WOOD DRILL PRESS

RIT | The Student Hall for Exploration and Development

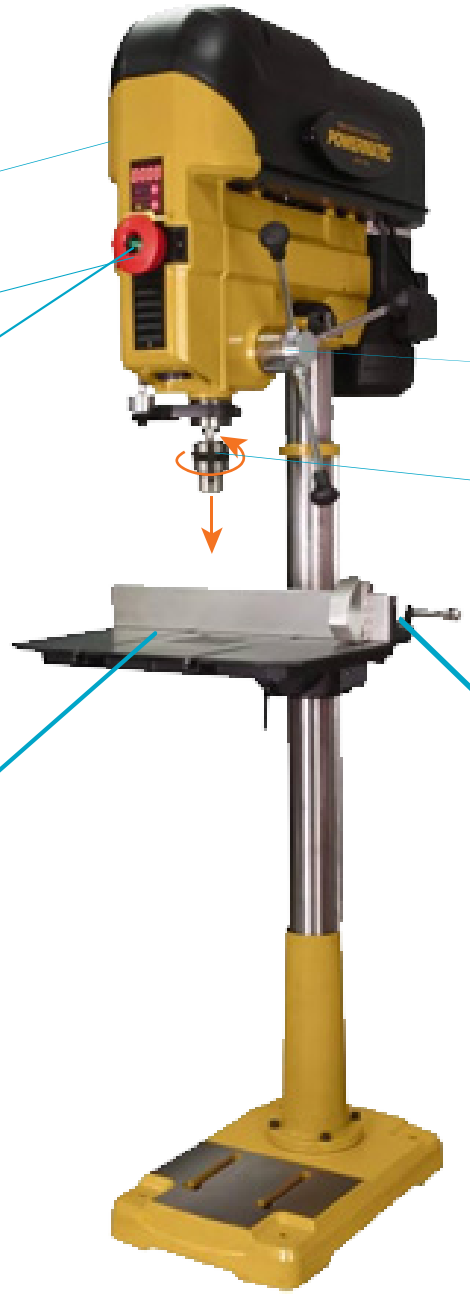
WOOD DRILL PRESS

THE DRILL PRESS MAKES CYLINDRICAL HOLES IN MATERIAL

MACHINE INTRODUCTION

P. 2

VERSION #



MATERIALS

ALLOWED MATERIALS

+ Wood
+ Plastics

BANNED MATERIALS

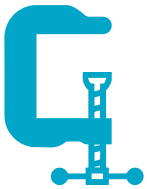
- Metal
- Pressure treated wood
- Carbon fiber composite

CONSULT MAKERSPACE STAFF FIRST

+ All other materials

- Safety glasses required
- Hearing protection recommended (ear plugs or ear muffs)

- Wear short sleeves or roll up long sleeves
- Secure any loose clothing (zip up jackets, tuck in strings, etc.)
- Tie up and tuck in long hair
- Remove jewelry and lanyards, etc.
- Do not wear gloves



- Clamping or using the fence is required for all work

MATERIALS

- What we offer
  - 1/8” Plywood
- Common places to buy these materials:
  - SHED Makerspace Materials Shop
  - ID Shop
  - Foundations 3D Design Shop
  - Lowe’s
  - Home Depot
  - Any wood/lumber store

If bringing your own material, you must provide a receipt or MSDS as proof of what it is

TOOLS

- What you need
  - Clamps
- Where to get your own
  - Lowe’s
  - Home Depot

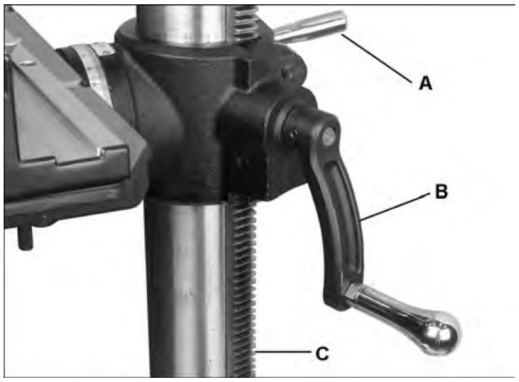
LOADING AND SECURING MATERIALS

- Always clamp your workpiece. The drill bit can grab, and cause it to spin dangerously.
- There are a variety of clamping options available; ask Makerspace Staff if you need assistance.

