

Resonant Modulus Tester



TEST ON:
CONCRETE
STONE & ROCK
MASONRY
CARBON & GRAPHITE
CERAMICS
Other Specimens

Introduction

The Resonant Tester (RT-1) is a simple, rugged, battery powered unit designed for easy, fast, and reliable operation to find; Young’s modulus, shear modulus and Poisson’s ratio of concrete, rock, masonry, carbon and other cylindrical (inc. cores), or beam specimens, as well as the dynamic properties for freeze-thaw durability. Consisting of three simple components, this digitally based handheld RT-1 tester is faster, simpler, easier and more economical than older analog vibrator technology.

Applications

The Olson Instruments Resonant tester is a complete unit designed primarily to conduct and supplement ASTM C215 “Standard Test Method for Fundamental Transverse, Longitudinal, and Torsional Resonant Frequencies of Concrete Specimens” and ASTM C666 “Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing” respectively.



Data Acquisition Unit

Accelerometer

Ball- Peen Hammer

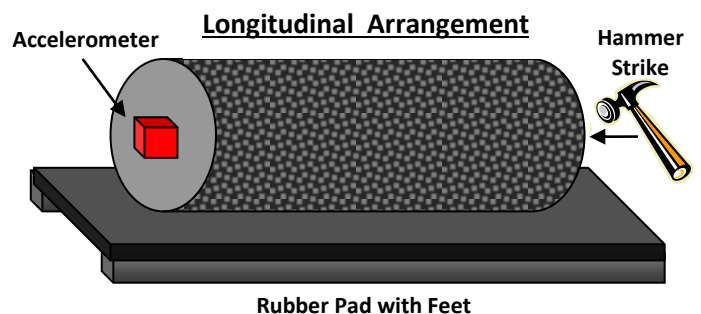
It meets the stringent guidance of these standards. The dynamic Young’s modulus, shear modulus and Poisson’s ratio of concrete, rock, masonry, carbon and other cylinder, beam and core-shaped specimens can be obtained in seconds and used by Structural Engineers in the design of concrete structures as well as the specifications for mix design.

Key Features

- Simple Components:
 - 1 Handheld, battery-powered digital analysis and display unit
 - 2 Accelerometer
 - 3 Ball peen Hammer
- Get accurate results in under a minute
- Color Screen for Frequency Spectral Display
- Learning curve: less than 10 minutes
- Damping Calculation
- Download & Analyze Data to Your PC via Serial Port
- AC (100-240 VAC) or Rechargeable Battery Power
- Option for Testing Smaller Rock Core Specimens
- Quick & Easy Set Up: uses sponge rubber mat instead of metal test frame (per ASTM C215)
- Includes sample Excel Spreadsheet for all moduli calculations

Data Collection

A series of three tests must be taken longitudinal, transverse and torsional arrangements. The accelerometer is simply mounted to the test specimen by glue or grease and is then placed on the rubber pad. Then the unit is turned on and the specimen is then struck with the hammer and the results are recorded and saved for analysis.





Perth

West Perth
0408 034 668

Brisbane

Toowong
0419 477 715

Melbourne

Niddrie
0428 315 502

Sydney

Belrose
0418 381 709

www.pcte.com.au

Form Supplied

The Resonant Test kit (RT-1) includes three main components: a small hammer to impact the concrete specimen, an accelerometer to measure the vibration response of the concrete specimen, and a handheld data acquisition unit which includes a processor to perform calculations as well as a graphical display of the received signal spectrum allowing the user to immediately review test data as well as save, recall, and later download the data to a PC. Additional equipment in the RT-1 test kit includes all necessary cables, sensor mounting brackets and adhesives, and a rubber pad for specimen support.



- 1) Handheld Data Acquisition & Display Unit
 - 2) Accelerometer
 - 3) Microdot BNC Cable (for accelerometer)
 - 4) 110g Spherical Head Hammer
 - 5) Adhesive Grease/Spatula
 - 6) Equipment Case
- Sponge Rubber Mat for Specimen Support
 - Various Accelerometer Mounting Brackets
 - Small Impactor for Rock Cores - Sample Spreadsheet with all Modulus Calculation Pre-Entered
 - Software for data download to PC Serial Port and Data Analysis

The RT-1 test kit also includes a CD with an Excel spreadsheet programmed with all calculations and tables found in ASTM C215.

Specifications

| | |
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| Sampling Rate | 52,000 Samples/s |
| Number of Samples Acquired Per Test | 1024 samples |
| Frequency Resolution | 52 Hz |
| Maximum Number of Tests Stored | 100 |
| Nyquist Frequency | 26,000 Hz |
| ASTM C215 Minimum Required Frequency | 20,000 Hz |
| Processing Time for 1 Test | Approx. 10s |
| Battery Run Time | Approx. 6 Hrs |
| Battery Recharge Time (can operate while charging) | 6 Hrs |
| Accelerometer Flat Frequency Response Measurement Range | 20,000 Hz |
| High Accelerometer Resonant Frequency for Small Rock Cores | 70,000 Hz |
| High Nyquist Frequency Option for Small Rock Cores | 54,000 Hz |

About PCTE

PCTE have over 30years experience in the measurement and testing of concrete. With experience in research, consulting and construction they are able to assist you in reviewing the issues and developing solutions. PCTE can provide more than just the equipment. They can provide leading technical support for your business.

Other Equipment

The Olson Instrument range also includes the CTG, NDE360, Freedom Data PC and DAS as well as the resonance tester.

The full Proceq range of equipment is available for insitu non destructive concrete measurement, including Schmidt Hammers, Covermeters, Half Potentials, Resistivity, Ultrasonic's and Permeability.

We also supply Intelli-Rock maturity, temp and humidity logging systems, corrosion rate monitoring equipment, Ground Penetrating Radar.

Our newest piece of equipment is the MIRA Ultrasonic Pulse Echo imaging system.