

FLEXURAL, LONGITUDINAL, TORSIONAL RESONANCE

■ 58-E0035/A

Resonance frequency meter.

110-240 V, 50-60 Hz, 1 ph.

STANDARD

Resonant frequency tests are specified for various materials in:

Concrete: BS 1881:209 – ASTM C215, C666 and JIS A 1127 – UNI 9771 – NF P18-414

Stone and rock: EN 1341 and ISRM

Ceramics, refractory materials and glass: ASTM C623, C848, C885

Carbon and graphite: ASTM C747

General description and specifications

Used as a means of monitoring changes taking place in the concrete and other materials, due to age, weathering, temperature, cracking etc. In concrete technology the values of modulus of elasticity and modulus of rigidity are easily derived from the resonant frequency, and are closely related to the quality of the materials, to the treatments or additives, and to the environmental changes. In particular the determination of flexural resonance is very important when studying the degradation of concrete under accelerated freezing and thawing cycles and aggressive environments on concrete specimens as well as thermal cycling of refractory materials.

The tester includes:

- Electronics unit
- Test bench with anti-vibration mounts
- Contact vibrator
- Mini accelerometer
- Surface-mount accelerometer
- Surface plate set
- Full set of mountings for complete range of tests

Measurements

Frequency range: 1 Hz to 100 kHz

Frequency resolution:

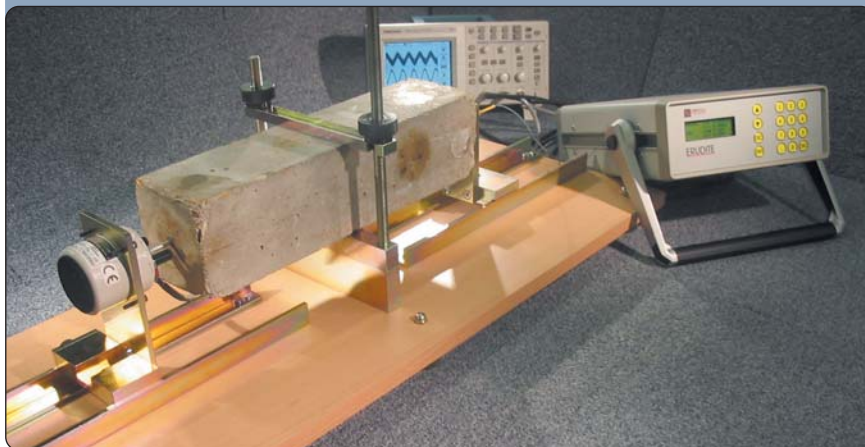
1-99.99 Hz = 0.01 Hz

100-999.9 Hz = 0.1 Hz

1000-9999 Hz = 1 Hz

>10 kHz = 10 Hz

- Used by Quality control and Research departments of many leading companies and institutions, to test materials such as concrete, carbon, graphite, and ceramics
- Automatically measures the fundamental longitudinal, torsional and resonant frequencies and calculates the damping constant "Q"
- Used to determine the dynamic moduli of elasticity and rigidity, the dynamic Poisson's ratio, and estimate the Ultrasonic pulse velocity



58-E0035/A Resonance frequency meter. Complete set

Output voltage: 0 to 2 V pk-pk into 3Ω load (0.707 V RMS into 3Ω , 1.5 W)

Output monitor: 0 to 2 V pk-pk from BNC socket on rear panel for oscilloscope "X" input

Input monitor: 0 to 2.5 V pk from BNC socket on rear panel for oscilloscope "Y" input

Display

4-line LCD

Drivers

Contact vibrator for large mass. specimens

Electro-magnetic air gap driver for small mass. specimens

Vibration sensors

Miniature accelerometer for large mass. specimens

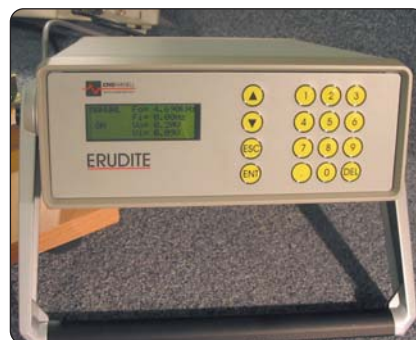
Electro-magnetic air gap receiver for small mass specimens

Surface mounting accelerometer for transverse mode tests

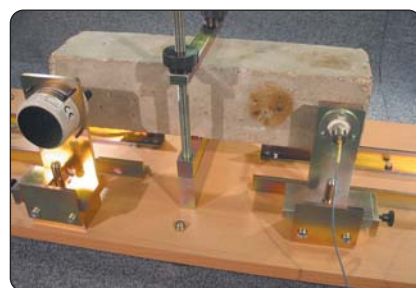
Power supply: 110-230 V, 50-60 Hz, 1 ph.

AC (user selectable)

Weights: net 27 kg, gross 32 kg, and volumetric 40 kg



58-E0035/A Main unit



58-E0035/A Detail of the test bench and prismatic specimen