



Naval Support Activity Monterey / Naval Postgraduate School

(June 19, 2009)



SAFETY GRAM DRILL PRESS

Background: The piece of stock being worked on a drill press is held stationary in a vise or similar holding device, and the cutting tool both rotates and is advanced into the piece of work. A drilling tool has cutting edges on both its leading face and its sides but most of the cutting is done by the leading edges. Flutes are ground into the drill to facilitate removal of metal/plastic/wood chips as the drill bit moves into the stock.

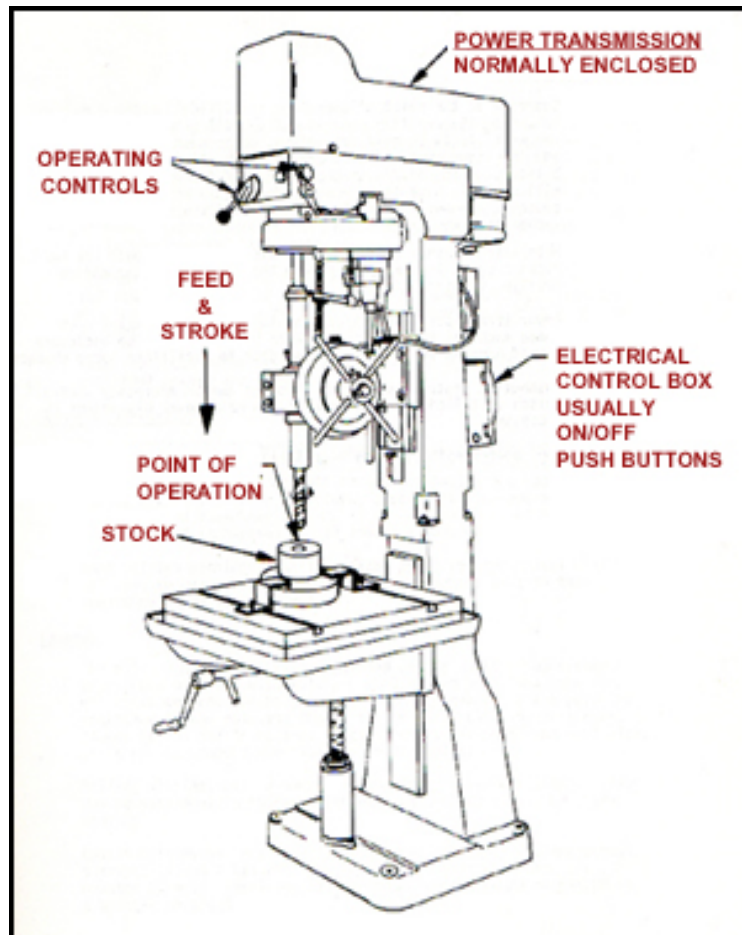
Cutting actions involve rotating, reciprocating, or transverse motions. The danger of cutting action is at the point of operation where finger, head, and arm injuries can occur and where flying chips or scrap material can strike the eyes or face. Such hazards are present at the point of operation in cutting wood, metal or other materials.

In machine operations, hazardous situations frequently result from improper or inadequate guarding at the point of operation. It is impossible to design totally safe machinery and its unreasonable to expect operators to be alert every moment of the working day. Operators rarely seek dangerous situations or try to commit hazardous acts. Mishaps occur, however, because of lack of judgment, inattention or recklessness.

The bottom line is that accidents result from a combination of a hazardous machine condition and a careless human action.

Purpose: The purpose of this Safety Gram is to promote drill press mishap prevention efforts through the identification of key regulatory compliance points and established Standard Operating Procedures. This document serves as an SOP for drill press safety, however, it is not all inclusive and additional OJT should be provided by your supervisor / lab manager prior to use.

Scope & Applicability: Drill press regulatory requirements and SOP's are applicable to all faculty, staff, and students, temporary/term, contract, and permanent employees as well as visitors who may be engaged in operating drill presses located within NSAM/NPS labs, machine shops and other facilities.





