to ensure good visibility in the work area	<input type="checkbox"/>					
<b>Risk Factor: Static Standing Work</b>						
▶ Supply appropriate seating if suitable for such work.	<input type="checkbox"/>					
▶ Supply anti fatigue mats.	<input type="checkbox"/>					

# Chemical Hazards

Most likely injuries: Dermatitis, respiratory tract irritation.

Preventative measures	Applicable <input checked="" type="checkbox"/>	Not applicable <input type="checkbox"/>	Notes	Desig.	Sched.	Prior.
<b>Risk Factor: Exposure To Lubricants</b>						
● Consult the MSDS for the products in use.	<input type="checkbox"/>					
▶ Select lubricants that have little effect on health (skin and respiratory tracts).	<input type="checkbox"/>					
● Reduce lubricant spray as much as possible.	<input type="checkbox"/>					
▶ Collect air samples at workstations in order to evaluate the concentration of toxic substances.	<input type="checkbox"/>					
● Wear gloves that are approved for the products used. Ensure the gloves are also cut resistant and provide good grip to workpieces.	<input type="checkbox"/>					
● Use barrier lotions.	<input type="checkbox"/>					

# Physical Hazards

Most likely injury: Hearing loss.

Preventative measures	Applicable <input checked="" type="checkbox"/>	Not applicable <input type="checkbox"/>	Notes	Desig.	Sched.	Prior.
<b>Risk Factor: Impact Noise</b>						
▶ Hone the die shoes frequently.		<input type="checkbox"/>				
▶ Install acoustic batting or screens around the noisy sections of the press.		<input type="checkbox"/>				
▶ Install vibration isolators under the press chassis.		<input type="checkbox"/>				
● Wear earplugs or earmuffs.		<input type="checkbox"/>				
<b>Risk Factor: Noise From Air Nozzles</b>						
▶ Install sound dampers on pneumatic valve nozzles.		<input type="checkbox"/>				
▶ Install silent-type air ejectors for removal of machined and waste pieces.		<input type="checkbox"/>				

# Electrical Hazards

Most likely injuries: Electrocutation

Preventative measures	Applicable <input checked="" type="checkbox"/>	Not applicable <input type="checkbox"/>	Notes	Desig.	Sched.	Prior.
<b>Risk Factor: Contact With Parts Normally Or Accidentally Energized</b>						
▶ Install an isolating switch near the punch press, with clear markings.		<input type="checkbox"/>				
● Apply lock-out procedures: - disconnect all sources of energy - lockout all power supply - validate to ensure start-up is no longer possible.		<input type="checkbox"/>				
● Never lockout an isolation switch in the ON position. The isolating switch must open the circuit (circuit in the OFF position) at all times.		<input type="checkbox"/>				
▶ Install control devices powered by very low voltage (30 volts or less).		<input type="checkbox"/>				
● Check the power supply cables insulation and the punch press grounding circuit.		<input type="checkbox"/>				

Notes:

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Completed By: