SCREW GAUGE & ITS USE

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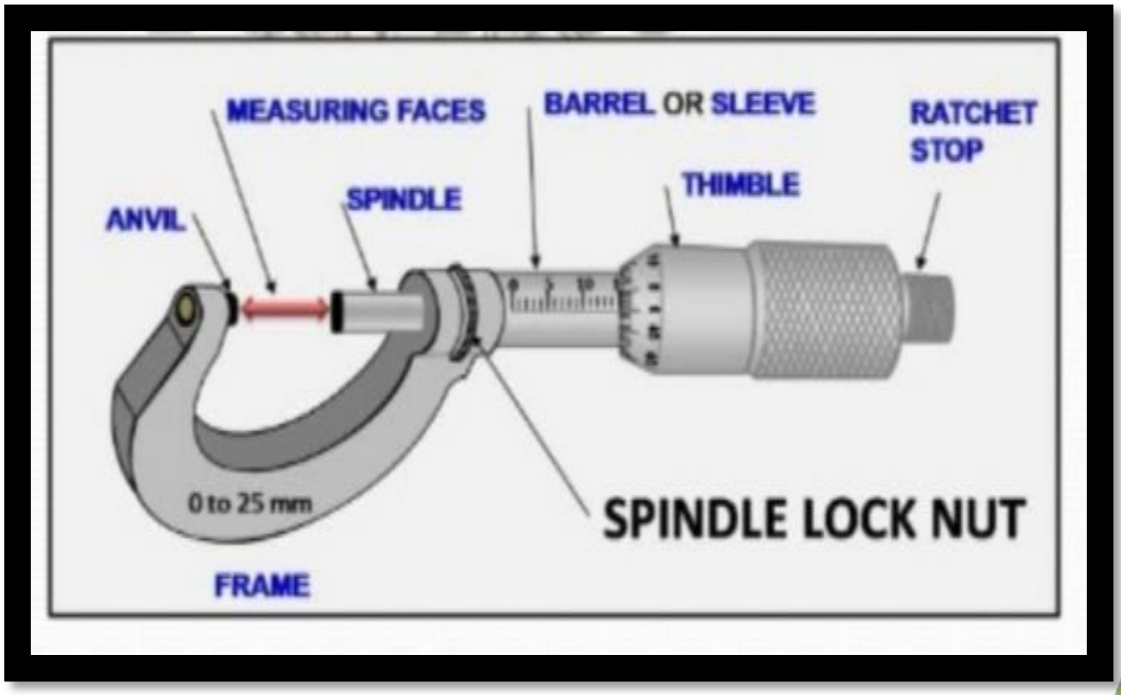
SCREW GAUGE AND ITS USE

Micrometer Screw Gauge

A screw gauge is an instrument that is used to measure small lengths with accuracy than a vernier scale. It is called as micrometre screw gauge.

Construction: A simple screw gauge consists of a U-shaped metal frame with a metal stud at its one end. A hollow cylinder (or sleeve) has a millimeter scale - over it along a line called index line parallel to its axis. The hollow cylinder acts as a nut. It is fixed at the end of U-shaped frame opposite to the stud. A Thimble has a threaded spindle inside it.



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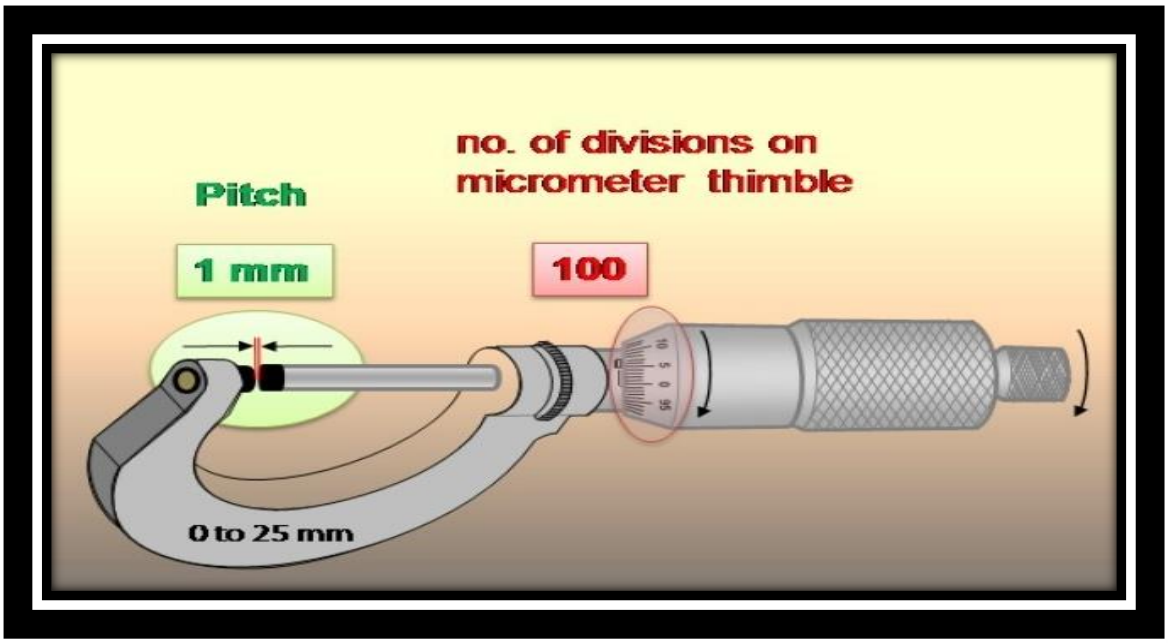
EXPERIMENTAL PROCEDURE

Before you use any micrometer you should know about least count.

