SCREW GAUGE

AIM

1) To measure the diameter of a wire body and hence calculate its Volume
2) To measure the diameter of a lead shot and hence calculate its Volume

APPARATUS

The Screw Gauge, Scale, Lead shot ,Wire etc.

THEORY

Dimensions Measured = PSR + (Corrected HSR x LC)

Where

PSR – Pitch Scale Reading, HSR – Head Scale Reading

Corrected HSR = Observed HSR + Zero Correction and

$$Least\,Count = LC = \frac{Pitch}{Total\ number\ of\ divisions\ on\ the\ head\ scale}$$

$$Pitch = \frac{Distance\ Moved\ \text{by}\ the\ HS}{Number\ of\ Rotations}$$

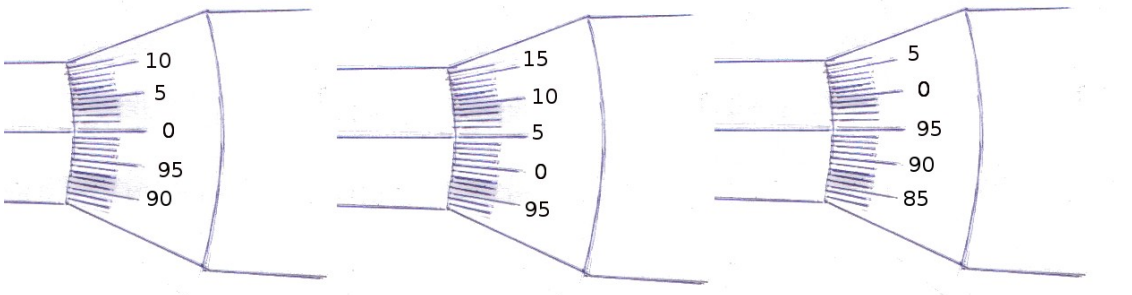
Volume of the wire $\mathbf{V = \pi r^2 l}$

where radius of the wire r = $\frac{d}{2}$ where d is the diameter of the sphere and l is the length of the wire

Volume of the Lead shot = $\frac{4}{3}\pi R^3$

Where radius of the Lead shot $R = \frac{D}{2}$ where D is the diameter of the Lead shot

OBSERVATIONS



Zero Coincidence : Nil
Zero Correction : Nil

Zero Coincidence : 5
Zero Correction : -5

Zero Coincidence : 95
Zero Correction : +5

Value of One Pitch Scale Division = mm

Pitch of the screw P = $\frac{Distance\ Moved}{Number\ of\ Rotations}$ = mm

Number of Divisions on the head scale N =

Least Count LC = $\frac{Pitch}{N}$ = mm

Zero Coincidence = Divisions Zero Correction = Divisions

Dimensions Measured	Sl No	Pitch Scale Reading (**PSR**) mm	Observed Head Scale Reading (**HSR**)	Corrected Head Scale Reading (**Corr. HSR**)	Total Reading PSR + (Corr. HSR x LC)	Mean mm
Diameter of the Wire	1 2 3 4 5 6					d=
Diameter of the Lead Shot	1 2 3 4 5 6					D=

Length of the Wire l = cm = m

<u>CALCULATIONS</u>:

a) To find the Volume of the wire

Radius of the Wire $r = \frac{d}{2}$ = mm = m

Volume of the Wire $\mathbf{V = \pi r^2 l}$ = m^3

b) To find the Volume of the Lead Shot

Diameter of the Glass Plate D = mm = m

Radius of the Wire $R = \frac{D}{2}$ = mm = m

$$Volume = \frac{4}{3}\pi R^3 = m^3$$

$$= m^3$$

<u>RESULTS:</u>

1. Volume of the given Wire = m^3
2. Volume of the given Lead Shot = m^3