

MACHINE TOOLS

the functions of two or more basic groups

There are insufficient statistical data to make a conclusive evaluation of the hazards of machine tools. Injuries resulting from machine tool operations are reported less frequently than injuries from power presses or metal shears, but still present some of the more serious problems in the metal products industries.

General Safety Rules

The greatest emphasis and dependence, nevertheless, must be placed upon safe operation. A policy to eliminate unsafe practices which result in operator injury should be established and should include these provisions:

1. Operation, adjustment, and repair of any machine tool must be restricted to experienced and trained personnel or apprentices under close supervision.
2. Safe work procedures must be established, and short cuts and chance-taking prohibited.
3. Supervisors must be responsible for the enforcement of this policy and for making certain that no deviation from points 1 and 2 is permitted.

Maintenance personnel and repairmen should comply with this three-point policy.

A tool rack should be provided for the convenience of the operator, repairmen, and maintenance personnel. All wrenches and tools needed for operation or adjustment should be included as standard equipment.

The *National Electrical Code*^{*} and the *National Electrical Safety Code*^{**} should govern the installation of electrical circuits and switches. Rheostats should be enclosed.

In addition to the electrical controls installed on machine tools by the manufacturer, each machine should have a disconnect switch that can be locked in the "off" position to isolate the machine from the power source.

No maintenance or repair should be permitted on any machine unless its disconnect switch has been shut off, locked in the "off" position, and tagged.

The following general rules apply to the safe operation of any machine tool:

1. All machines should be shut off when the operator leaves the machine.

2. Operators should not wear loose-fitting clothing, especially loose sleeves and cuffs of shirts or jackets, and neckties.

3. All operators of machine tools should wear eye protection.

4. Throwing refuse or spitting in the machine tool coolant should not be allowed because such actions foul the coolant and may spread disease.

5. Adjusting and gauging (calipering) of work should not be permitted while the machine is in operation.

6. Operators should use brushes or special tools for removing chips.

One of the major causes of eye accidents on all machine tools and especially on drilling equipment is indiscriminate use of high pressure compressed air to blow chips from machines or workers' clothing.

It is much safer and just as practicable in most cases to remove the air line and provide each machine with a brush for the removal of chips. Brushes provided for this purpose should not have a loop of cord or anything like it in the end of the handle, because a finger can get caught in the loop and be drawn into the point of operation with the brush.

In the relatively few cases in which neither a brush nor a vacuum system proves practicable, it may be necessary to continue the use of air. The line pressure should be as low as possible—many companies have found a nozzle pressure of 10 to 15 psi sufficient for most operations. In any case, the operation should be isolated so that other employees are not endangered. Baffles should be placed around the machine. Only reliable and trained employees should be permitted to use compressed air, and they should wear cup-type goggles while using air lines.

Many employees use compressed air to blow dust or dirt off their clothing or out of their hair. Damage to ears and eyes is likely to occur. This practice should be stopped, and brushes or vacuum equipment provided for the purpose.

^{*}National Fire Protection Association, 60 Batterymarch St., Boston. NFPA Standard No. 70.

^{**}National Bureau of Standards, Washington, D.C. NBS Handbook H30.