

Pin Vice (Fig 4)

The pin vice is used for holding small diameter jobs. It consists of a handle and a small collect chuck at one end. The chuck carries a set of jaws which are operated by turning the handle.



Toolmarker's Vice (Fig 5)

The toolmarker's vice is used for holding small work which requires filing or drilling and for marking of small jobs on the surface plate. This vice is made of mild steel. Toolmarker's vice is accurately machined.



Calipers

Objectives: At the end of this lesson you shall be able to

· name the parts of the calipers

Firm joint calipers (Fig 1)

• mention the capacities of the calipers

· differentiate between the various types of calipers and their applications.

The most common devices used for measuring the outside and inside diameter of an object are the outside calipers and inside calipers. these devices cannot read the sizes themselves but measurements taken by them can be read by transfering the sizes on to a steel rule or other precision measuring instruments. There are two types of calipers namely, firm joint calipers and spring calipers.

Firm joint calipers can be set very quickly for various measurements but there are chances of getting the set dimension disturbed, thereby causing errors in their use.

Spring calipers (Fig 2)

Spring calipers take more time in setting the dimensions but eliminate the possible errors arising out of the set being disturbed while using.



Firm joint calipers consist of two legs that are fixed together with a rivet or screw and nut. The capacity of the caliper is decided, based on the maximum opening dimension between the two legs. For example, 150mm capacity caliper is able to measure the maximum size or 150mm.



An inside caliper has its legs bent outwards and outside caliper has its legs bent inwards. Inside caliper are used for measuring the inside diameters of a hole of bore and outside calipers are used for measuring the outside diameter of the workpiece.

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These calipers are also used for checking the external and internal dimensions as well as the parallelism of external and internal surfaces. (Fig 3)



Types of calipers

Objectives: At the end of this lesson you shall be able to

- name the commonly used calipers
- state the advantages of spring joint calipers.

Calipers are indirect measuring instruments used for transferring measurements from a steel rule to a job, and vice versa.

Calipers are classified according to their joints and their legs.

Joint

- Firm joint calipers (Fig 1a)
- Spring joint calipers (Fig 1b)

Legs

- Outside caliper for external measurement. (Figs 1a &b)



- Inside caliper for internal measurement. (Fig 2)



Calipers are used along with steel rules, and the accuracy is limited to 0.5 mm; parallelism of jobs etc. can be checked with higher accuracy by using calipers with sensitive feel.

Spring joint calipers have the advantage of quick setting with the help of an adjusting nut. For setting a firm joint caliper, tap the leg lightly on a wooden surface.

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