Product name:	Product code:
Mechanical Engineering	Machine0004



Description

Mechanical Engineering

Technical specification

- Simple adjustments can be made to the apparatus and the motion of the mass can be readily observed and recorded on the two pen recorders provided. The use of so called “Black Boxes” has been avoided, a feature welcomed by most teachers.
- Adopting the well tried features of the simple Vibration Apparatus, the mass carriage is constrained by rollers on vertical guide ways to provide minimum uncontrolled damping. Variable viscous damping is provided by an oil dashpot.
- Two methods of exciting forced vibration are adopted; either by oscillating the upper spring mounting with SHM at variable frequency or by applying a rotating out balance force at variable frequency to the vibrating mass.
- Two pen recorders are provided, a continuous paper recorder for amplitude and frequency measurements and a rotating drum recorder for amplitude and phase measurements.
- Experiment manual.

Dimensions and weight

- 880 x 580 x 1240 mm.
- Net Weight : 75 kg.

Essential requirements

- Voltage supply : 220V, 50 Hz.

Optional equipments :

- Simple Vibration apparatus

Mechanical Engineering

To investigate the relationship between the mass of the body, the stiffness of the spring and the periodic time or frequency of the oscillation of a spring-mass system having one degree of freedom.

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- To investigate the effect of viscous damping on the free vibration of a simple spring-mass damper system.
- To investigate the relationship between the amplitude of the steady state vibration of the vibrating mass and the forcing frequency for varying damping ratios.

(a) Vibrations induced by applying a periodic disturbing force to the mass. In this experiment the exciter unit is driven from a gearbox via a flexible coupling such that one revolution of the contra rotating discs is equal to one revolution of the phase recorder.
(b) Vibrations induced by a periodic displacement of the point of support of the spring. In this experiment a connecting rod, driven by an eccentric, imparts a such that on revolution of the eccentric is equal to one revolution of the phase recorder.

- To investigate the phase relationship between the vibrating mass and the periodic displacement of the spring support for varying damping ratios.

Technical specifications