



## Theatre Safety

# Tools and Machines – Drill Press

A Drill Press is a machine for producing cylindrical holes in a wide variety of materials. The drill is held in a rotating spindle and is manually fed into the workpiece, which is usually clamped in a vise resting on a work support table. The drill may be gripped in a Jacobs Chuck with three jaws that move radially in unison, or it may have a tapered shank that fits into a tapered hole in the spindle. Means are always provided for varying the spindle speed. Although drill presses are used mainly for drilling holes, they can also be used for countersinking, counterboring, enlarging holes with a boring tool or finishing holes with a reamer. The drill press provides better accuracy, precision and more power for larger drills than a portable hand drill.

### **PPE Requirements:**

Safety glasses

### **Pre-Inspection:**

- Ensure that the machine has been unplugged before making any adjustments.
- Use only properly sharpened drill bits, countersinks, reamers, counterbores that are in good condition.
- Properly lock the drill bit, cutting tool or sanding drum in the chuck before operating this machine. **ALWAYS REMOVE CHUCK KEY FROM CHUCK BEFORE TURNING DRILL PRESS ON!!!**
- All belts and pulleys must be guarded. If frayed belts or pulleys are observed, inform the Sculpture Studio Manager so that the machine can be taken out of service.
- The drill bit should be mounted full depth of shank and in the center of the chuck. Choose the correct size for your application. Be sure to return the chuck key to its storage position before plugging power in. Never leave the chuck key in the chuck.
- Determine what speed is appropriate for the drill diameter used and material being drilled.
- Position the table and adjust the feed stroke eliminating the possibility of the bit striking the table.
- Adjust work support table height so that the work piece is located just below the bottom tip of the drill bit. Loosen column clamp, crank table up or down and then re-tighten column clamp.
- Adjust desired stroke limit using the depth stop adjustment if a blind hole is being drilled. Manually check the stroke by advancing the quill down to the desired depth to verify setting.
- Although it is permissible in some cases to hand hold the workpiece while drilling, it is always safer to clamp the work to the work support table.
- It is good practice to layout the desired drill hole locations on the workpiece and center punching the locations. The punch depression is useful in controlling the tendency of a drill to “walk off” due to drill bending at the beginning of the drilling operation

### **Miter Saw Operation:**

1. This drill press is intended to be used with wood and wood products only.
2. Establish a balanced posture with your feet set apart to form a good base.



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3. Check to make sure the chuck key is stored in its holder, NOT in the chuck. Turn on the power switch
4. Feed the bit smoothly into the work with enough pressure to produce chips but not excessive pressure which may break the drill and adversely influence drill hole quality. If the hole being drilled is deep, withdraw the bit frequently to remove shavings on the bit.
5. When drilling through holes, anticipate a sudden increase in torque applied to the workpiece by the drill as the bit breaks through the bottom side. When possible, back up the workpiece with a block of wood under the workpiece to reduce this effect.
6. When finished drilling, turn the power off and wait for the machine to come to a complete stop.