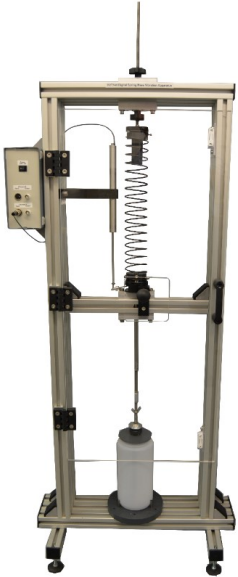




## DIGITAL SPRING MASS VIBRATION APPARATUS

### HVT14D



#### Features

- Moving part of spring moves through stationary linear bearings which allow the overall system to be more reliable
- Uses contact linear displacement transducer and additional modules for forced vibration of bottom or top of spring
- Digital data acquisition and USB linked software for spring reaction (HVT14d) and also excitation frequency (HVT14e or HVT14g)
- Many variables that can be explored, effective spring length, change of springs, amount of added mass, amount of damping in system and adjustable starting positions

#### Description

The HVT14 Spring Mass Vibrations Apparatus is a floor mounted unit to analyse the oscillations of a helical spring mass system. The sturdy base secures two vertical aluminium pillars in a vertical plane, this extruded section has integral grooves for ease of positioning set up parts and additional modules. A top horizontal bracket keeps the supports at a constant width. The spring can be loaded with a number of set masses as well as having the option of testing the spring oscillations in free, or damped conditions. A variable damper is attached. The spring is then extended into a static loaded position and held in place via a locking mechanism. Vertical spring movement is measured by a contact linear displacement transducer. Supplied with the HVT14d is a sensor box which incorporates a digital oscilloscope, the output from the LVDT is plugged into this and the sensor box is linked to a host PC/ Laptop (not supplied) via a USB cable. Software is provided to view, record and analyse the resulting waveform from the sensor. The apparatus is supplied with a safety guard door panel (not illustrated) to help protect users against the moving parts of the equipment. A number of modules are available to further experimental capabilities as well as being supplied with a detailed experimental operating and maintenance manual giving example experimental results and calculations.

#### Learning capabilities

- To obtain the spring rate from experimental data
- Frequency of oscillation (un-damped/ damped)
- Damping ratio calculations
- Adjustable starting spring length.
- Range of oscillating masses to be tested.

#### Technical Specification

- Rigid support frame 1400mm x 300mm x 600mm
- Damping tub capacity 2 litres
- LVDT Sensors
- Sample standard spring wire diameter 3.175mm, pitch 12.7 free length 254mm, spring rate 0.241 N/mm

#### What's in the Box?

- 1 x Main assembly unit
- 1 x Spring assembly
- 1 x Safety guard
- 1 x Trigger block
- 1 x Oil damping tub plate
- 1 x Damping Assembly
- 1 x LVDT Sensor
- Weight set included 1 x 5N, 2 x 10N

#### Supporting Software

- Spectral analysis of data available. From software calculation of natural frequency and natural decay of system.

#### Minimum System Requirements

- Microsoft compatible PC, or laptop running Windows 8 or above

#### Weights & Dimensions

- NET DIMENSIONS APPROX: 1400MM (H) X 300MM (D) X 600MM (W)
- NET WEIGHT APPROX: 50KG

#### Essential Services

- 110-240 Volts, Single Phase, 50-60Hz. For universal power supply to power sensor box.

#### Operational Conditions

- Storage temperature: -10°C to +70°C
- Operating temperature range: +10°C to +50°C
- Operating relative humidity range: 0 to 95%, non condensing

#### Data logger channel inputs where applicable\*

As part of the HVT14d, a sensor box is supplied which incorporates a digital oscilloscope. This can be USB linked to a host computer (not supplied) and run with bespoke software to capture, display, store and retrieve the spring response frequency from the HVT14d apparatus.

#### Ordering information

To order this product, please call PA Hilton quoting the following code:  
HVT14D DIGITAL SPRING MASS VIBRATION APPARATUS

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