

Training Guide: Drill Press

INTRODUCTION:

A drill press is typically used to drill holes of varying sizes into materials like wood, plastic, and metal. Often, holes are made in preparation for screws or other fasteners. A drill press consists of a motor that spins a spindle with an attached chuck. The chuck secures the drill to the spindle. While the drill is spinning, the user rotates a handle which lowers the drill into the material. The user has fairly fine control over the depth and speed of the drill.

A drill press can be safely used by a person who is tall enough to comfortably reach the material table and handle, and is able to physically support and secure the material to the table. The motor provides the power to cut the material, not the operator. Though some strength is required, good technique and proper set up are the keys to using a drill press safely and effectively.

AFTER COMPLETING THIS TRAINING, STUDENTS WILL BE ABLE TO:

- Set the plate to an appropriate height
- Select appropriate drill bit for the specified hole
- Install drill bit into drill press chuck, and tighten the chuck
- Fixture material to be drilled using sacrificial base as needed
- Drill a through hole
- Drill a blind hole
- Remove the drill bit and replace in the drill index
- Know where to find the chuck key and where to replace it after each use
- Clean up any mess

DRILL PRESS ACCESSORIES



Drill index



Table /drill press vise

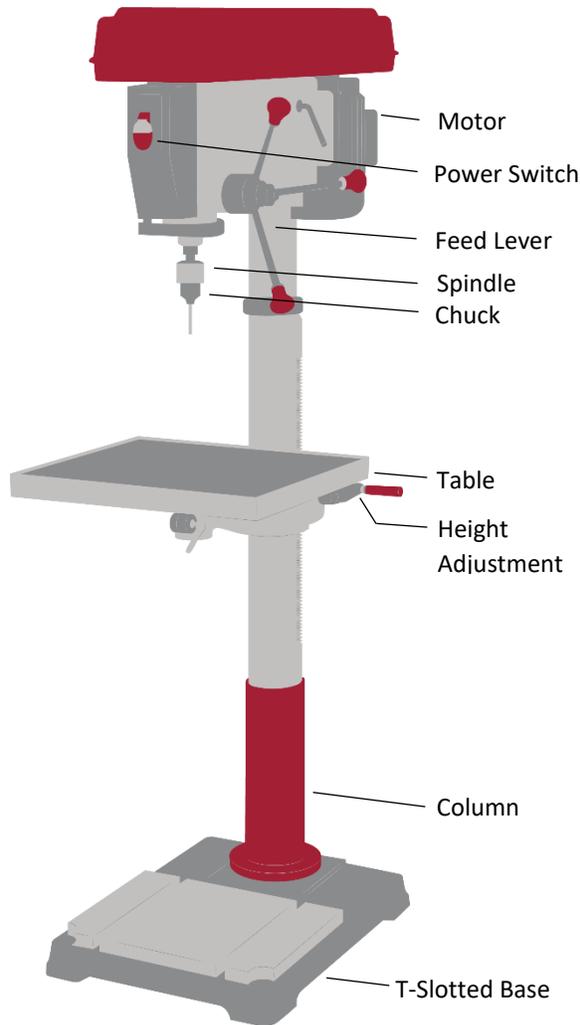


C-clamp



Drill press clamp

HOW TO USE:



1. Mark the center of desired hole on material
2. Select drill bit of desired size from drill index
3. Attach drill bit to drill press by loosening chuck, tightening it around drill bit, then securing it with the chuck key. Insert drill bit as far as possible leaving the flutes of the drill bit completely exposed.
4. Decide how the material will be fixtured (held in place) on the table. Common methods include using a drill-press vise, c-clamps, or holding the part securely by hand.
 - a. Cylindrical material can be held in a drill-press vise to keep it from rotating. The vise is then held by hand or clamped to the table.
 - b. Small pieces of any shape can be held in a drill-press vise, which is then secured to the table by hand or with a clamp
 - c. Large pieces can be held by hand as long as the piece is big enough to hold securely
 - d. Small or hard to hold pieces can be clamped to the table
5. Adjust height of table so drill will travel the desired distance into the material
6. Check that you have secured clothing, jewelry, hair, etc. that will get close to the machine.
7. Turn on drill press
8. Check to see that drill bit is not wobbling. Turn off machine and re-install drill bit if needed
9. Lower handle to drill hole to desired depth. For deep holes, lower and raise the drill at intervals to clear the chips from the drill bit
10. Raise handle to remove drill bit from material and turn off drill press
11. Unclamp material and clean up chips
12. Remove drill bit and replace in drill index

SAFETY GUIDELINES FOR OPERATING A DRILL PRESS:

- Always use safety goggles
- Remove the chuck key and replace in storage area after tightening chuck
- Always check that the cutting edge of the drill bit is sharp and undamaged
- Avoid getting the bit jammed or the part heating up by clearing the hole in sections
- Check that the material is fixtured securely
- Never touch an active drill bit
- Never wear gloves near the active drill
- Wear a mask when operating for long periods of time or working with harmful material
- Immediately lift drill and turn off machine if the bit becomes loose

PRACTICE APPLICATIONS FOR STUDENTS:

- Specify desired hole, select appropriate drill bit
- Install drill bit into drill press chuck
 - Use key appropriately and put away
- Determine appropriate fixture for material to be drilled and secure material
 - Drill-press vise
 - Clamp to table
- Drill a blind hole
- Drill a through hole
- Remove the drill bit and replace in the drill index
- Clean up any mess