

Working safely with Hand Tools



Labour Department
Occupational Safety and Health Branch



Occupational Safety & Health Council

Introduction

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Manually operated tools (commonly known as hand tools) are used by workers in many trades at work. An analysis of the accident statistics for the past few years reveals that the number of accidents involving the use of hand tools contributed to as high as 10% of the total number of occupational accidents. The analysis also indicates that the majority of such accidents were attributable to overlooking safety precautions in using hand tools. There were instances where other persons in the vicinity were struck and injured by tools flying out. Repetitive use of hand tools for a prolonged period or using unsuitable tools for work could also cause musculo-skeletal disease, e.g. tenosynovitis.

This safety leaflet aims to convey safety information on the use of hand tools, including types of operation, potential hazards and safety precautions that should be adopted by employers and employees for the purpose of avoiding accidents.





Types of Operation of Hand Tools

Function

Hammering and breaking

Cutting

Drilling

Mode of Operation

Impact force produced by vertical motion of a tool towards point of operation

Impact force created by reciprocating motion in vertical direction or traversing motion of a tool

Revolving action of a tool to make holes

Example

Hammer, chisel



Handsaw, axe, chisel, knife



Hand-drill



Rotating

Pulling

Supporting
or lifting

Fixing
position

Rotating action
of a tool to
produce torque
on fixed or
clamped
workpiece

Forward and
backward action
of a tool after
clamping the
workpiece by
the same tool

Support, or lift
the load, from
its base

Clamping
workpiece

Screwdriver,
pliers,
wrench



Pliers, locking
pliers



Jack



Clamp-on
vise, pipe
vise





Potential Hazards from using Hand Tools

The following are factors contributing to hazards associated with using hand tools by workmen:

Hazard Factor

Example of Injuries

Dangerous parts of hand tools

Workman cut by sharp corner or edge

Defects in hand tools

Workman cut by defective or broken parts of a tool, or person nearby hit by fragmented parts flying out from a tool

Hand tools slipping out from grasp during work

Workman or person nearby injured by a tool flying out or dropping from height

Hand tools improperly designed

Workman sustaining musculo-skeletal injuries or strain injuries

Repetitive actions in use of hand tools for a prolonged period

Workman sustaining musculo-skeletal injuries, e.g. tenosynovitis

Large impact force on workpieces by tools

Broken fragments or particles flying out causing injuries to eyes or face; excessive noise causing hearing loss

Displacement of loads from tools

Improper alignment of loads on a jack causing load displacement and injuries to workman



General Safety Precautions to be adopted

in

using Hand Tools

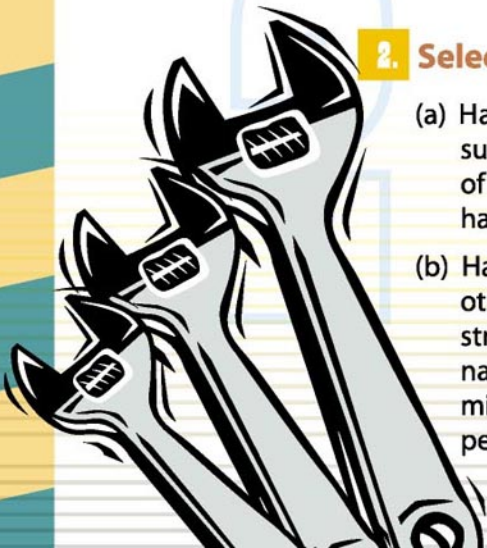
1. Maintenance of Hand Tools

- (a) A system should be established by management to examine conditions of hand tools, whether they are well-constructed and free from defects. If the worn out or damaged parts cannot be repaired, the whole tool should be discarded immediately.
- (b) Hand tools should be inspected every time before use. Special care should be paid to the cleanliness of tools. Blunt cutting edge or deformed working part should be redressed.



2. Selection of Hand Tools

- (a) Hand tools selected for the job should be suitable. The handle of a tool should fit the hand of an operator to avoid slipping out from the hand during use.
- (b) Hand tools should not be used for purposes other than they are designed for. Their material strength is always designed according to the nature of work to be performed. Tools being misused may lead to fracture, causing danger to persons.



3. Housekeeping of Hand Tools

- Hand tools should be systematically kept or stored at tool-rack or toolbox after use. Those having sharp corners or edges should be protected by sheaths before they are stored.
- Every hand tool should be kept in an orderly manner at a workroom or toolbox designated for the purpose.
- Hand tools that are broken or require repair should be kept separately and labelled with a warning notice "DANGER ! DO NOT USE FOR WORK!".
- Periodic examination, repair and maintenance of hand tools should be carried out only by persons who are experienced and competent.



4. Safe Operating Procedures

- Hand tools should only be carried to work area in a proper toolbox or with the use of a tool-belt.
- Special care should be taken to prevent other persons gaining access to the work area where long handle tools are being operated. When necessary, the work area should be fenced off to prevent unauthorized entry.
- Before working, workpieces should be checked for protruding metal parts that may cause damage to hand tools.
- Precautions should be taken to prevent tools slipping out from hands while working at height.



- (e) Precautions should be taken when working on or near electrical conductors.
- (f) Hand tools should be operated in correct posture and strength.
- (g) Proper steps and procedures should be followed when operating a hand tool, e.g. the face of the hammer head instead of the peen should be used for hammering nails; the handle of a spanner should not be hammered or extended by tubes for applying greater strength in screwing of bolts or nuts.
- (h) When hand tools with sharp corners or edges are used, their direction of movement should be away from the body. Suitable personal protective equipment such as helmets, aprons or gloves should be used when necessary.
- (i) When flying fragments, particles or noise are generated during the operation of hand tools, suitable personal protective equipment, e.g., goggles, masks or ear-muffs, that conform to safety standards should be worn.
- (j) The operator should use clamps to secure a workpiece that is liable to move into a stable position.
- (k) One should concentrate on the job when using a hand tool. Playing with hand tools should be strictly prohibited.



Further Information

Further information on occupational safety and health can be obtained in the website of the Labour Department at <http://www.labour.gov.hk>. For enquiry on occupational safety and health, please contact us at telephone number 2559 2297.

Information on the services offered by the Occupational Safety & Health Council can be obtained through hotline 2739 9000.

