

**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  $T = 2\pi \sqrt{k^2 + (OG)^2/g(OG)}$

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.

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

#### LONGITUDINAL VIBRATIONS

• Expt. No. 4-Spring Mass System

To verify the relation

$$T = 2\pi \sqrt{W/Km} \cdot g \text{ and plot the graph } T^2 \text{ Vs } W.$$

• 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

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

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

- xpt. No. 8-Two Rotors

To verify the relation  $T = 2\pi \sqrt{\frac{SIA + IB}{Kt(IA+IB)}}$

And plot a graph of F 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

## Naugralabequipments

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