SPEED SETTINGS

Only change the speed while the motor is on.

1. Generally, smaller drills need faster speeds, and larger drills, forstner, spade, and hole saws run at slower speeds.
2. Adjust the speed by turning on the hand crank on the left side and reed the speed on the DRO on the face of the machine.



ADJUSTING THE TABLE HEIGHT

All adjustments must happen while the motor is off. >>

1. Move the lever A to unlock the table.
2. Rotate the handle B to raise or lower the table.
    - The table can be rotated on the column when unlocked.
3. Lock the table with lever A.

TYPES OF DRILL BITS

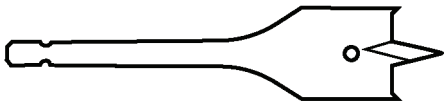
General purpose drill bits are the most common bits for wood and plastic.

Plastic bits have a pointy tip, and are for plastic only.

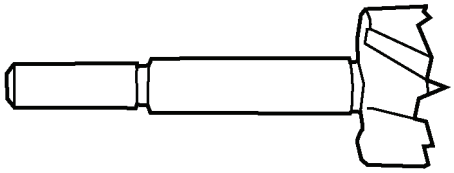
Brad point bits make more precise holes in wood than general purpose bits.

For larger diameter holes use one of the following:

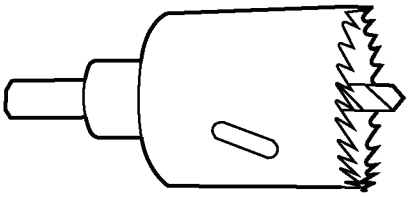
Spade (paddle) bit

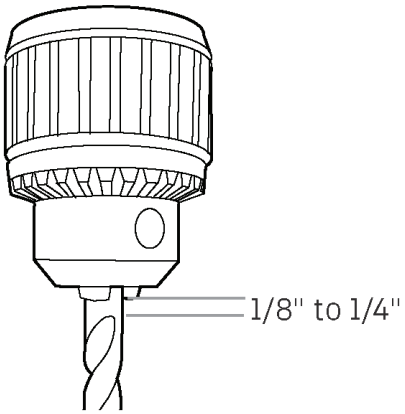


Forstner bit



Hole saw

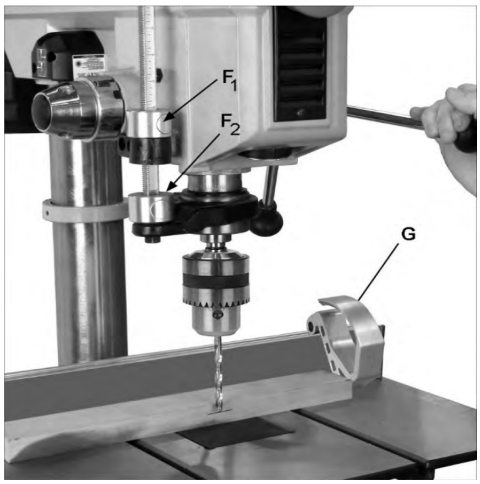




INSERTING A BIT

The chuck has three jaws that grip the drill bit.

- Insert the bit with 1/8” to 1/4” of the shank exposed out of the chuck.
- Turn the chuck by hand, until it’s snug.
- Tighten the chuck further, with the chuck key.
- Immediately remove the chuck key.
- Rotate the chuck by hand to ensure the bit is centered, and the gears are fully meshed.



