

DRILL PRESS

Scope and Responsibilities

This standard operating procedure (SOP) applies to all personnel who operate and instruct on the safe operation and use the drill press. In a school setting this includes,

- **Administrators/Teachers:** Ensure operators are trained and the SOP is followed
- **Students/Teachers/Operators:** Follow the owner/operators manual, industry recommendations, this SOP, guarding is in place, and wear the appropriate personal protective equipment (PPE)

SAFETY IS A PRIORITY !

DO NOT use this machine unless you have received instruction in its safe use and operation and have been given permission by your teacher.

To ensure the safe and efficient operation of the drill press, this machine requires:



Safety glasses must be worn at all times in work areas.



Sturdy footwear must be worn at all times in work areas.



Rings and jewellery must not be worn.



Long and loose hair must be contained.



Close fitting/protective clothing must be worn.



Gloves must not be worn when using this machine.

Personal Protective Equipment (PPE)

- Safety glasses or face shield
- Hearing protection
- Closed-toed footwear (CSA Safety footwear is required on Co-Op placements in industry)

Pre-Operational Checks

- Always refer to the manufacturer's manual
- Check workspace and walkways to ensure no slip-hazards are present
- Check that the drill chuck guard is in position
- Ensure the chuck key (self-ejecting preferred) has been removed from the drill chuck
- Locate and ensure you are familiar with the operation of the ON/OFF starter and E-Stop (if fitted)
- Follow correct clamping procedures to ensure work is secure
- If the job obstructs the walkway erect a barricade
- Place long material near the column in case the bit grabs and rotates the material
- Adjust spindle speed to suit drill or cutter diameter (larger bit, slower speed)
- Faulty equipment must not be used. Immediately report suspect equipment
- Only use sharp drill bits in good condition

Operational Steps

1. Preparation
 - Make sure you have been authorized to use this piece of equipment - you have received training, passed the test, have demonstrated the safe use of this piece of equipment and have a safety passport signed
 - You are “shop ready” – trained, proper clothing, wearing required PPE, etc.
 - Never leave the drill press while it is running
 - Always center punch your hole to prevent the drill from wandering
 - Select the correct type of bit for the material being drilled
 - Always use a pilot bit and pilot hole for large diameters
 - Before making adjustments or before cleaning swarf accumulations switch off and bring the machine to a complete standstill
 - Use a safe working posture (beware of hair catching)
 - Never override or defeat a safety device
2. Starting the Machine
 - Engage magnetic starter
 - Start the drill press and allow it to reach full speed before beginning the drilling operation
 - Use cutting fluid (if required)
3. Drilling Operation
 - Slowly bring the drill bit into contact with the workpiece
 - Feed downwards at a sufficient rate to keep the drill cutting
 - Feed with care as the drill bit breaks through the underside of the work
 - Avoid excessive pressure to prevent overheating and damage to the workpiece or drill bit
 - Continuously monitor the drilling process and make adjustments as needed
 - Remove burrs from all holes using a file or deburr tool
4. Shutting Down the Machine
 - Turn off the drill press and allow the chuck to come to a complete stop
 - Release and remove your workpiece
 - Clean the machine and work area

Post-Operational Checks

- Inspect the drill bit for any damage
- Clean the machine as required
- Replace guard for the next operator once machine is cleaned
- Report any issues or maintenance needs to the supervisor/instructor

Common Problems of Operation

- Machine does not power up
- Table does not move up or down
- Chuck key does not tighten or fit the chuck
- Drill bit is bent, dull or does not spin correctly
- User error
- Excessive heat or noise while drilling
- Bit breakage

Safety Precautions

- Wear Personal Protective Equipment (P.P.E) such as safety glasses, safety goggles, face shields, proper clothing as appropriate, NO GLOVES
- No loose clothing, long hair, or jewelry is allowed in the shop
- When starting a drill press, always stand in front of the machine, never off to the side
- Always remove the drill chuck key
- Never leave the drill press unattended while it is running
- Always deburr your work with a file or deburr tool
- Keep hands and head away from the drill chuck during operation
- Only operate the drill press after you have received instruction and permission from the teacher
- Be aware of the positions of the on/off switches and emergency STOP button
- See that the drill bit is square to the work before starting to drill
- When drilling in metal, always use cutting fluid

Common Injuries Sustained

- Cuts, lacerations, and burns
- Metal slivers
- Eye injuries from flying chips
- Entanglement of loose sleeves, long hair, etc.

Maintenance

- Always refer to the manufacturer's manual
- Regularly check and repair or replace damaged or worn equipment immediately
- Clean and lubricate the machine as required
- Keep a maintenance log for the machine
- Inspect the electrical cords for damage, cracked insulation, fraying, etc.
- Inspect drill bits before using – always use sharp bits in good condition
- Sharpen bits as instructed by your teacher and dispose of broken ones

Work Zones

- Typically, in front of the machine approximately 1 meter (3 feet) the length of the machine
- Work zone or area should be identified on the floor (i.e.: yellow paint or tape)
- Work zone or area should not be entered while operator is using the machine

Additional Information

can be found at, Ontario Council for Technology Education [SAFEdocs](#) and [ToolSAFE Videos: OCTE](#)

Canadian Center for Health and Safety [Drill Presses](#)

Vermont American [Twist Drill Bit Types Choose Right Twist Drill Bit](#)

Regal Cutting Tools [Twist Drills](#)