

Experiment No: 3

- **Title:** Vernier Height gauge, Digital Height gauge and Vernier Depth gauge.
- **Apparatus:**
- Vernier height gauge (L.C. 0.02 mm and Range 0–300mm), Digital Vernier height gauge, Vernier depth gauge (L.C. 0.02 mm and Range 0–300mm) and Specimen

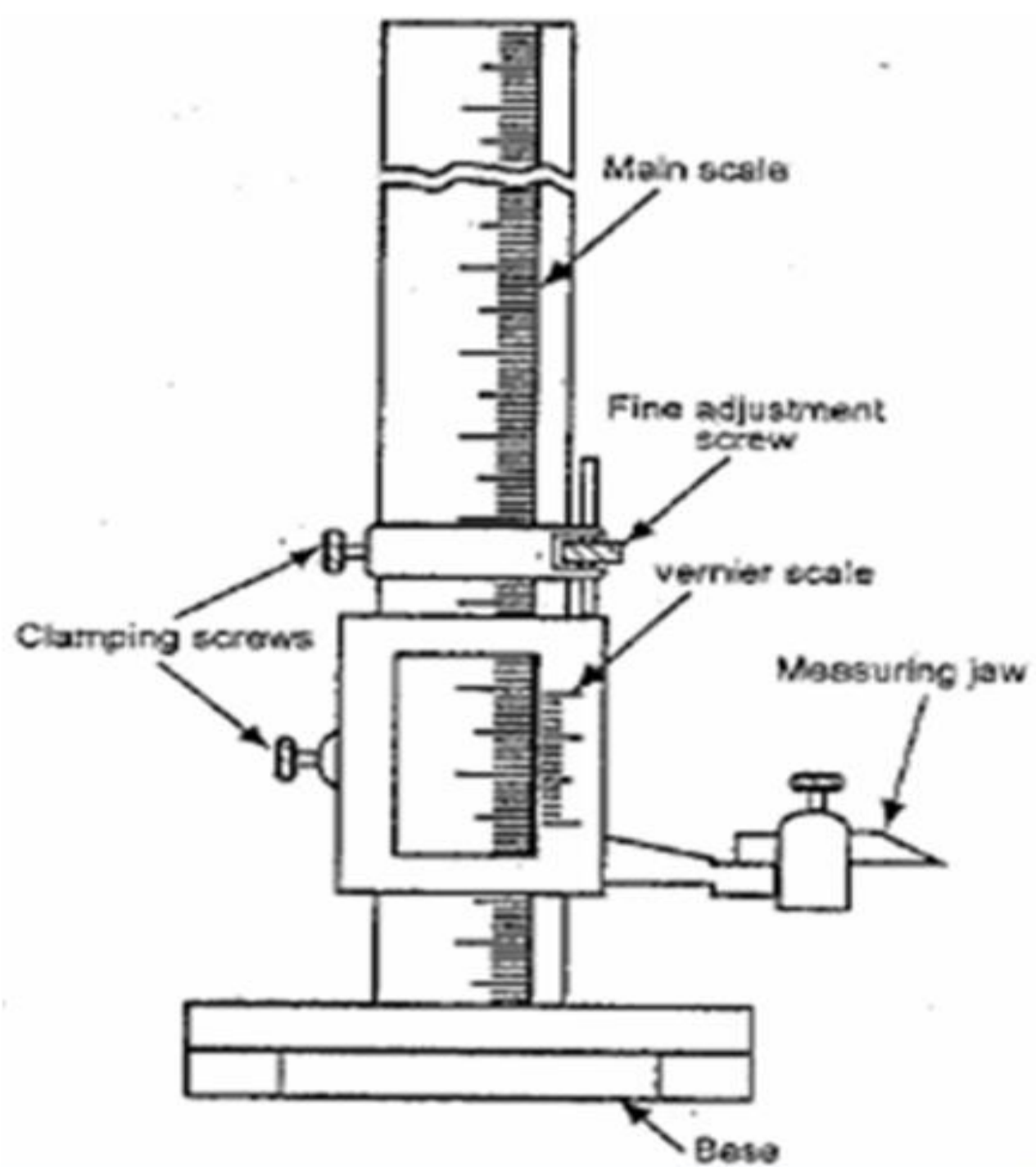
Vernier Height gauge:

- Vernier height gauge is similar to vernier caliper but in this instrument the graduated bar is held in a vertical position and it is used in conjunction with a surface plate. A vernier height gauge consists of (i) a finely ground and lapped base. The base is massive and robust in construction to ensure rigidity and stability. (ii) A vertical graduated beam or column supported on a massive base. (iii) attached to the beam is a sliding vernier head carrying the vernier scale and a clamping screw. (iv) an auxiliary head which is also attached to the beam above the sliding vernier head. It has a fine adjusting and clamping screw. (v) a measuring jaw or scribe attached to the front of the sliding vernier



The important features of vernier height gauge:

- • All the parts are made of good quality steel or stainless steel.
- • The beam should be sufficiently rigid square with the base.
- • The measuring jaw should have a clear projection from the edge of the beam atleast equal to the projection of the base from the beam.
- • The upper and lower gauging surfaces of the measuring jaw shall be flat and parallel to the base. The scriber should also be of the same nominal depth as the measuring jaw so that it may be reversed.
 - The projection of the jaw should be at least 25mm.
- • The slider should have a good sliding fit for all along the full working length of the beam.