Least Count (L.C.)
= pitch / no. of divisions on micrometer thimble
= 1/100 = 0.01

Pitch = distance travelled by thimble on linear scale in one rotation.



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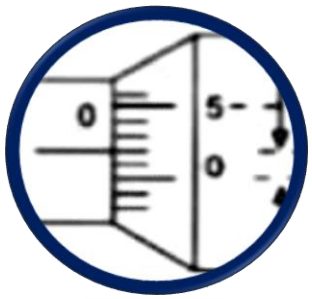
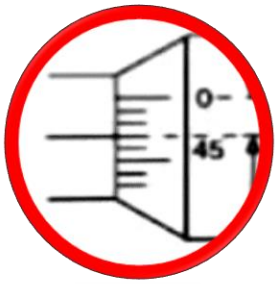
Positive Zero Error	Negative Zero Error
This occurs when the zero mark on the circular scale is shifted down from the horizontal line on the main scale.	This occurs when the zero mark on the circular scale is shifted up from the horizontal line on the main scale.
Horizontal line on main Scale is in the line the 2 division mark, above the zero mark 0n the thimble scale. 2 divisions = 0.02 mm Zero error = + 0.02 mm 	Horizontal line on main scale is in the line with the 3 division mark, below the zero mark on the thimble scale. 3 divisions =0.03 mm Zero error = - 0.03 mm 

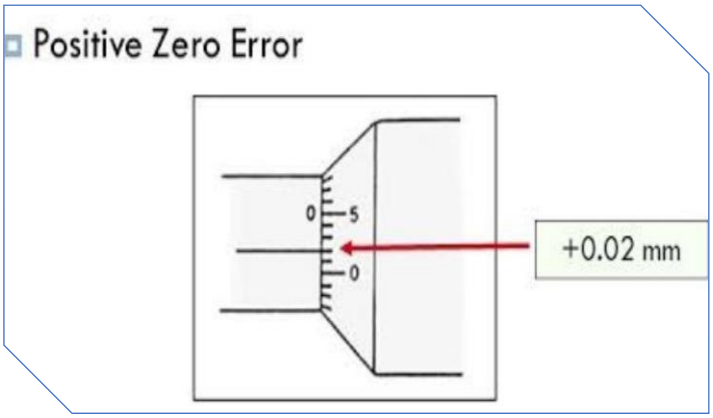
SCREW GAUGE AND ITS USE

CORRECTION OF POSITIVE ZERO ERR0R

- In this figure Horizontal line on main scale is in the line with the 2 division mark, above the zero mark 0n the thimble scale.

- 2 divisions =0.02mm, Zero error = + 0.02 mm

- If the observed reading = 4 mm, then,
  actual measurement = Observed reading – Zero error
  = 4 mm – (+0.02) mm
  = 3.08mm



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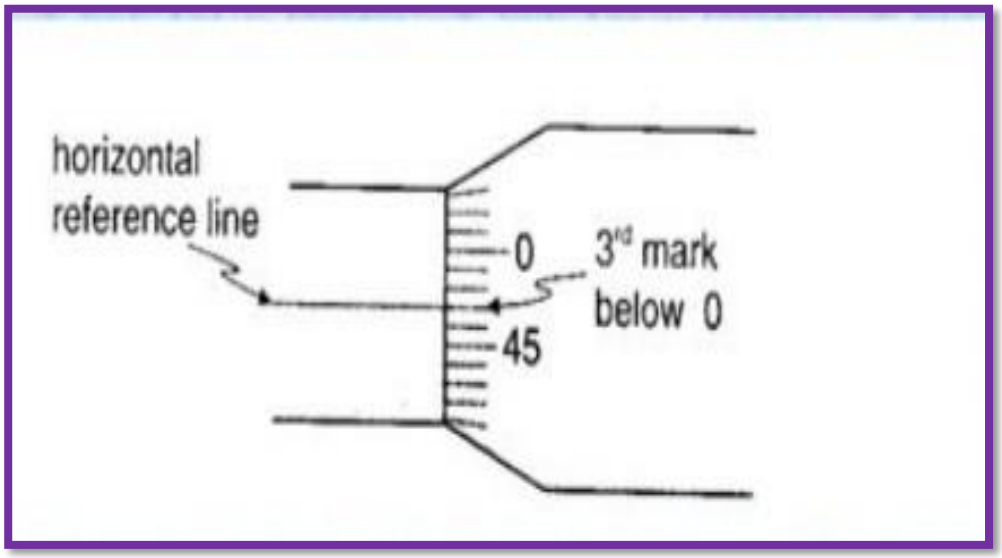
CORRECTION OF POSITIVE ZERO ERR0R

- In this figure, Horizontal line on main scale is in the line with the 3 division mark, above the zero mark 0n the thimble scale.

- 3 divisions =0.03mm, Zero error = - 0.03 mm

- If the observed reading = 4 mm, then
  actual measurement = Observed reading – Zero error
  = 4 mm – (-0.03) mm
  = 4.03 mm



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HOW TO MEASURE THE DIAMETER OF SPHERE