

Drill Press

Detail Sheets

A metal cutting machine that uses a multiple cutting-edged rotating tool to remove metal and produce a hole in stock, either to a preset depth or completely through the stock. The process of drilling is also performed on milling and boring machines and lathes. Normally, a drill press is vertically arranged with the tools having variable speeds and feeds. They may also have multiple spindles for gang drilling. The most commonly used drill press is a single-spindle, floor-mounted, belt-driven machine for non production drilling using bits up to 1/2 inch and is known as the "sensitive drill press". On a manual machine, the drill gradually feeds into the work, it is changed often, chips must be able to escape and the stock must be moved around which all reduce the possibility of using guards.

Operator involvement: The operator must select an appropriate drill bit, tightening the bit in the chuck, setting the drill depth, placing the material on the drill press bed, securing the work to the bed so it will not move during drilling, and pulling the drill press lever down to lower the drill bit into the stock. On a sensitive drill press the operator can "feel" the action of the drill point as it penetrates the work while he manually controls the feeding of the spindle into the work.

Hazards: Amputations or lacerations from rotating drill bit that can pull the operator's gloves, loose-fitting clothing, jewelry or hair into the rotation of the bit. Scalping from long hair entangling with shafting; parts kicking back because a holding fixture/jig was not used or when fixture springs under load; coolant or metal chips from stock being drilled may be thrown towards operator or others; hand or foot injuries from falling material.

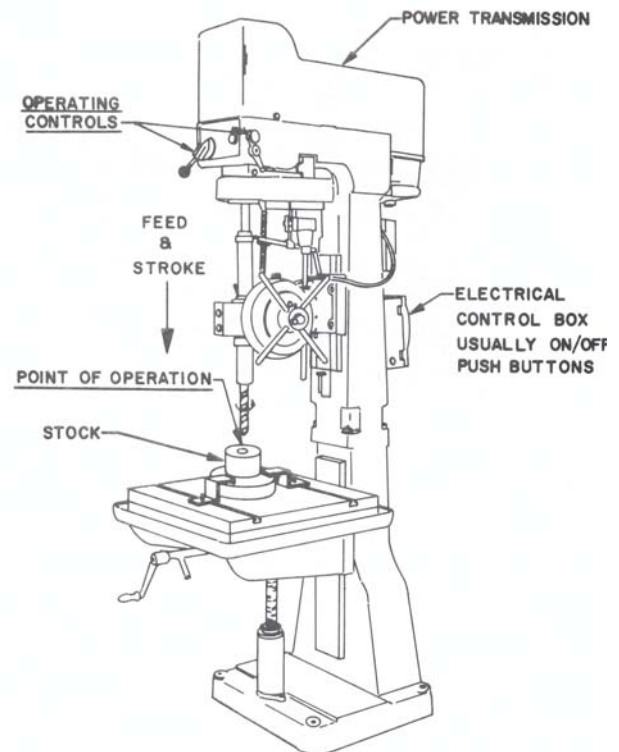
Machines: All machines must be stable or otherwise secured in place to prevent movement. Operating controls should be within easy reach of the operator.

Provisions should be made to prevent automatic startup in case of power failure.

Guarding: Guard the point of operation to protect the operator and others in the work area from moving parts, coolants or chips.

1910.212

- ❖ On an automatic operation such as a gang drill, guarding is mandatory.
- ❖ On a "sensitive" drill press, a guard may not be necessary. Look at the operation to see if the cutting tool is generating chips, coolant is splashing or if hair or clothing can get caught in the cutter. If the answer is "yes", guarding is needed.



Case Study

A machinist amputated his left index finger at the first joint while drilling holes into a machined part. As he moved the part to begin drilling another hole, his gloved hand got caught in the drill bit.

References: OSHA 29 CFR 1910.212; ANSI B11.8

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- ❖ Guard exposed vertical spindles if located at head height where the operator can reach or get entangled with the rotating part. 1910.219
- ❖ Guard all power transmission apparatus, especially at the head drive. 1910.219
- ❖ Secure machine in place, provide larger bases or vibration pads **if** machine is top heavy or moves due to vibration where it presents a hazard. 1910.212(b)

Safer Work Practices:

- Operators must be properly trained and they should not wear loose clothing such as ties or jewelry which could become entangled.
- Guards should always be in place and suitable face protection should be worn.
- The floor space around the machine should be kept free of obstructions and slippery substances.
- The machine should not be kept running when not in use.
- Provide holding clamps or fixtures to secure the work to the drill press bed.
- Use brushes, chip pullers or other tools to remove chips from table or work; do not allow removal by unprotected hands

The number of accidents and the circumstances in which they occur show that most can be avoided by a knowledge of the risks and by adopting safety measures. The simple safety steps given below will help to prevent most accidents at grinding machines. You may find them useful as a safety check list.