Features

- Demonstration of fundamental aspects of mechanical vibration
- Damping and resonance with forced vibrations
- Two different principles of exciting vibration

Tesca Free & Forced Vibration Apparatus is an experimental unit based on the theory that vibrations are rapidly and securely assembled on a double profile frame made of aluminum using slot nuts and clamping levers. The oscillator consists of a beam mounted in ball bearings at one end; a helical spring is hung on the other end of the beam. The attachment of springs, the exciter and a damper to a perforated panel permits a wide range of different set-ups to be reproduced. Either an unbalance exciter or a displacement exciter generate vibrations; the frequency of the vibrations can be adjusted using the electronic control unit. The displacement exciter can be fitted directly to the base of the spring. The vibrations can be damped using the adjustable viscosity damper. To record vibration processes over time, a mechanical drum plotter is included. The experiment also includes an amplitude contact with a TTL output, e.g. for triggering stroboscopes.

The measured values can be evaluated with the software for data acquisition(optional). A practice set for torsional vibrations is available as accessories.

Specifications

- Basics of mechanical vibration, natural damped and forced vibrations
- Bar-type oscillator
- Three helical springs
- Unbalance exciter with DC motor, 0,77kg
- Displacement exciter with DC motor
- Electronic control unit with digital display, exciter frequency adjustable
- Oil-filled damper
- Electrically driven drum recorder
- Amplitude meter with electric contact for triggering equipment

Technical Specifications

- Bar-type oscillator: LxWxH: 700x25x12mm, 1,6kg
- Helical springs
  - 0,75N/mm
  - 1,5N/mm
  - 3,0N/mm
- Exciter frequency: 0...50Hz, electronically controlled
- Unbalance of the unbalance exciter: 0...1000mmg
- Stroke of the displacement exciter: 20mm
- Damper constant: 5...15Ns/m, oil-filled
- Mechanical chart recorder

Note: Specifications are subject to change.

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- Feed: 20mm/s
- Paper width: 100mm

Experiment Possibilities

- Natural vibration
- Damped vibration
- Inertia force and displacement excitation
- Forced vibration
- Resonance
- Amplitude and phase response

Scope of Delivery

- 1 frame
- 1 bar-type oscillator
- 3 helical springs
- 1 unbalance exciter
- 1 displacement exciter
- 1 exciter control unit
- 1 damper
- 1 amplitude meter
- 1 drum recorder
- 1 storage system with foam inlay
- 1 manual

Note: Specifications are subject to change.

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