

Basic Hand Tools

Group no “K”

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Basic Hand Tools

• Basic hand tools are essential for woodworking, metalworking, and construction projects. They provide precision and efficiency in tasks such as measuring, marking, holding, impacting, and cutting, making them indispensable in any workshop environment.



1) Measuring Tools

- Measuring tools are crucial for obtaining accurate dimensions and ensuring precision in woodworking, metalworking, and construction projects.



Elbow Ruler



Calipers



Stopwatch



Micrometer



Beaker Glass

Roll Meter

Ruler

Use: Measures lengths and distances.

Advantage: Simple and versatile tool for quick measurements.



Try square

Use: Checks and marks right angles.

Advantage: Ensures accuracy in woodworking and metalworking tasks.

Micrometer

Use: Measures small distances and thicknesses with utmost precision.

Advantage: Ideal for tasks requiring high accuracy, such as machining.



Vernier Calipers

Use: Measures internal and external dimensions with high precision.

Advantage: Provides accurate readings for detailed measurements.



2) Marking Tools

- Marking tools facilitate precise marking on materials for cutting, drilling, or shaping operations.



Scriber

Use: Makes fine, accurate lines on metal and wood surfaces.

Advantage: Ensures precise marking without smudging or fading.



Punches

Use: Creates indentations or marks on materials for drilling or cutting.

Advantage: Prevents drill bits or cutting tools from slipping.



Types of Punches:



3) Holding/Clamping Tools

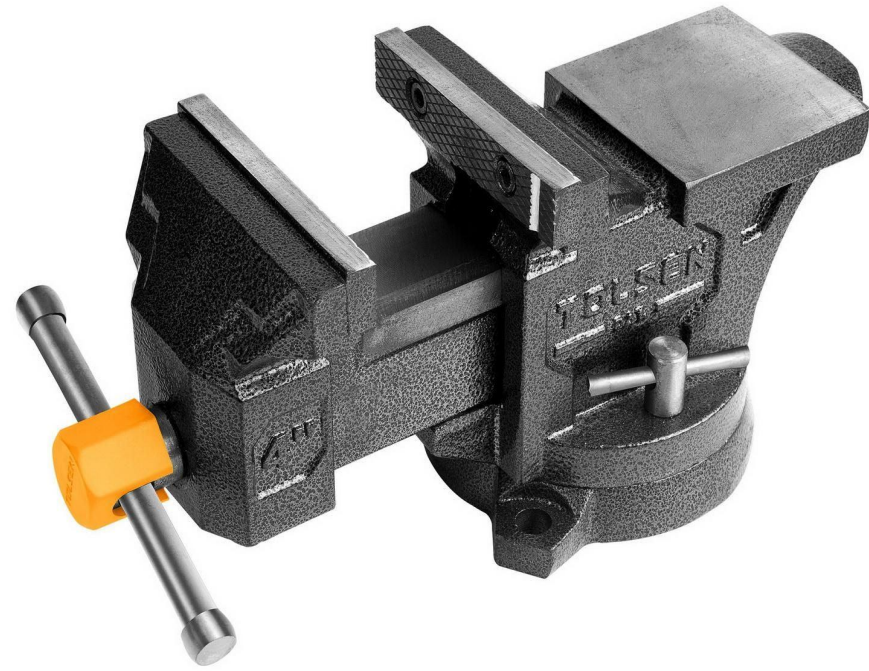
- Holding or clamping tools secure workpieces in place during various operations, ensuring stability and safety.



Bench vise

Use: Holds workpieces securely for tasks like sawing, filing, or drilling.

Advantage: Provides stability and control during intricate work.



Pipe vise

Use: Clamps pipes securely for cutting, threading, or welding.

Advantage: Prevents movement and distortion during pipe work.



Hand vise

Use: Holds small workpieces for detailed tasks like jewelry making.

Advantage: Offers precision and stability for delicate work.



C – Clamp

Use: Clamps objects together firmly during assembly or gluing.