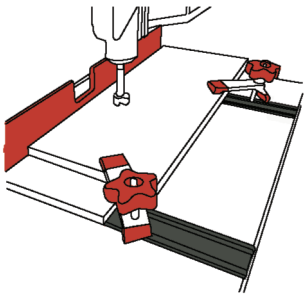
SETTING THE DEPTH STOP

The depth stop (F1 and F2) limits vertical movement. It allows you to drill multiple holes at the same depth, as well as to avoid drilling into the table.

Tightening the depth stop lever will allow the quill to move down that far, from the current position.

- To drill a 1” deep hole in the work, set the stop at 1” while the tip of the drill bit is on top of the workpiece.
- To prevent drilling into the table, set the stop at 0” with the drill bit tip just above the table.

ALWAYS CLAMP YOUR WORKPIECE



DO NOT CLEAN OFF THE TABLE WHILE THE BIT IS ROTATING

PUT BROKEN OR DILL BITS IN THE LABELED BIN BEHIND THE DRILL PRESS

QUICK CHECK BEFORE STARTING

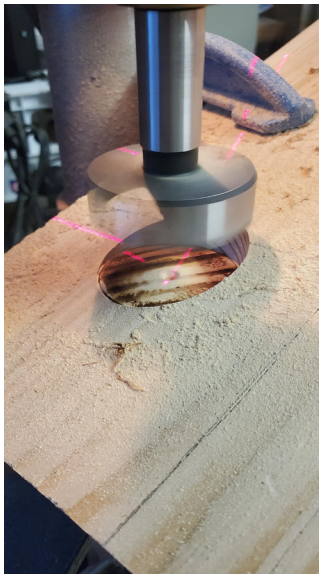
1. Clean and clear the table.
2. Clamp your material down to the table.
    - Always put a piece of sacrificial wood under your workpiece to avoid drilling into the table.
    - If drill a long workpiece, make sure the excess is to the left of the back column.
3. Insert your drill bit of choice.
    - Remove the chuck key once the dril bit is secure.
4. Adjust the table height as needed.

DURING THE JOB

1. Pull the start button to start the drill.
2. Slowly pull the quill handle until the drill bit makes contact with the material.
3. Apply more pressure as needed.
4. Holes in deeper material may become clogged with sawdust and wood chips.
    - Pull the drill bit out of hole periodically to help clear out chips and sawdust.
5. Turn off the drill press when finished and wait for the bit to stop rotating.

CLEANUP

1. Use the chuck to remove drill bit and return it to the drawer.
2. Remove and return any additional clamps that were used.
3. Use the brush and dust pan to clean up the area.
4. Put scraps in the trash and reusable pieces in the <scrap shelf> in the wood shop.



HOLES ARE TOO LARGE

- Check drill size and runout.
- Drill bit not secured properly, it can wobble eccentrically.

MATERIAL IS BURNING

- Drill bit may be dull.
- Speed is too high.

WHEN IN DOUBT ASK A MAKERSPACE STAFF

ADDITIONAL MACHINE INFO CAN BE FOUND HERE:

OSHA® QUICK CARD™

Hazard Communication Standard Pictogram

The Hazard Communication Standard (HCS) requires pictograms on labels to alert users of the chemical hazards to which they may be exposed. Each pictogram consists of a symbol on a white background framed within a red border and represents a distinct hazard(s). The pictogram on the label is determined by the chemical hazard classification.

HCS Pictograms and Hazards

Health Hazard  • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity	**Flame**  • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides	**Exclamation Mark**  • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory)
Gas Cylinder  • Gases Under Pressure	**Corrosion**  • Skin Corrosion/ Burns • Eye Damage • Corrosive to Metals	**Exploding Bomb**  • Explosives • Self-Reactives • Organic Peroxides
Flame Over Circle  • Oxidizers	**Environment** (Non-Mandatory)  • Aquatic Toxicity	**Skull and Crossbones**  • Acute Toxicity (fatal or toxic)

For more information:

U.S. Department of Labor

OSHA® Occupational Safety and Health Administration

www.osha.gov (800) 321-OSHA (6742)

OSHA 3491-01R 2016