

Product Name :
Universal Vibration Apparatus

Product Code :
NLAB-ENGINEERINGLB27008



Description :

Universal Vibration Apparatus

Technical Specification :

DESCRIPTION

This apparatus enables a comprehensive arrangement of vibration experiments to be conducted on a single Sturdy M. S. channel (100 mm x 50 mm) basic frame. The experiments are specially designed for quick and easy assembly on the frame. Many components are common to several experiments. AND THE WHOLE FRAME IS POWDER COATED.

RANGE OF EXPERIMENTS

PENDULUM EXPERIMENTS

For pendulum experiments a sub-frame is attached to the upper beam of the frame. This pendulum supported frame is provided with hardened V guide for supporting the compound pendulum. It also carries two small chucks for gripping the wires for the bi-filer suspension and simple pendulum. Following experiments can be conducted.

Expt. No. 1-Simple Pendulum

To verify the relation $T = 2\pi \sqrt{L/g}$ & to plot the graph T^2 Vs L

Expt. No. 2-Compound Pendulum

To verify the relation $T = 2\pi \sqrt{I_{OG}/g(OG)}$

To determine the radius of gyration & equivalent length of compound Pendulum.

Expt. No. 3-Bi-filer suspension- (Tensional Oscillations)

To determine the radius of gyration of body about the centre of gravity by using relation.

$$T = 2\pi \sqrt{K/aSL/g}$$

LONGITUDINAL VIBRATIONS

• Expt. No. 4-Spring Mass System

To verify the relation

$$T = 2\pi \sqrt{m/k}$$
 and plot the graph T^2 Vs m .

• Expt. No. 5 -Equivalent Spring Mass System

Study of undamped natural vibrations of beam pivoted at one end supported by tension spring at the other end.

• Expt. No.6-Equivalent Spring Mass System

Study of undamped natural vibrations of beam pivoted at one end supported by tension spring at the other end, plot the graph amplitude Vs frequency.

TORSIONAL VIBRATIONS

• Expt. No. 7-Single Rotor

To verify the relation

$$T = 2\pi \sqrt{I/K_t}$$

And to study the relationship between the periodic time & shaft length.

- xpt. No. 8-Two Rotors

To verify the relation $T = 2\pi \sqrt{\frac{I_A + I_B}{K_t}}$

And plot a graph of T Vs $\frac{1}{I}$

- Expt. No. 9-Single Rotor with Viscous Damping

To find out the damping coefficient 'Ct' for various depth of damping drum (immersed in liquid) & to plot a graph of damping torque Vs depth of damping drum.

- Expt. No. 10

To find out the natural frequency of beam with & without load & to verify the Dunkerley's Rule.

- Expt. No. 11

To study the forced vibrations for various amount of damping & to plot a graph of amplitude Vs frequency.

ACCESSORIES

- Exciter unit with fractional H. P. Electric Motor.
- Ordinary strip chart recorder for recording vibrations.
- Damper with arrangement for changing damping.

SERVICE REQUIRED

- Single Phase 15amp electrical Connection
- Floor space area of about 2 m x 2 m

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