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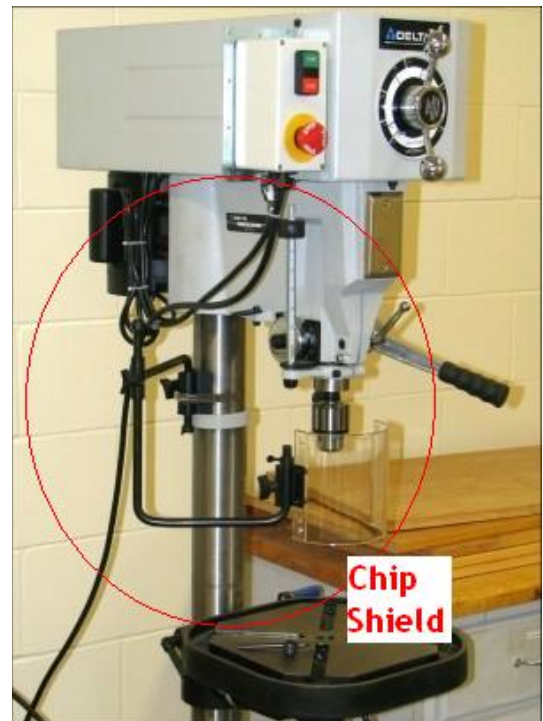
Drill Press Regulations (29 CFR 1910 & ANSI B11.8):



1. On applications where injury to the operator might result if motors were to restart after power failures, provision shall be made to prevent machines from automatically restarting upon restoration of power.
2. Machines designed for a fixed location shall be securely anchored to prevent walking or moving.
3. The point of operation on machines, whose operation

exposes an employee to injury, shall be guarded. The guarding device shall be in conformity with any appropriate standards or in the absence of applicable specific standards, shall be so designed and constructed as to prevent the operator from having any part of his body in the danger zone during the operating cycle. Guards shall be affixed to the machine where possible and secured elsewhere if for any reason attachment to the machine is not possible. The guard shall be such that it does not offer an accident hazard in itself.

4. Operator controls shall be readily accessible to the machine operator and shall be so placed that the machine operator is not required to reach for controls past moving parts that are likely to cause injury. With the exception of an emergency stop button, controls shall be free from the possibility of accidental operation by normal movement of the machine operator.
5. All machines shall incorporate one or more emergency stop controls which, upon momentary operation, shall deenergize or stop all machine motions. These emergency stops shall be color coded red and located at the operator control station.





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DRILL PRESS

Standard Operating Procedures:

- A. Only authorized personnel shall operate this drill press.
- B. All areas around the drill press shall be kept clean of obstructions and in a non-slippery condition.
- C. Do not place loose tools or parts on top of the drill press. And before powering the spindle up, make certain all loose hand tools, drifts, chuck keys, and measuring tools have been removed from the Machine and put in the proper location, especially chuck wrenches.
- D. Personal Protective Equipment {PPE}(safety glasses, or impact resistant face-shield and hearing protection) shall be worn when operating this drill press). Gloves shall not be worn while the drill press is in operation. Please use gloves if handling metal chips is necessary.
- E. Do not wear loose clothing or jewelry or personal stereo equipment while operating this drill press and keep your head well back from rotating machinery to prevent hair from being caught.
- F. Before operating the drill press, make sure that there is plenty of light to work by.
- G. Do not hold the work to be drilled by hand. A table stop, clamp or vise should be used to securely prevent the work from spinning. If the work should slip from the clamp, no attempt shall be made to stop it with your hands. If the workpiece can't be reclamped to the table, make certain that the workpiece is positioned so that it will swing away from you. Also plan ahead of time how you are going to shut off the drill in an emergency situation.
- H. Ensure drill bit is secure in the chuck. The chuck shall be tightened securely with the key provided. The key shall be left in the chuck. Common wrenches or pliers shall not be used on any chuck.
- I. Turn power switch on. Do not set the speeds or adjust the work unless the machine is stopped. As the drill begins to cut thru the work ease up on the drilling pressure and allow the drill to break through gradually, using plenty of lubricant for metal stock.
- J. Never attempt to measure parts or clean the machine while the drill bit is rotating.
- K. Do not attempt to grab work which may have caught in the drill, stop the machine first.
- L. Remove bit after drill stops. Caution – drill bits, center drill, spot facers, deburring tools, counterbores, and reamers can be extremely sharp. Be aware of the tool when changing workpieces. If you come in contact with the tool, a laceration is possible.
- M. Excessively long chips can be bunched up, eventually whipping off the machine. A person in the path of these chips may be cut. To avoid dangerous chips, do not force the drill through the work piece. Occasionally stop drilling and lift the bit out of the drill hole. Stop the spindle and use a brush to remove the accumulated chips if necessary; never by hand or compressed air.
- N. Work area and drill press shall be cleaned after each use.