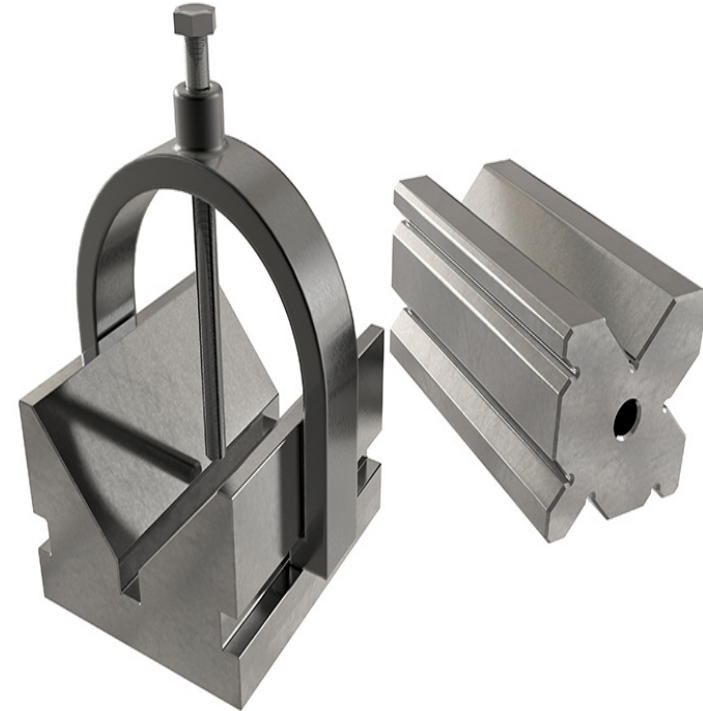
Advantage: Provides strong and adjustable pressure for secure holding.



V – Block

Use: Supports cylindrical objects during machining operations.

Advantage: Ensures stability and accuracy in drilling or milling tasks.



4) Impact Tools

- Impact tools deliver force to drive, shape, or break materials, offering efficiency and versatility in various tasks.

Mallet



Non-Sparking Hammer



Club Hammer



Sledgehammer



Cross Peen Hammer



Claw Hammer



Dead-Blow Hammer



Hammer

Use: Applies force to drive nails, shape metal, or break objects.

Advantage: Versatile tool suitable for construction and metalworking tasks.



Types of Hammer:



Screwdriver

Use: Tightens or loosens screws in various materials.

Advantage: Essential for assembling furniture and appliances.



Types of Screwdriver:

Flathead



Phillips



Torx



Robertson



Hex



Pozidriv



Tri-Wing



Chisel

Use: Cuts or shapes wood, metal, or stone by chipping away material.

Advantage: Provides precise control for shaping or carving tasks.



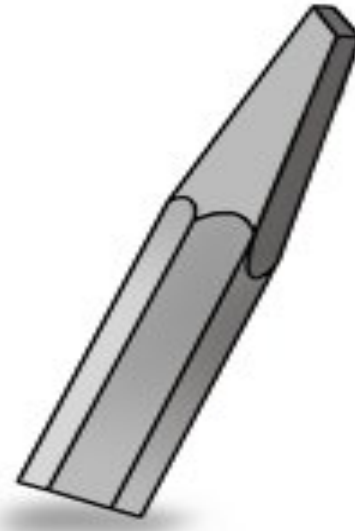
Types of Chisel:



Diamond
Point
chisel



Flat
chisel



Half
round
chisel



Cross cut/
cape
chisel

File

Use: Removes material or smooths surfaces through abrasion.

Advantage: Perfect for shaping, finishing, and deburring various materials.



Types of File:



Wrench

Use: Tightens or loosens nuts, bolts, or fasteners.

Advantage: Provides leverage and grip for efficient operation.



Types of Wrench:



5) Cutting Tools

- Cutting tools enable precise shaping and trimming of materials, ensuring clean and accurate results in various applications.



Hacksaw

Use: Cuts metal, plastic, or wood in straight or curved lines.

Advantage: Versatile tool for precise cutting in various materials.



Pliers

Use: Grasps, bends, or cuts materials such as wires or small objects.

Advantage: Offers grip and leverage for controlled manipulation.



Types of Pliers:



Slip Joint
Pliers

Tongue &
Groove Pliers



Needle Nose
Pliers

Locking
Pliers



Wire
Strippers

Linesman
Pliers



Fencing
Pliers

Cutting
Pliers



Tap

Use: Creates internal threads in drilled holes for screws or bolts.

Advantage: Facilitates secure fastening and assembly of threaded components.



Die

Use: Forms external threads on rods or bolts for mating with nuts or threaded holes.

Advantage: Ensures compatibility and secure fastening of components.



Shears

Use: Cuts through various materials with precision, such as paper, fabric, or metal.

Advantage: Provides clean and accurate cuts for crafting or tailoring.





Conclusion

- Basic hand tools are indispensable assets in any workshop, enabling precision, efficiency, and versatility in a wide range of tasks. From measuring and marking to holding, impacting, and cutting, these tools play a crucial role in ensuring the success of woodworking, metalworking, and construction projects.



Reference:

- ChatGpt
- Google
- Workshop technology (book)