Observation Table:

For Vernier Height Gauge

Sr. No.	Main scale reading (A) mm	No. of vernier scale division	Vernier scale readings div X L.C. (B)	Total reading A + B

Observation Table:

For Digital Vernier Height Gauge

Sr. No.	Main scale reading (A) mm	No. of Circular scale division on dial	Vernier scale readings div X L.C. (B)	Total reading A + B

- **Vernier depth gauge** is used to measure the depth of holes, slots and recesses, to locate centre distances etc. It consists of
- (i) A sliding head having flat and true base free from curves and waviness.
- (ii) A graduated beam known as main scale. The sliding head slides over the graduated beam.
- (iii) An auxiliary head with a fine adjustment and a clamping screw. The beam is perpendicular to the base in both directions and its end square and flat. The end of the sliding head can be set at any point with fine adjustment screw depending upon the sense of correct feel. The clamping screw is then tightened and the instrument is removed from the hole and readings are taken in the same way as taken by vernier caliper. While using the instrument it should be ensured that the reference surface on which the depth gauge base is rested, is satisfactorily true, flat and square.

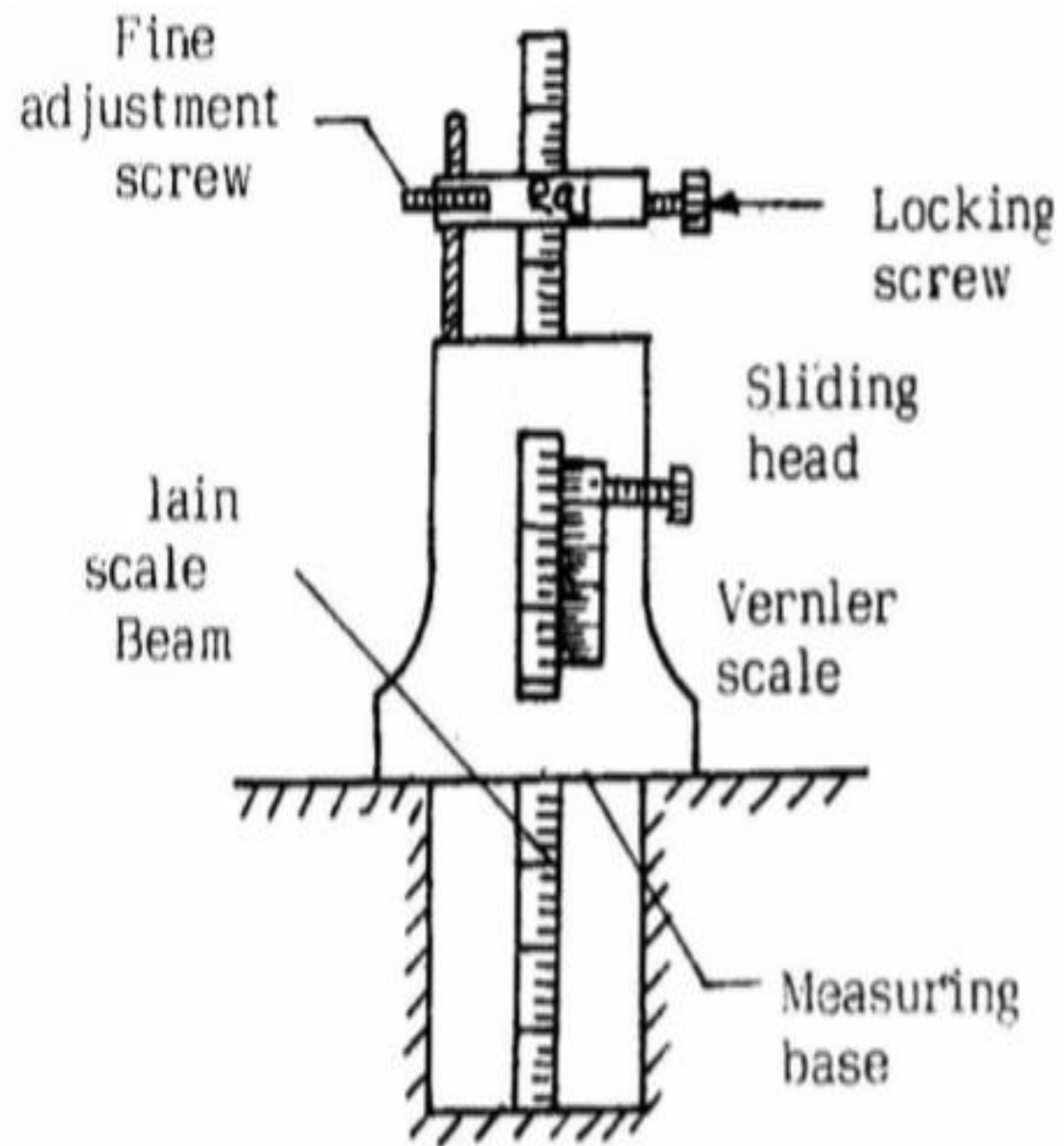


Figure: Vernier Depth Gauge

For Vernier Depth Gauge

Sr. No.	Main scale reading (A) mm	No. of vernier scale division	Vernier scale readings div X L.C. (B)	Total reading A + B