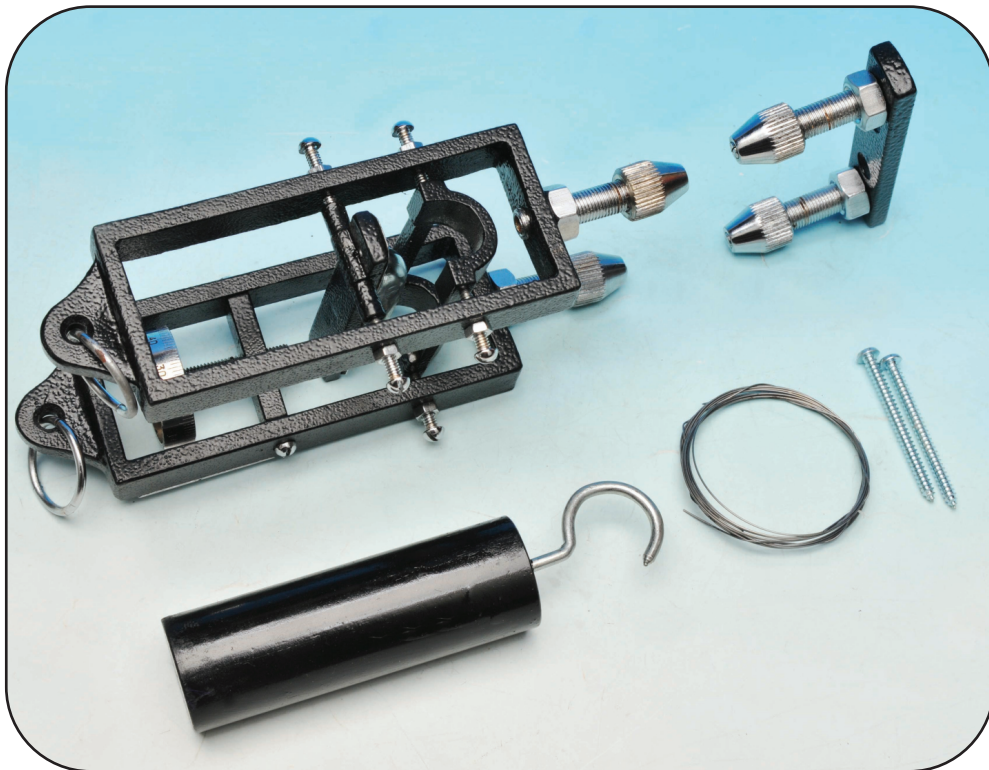




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# YOUNG'S MODULUS APPARATUS

CAT NO. PH0328A



## Instruction Manual

The spirit level is mounted in two rectangular cast iron frame with one end resting on one point of micrometer screw, fitted in one frame. The second end of spirit level pivoted in the second frame.

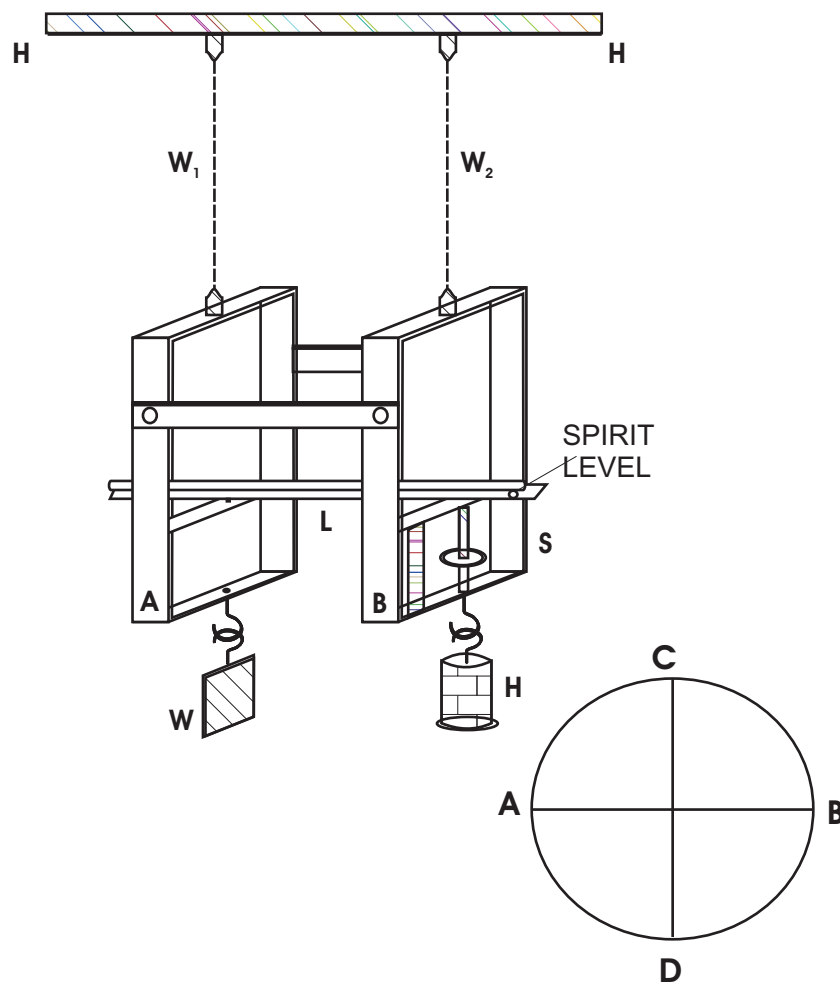
The Micrometer is provided with vertical scale 10 mm. on either side of zero vernier reading 0.01mm. The apparatus is provided with ceiling bracket, two self centering chucks and Tension weights also.

The apparatus is black enameled finish having polished wooden case.

### WORKING AND CALCULATIONS

$$\text{Young's Modulus } Y = \frac{\text{Stress}}{\text{Strain}} = \frac{F.L.}{al}$$

Turn the graduation disc of micrometer till it stands against zero of mm. scale. Take two exactly similar wires  $W_1$  and  $W_2$  150 cm. long free from kinks fixed the apparatus by wires brackets as shown. Pass the wires through Torsion heads H & H and adjust the position till bubble is in the centre. Suspend the constant weight slab  $W$  from A &  $\frac{1}{2}$  kg to lower hook frame B the wires become taut. Measure the diameter at different places along the length of the wire diameter of the wire at each place is mutually.



Direction AB, BC as shown.

At six different points of length and fixed mean of twelve reading that is r.

Add a weight of 5 kg. to the hanger and wait for 2 minutes. The wires increases in length, bring the air bubble in the center and note the reading. Go on increasing in steps of  $\frac{1}{2}$  kg upto 3.5 kg from eight readings find extension for 2 kg.

Mean Extension 2 kgs. =  $\varnothing$  mm.  
 =  $\varnothing$  cm.(converted)

Length of Wire L

$$Y = \frac{MgL}{2} = \frac{2 \times 1000 \times 981 \times L}{2}$$

= dynes / sq. cm.

***For better results***

- 1) There should be no kinks in the wire.
- 2) Wire should be loaded and unloaded alternately.
- 3) The screw should be rotated in one direction only & avoid back lash error.

Manufactured by :



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