

Manual Drills (Brace drill, Eggbeater drill)

Identify:

Head, Handle, Chuck, Bits (drill and screw bits, which are inserted into the chuck)

Accompanying Tools:

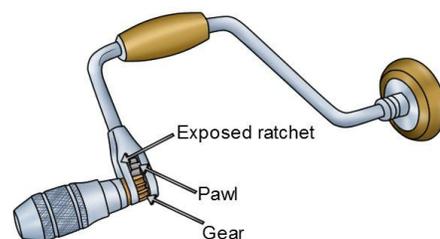
Clamps (usually at least 2), Goggles

Safety:

- Wear eye protection
- Clamp material to be drilled securely to a heavy object, with clamps on opposite ends of the wood
- Be cautious of delicate drill bits
- Lay drill carefully on its side when not in use, with bits aimed in from edge of table

Operation for drilling holes:

- Clamp material down, with protective layer between material and table if necessary. A second piece of wood is usually sufficient.
- Insert correct bit or choose drill that has correct bit. Chuck is twisted counter-clockwise to loosen jaws that hold bit, clockwise to tighten
- Identify depth of material, hold drill bit on the side of the clamped wood to see how deep it will go, and to ensure that it won't go into the table.
- Make dot or X on top of wood where hole is to be drilled.
- Hold operating handle with dominant (drawing) hand, other hand holds head or top handle in place. For ambidextrous tinkerers, whichever hand position feels most comfortable to them.
- Rotate handle clockwise to drill into wood. For brace drill, this is a horizontal turning, for eggbeater drill, it is vertical.
- While bit is in wood, do not let go of drill and avoid wiggling. This can break the bit.
- Binding debris can cause overheating of the bit, or make turning the drill difficult. Back out bit and clear debris as necessary
- Back out bit after the desired depth is achieved. Reverse direction of turning to help remove bit from wood.
- Some brace drills have a ratchet and pawl, enabling it to only turn the bit in one direction. If you're having a hard time drilling, try switching the pawl to a different direction. This may be a switch, or a twist mechanism.



Operation for putting in screws:

- Make pilot hole first with appropriate bit.
- Check length of screw against side of material.
- Insert screw bit into chuck or choose drill with correct bit.
- Place screw into pilot hole and give a few clockwise twists with fingers to get it to stay upright on its own.
- Match screw bit into X shaped drive on head of screw.
- Press lightly with non-dominant hand and turn clockwise. For brace drill, this is a horizontal turning, for eggbeater drill, it is vertical.
- Brace drills allow far greater control for screws than eggbeater drills as they move more slowly.
- If bit keeps making a “woodpecker” sound and slipping out of the screw drive, stop and readjust, making sure the bit is straight in the drive, and pushing harder on top of drill.
- To remove a screw, change direction of turning, and push down with non-dominant hand as the screw backs out.



It's recommended only to use general purpose, spur point, and screwdriver bits with manual drills. Other bits require more torque to operate.