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Product Name :

Free And Forced Vibrations

Product Code :

SLE/ETM/13



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Description :

Free And Forced Vibrations (Product Code: SLE/ETM/13) is a beam vibration apparatus usedto study free, forced and damped oscillations in engineering and theory of machines laboratories. Students can set the beam vibrating by hand or force it with a variable-speed servomotor drivinga rotating offset mass, while a non-contacting sensor records displacement without addingdamping. It is made by **Jain Scientific Equipments Pvt Ltd (ScienceLab)**, an OEMmanufacturer, at its own factory in Ambala, India.

Key Details

Parameter	Detail
Beam	High-grade ground steel
Pivots	High-quality ball races for lowest friction and incidental damping
Excitation	Manual, or a variable-speed servomotor driving a rotating offset mass (‘exciter’)
Speed control	Servomotor with its own encoder and advanced controller for accurate speed regulation
Exciter position	Encoder linked to the rotating exciter mass measures its dynamic position
Displacement sensing	Non-contacting sensor with no physical contact with the oscillating system
Acceleration sensing	Accelerometer built into the exciter assembly
Damping	Variable-area viscous dashpot damper, with non-toxic fluid of stable viscosity (supplied)
Set-up	Simple and quick set-up and changeover; designed for repeatable results over a range of ambient temperatures
Analysis	Software compares measured acceleration with that derived from displacement
Product code	SLE/ETM/13
Manufacturer	Jain Scientific Equipments Pvt Ltd (ScienceLab) — OEM
Country of origin	India (made in Ambala, Haryana)

What Is the Free And Forced Vibrations Apparatus Used For?

Engines, pumps and building floors all vibrate, and engineers need to know the natural frequency of a structure and how strongly it responds when something drives it near that frequency. With this apparatus, a class first plucks the beam by hand to watch free vibration die away, then switches on the exciter and raises the servomotor speed step by step to trace the forced response and find resonance.

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