Pundit Lab

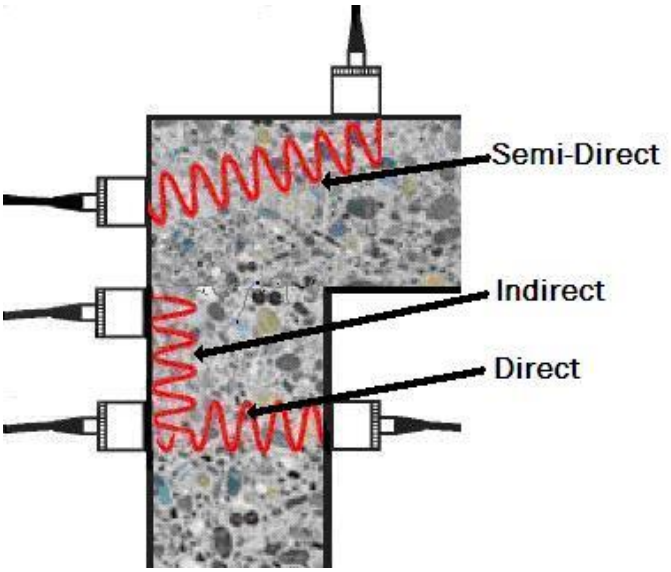
The pulse velocity in a material depends on its density and its elastic properties. These in turn are related to the quality and the strength of the material. It is therefore possible to obtain information about the properties of components by sonic investigations. The world known Pundit offers users a reliable and accurate method for determining the sonic properties of materials.

Test Method

Ultrasonic Pulse Velocity testing in its most basic mode is called time of flight. This refers to timing the arrival of an ultrasonic pulse from one transducer to another through a solid medium. The ultrasonic pulse in this instance is a p-wave (or compression wave). The ultrasonic pulse velocity (UPV) is calculated by dividing the distance between the transducer by the time of arrival.

Access for Testing

Pundit UPV Tester offers three methods of transmission. These can be seen in the image (right). The method of transmission is determined by access to the concrete elements surfaces and the characteristic being tested. Pundit Lab has an automatic function for indirect (surface wave) measurements). Pundit Lab is calibrated in accordance with EN 12504-4.



Applications

Ultrasonic testing can be used for:

- The homogeneity of a material
- The presence of voids, cracks or other internal imperfections or defects
- Changes in the concrete which may occur with time (i.e. due to the cement hydration) or damage from fire, frost or chemical attack
- The strength or modulus of a material
- The quality of the concrete in relation to specified standard requirements

Materials

An essential tool for investigating a wide range of materials:

- Concrete
- Ceramics and Refractories
- Timber
- and many others

Pundit Lab

Field Features for Pundit

Crack Depths

The Pundit has an automated feature which allows crack depths (BS method) to be determined perpendicular to the concrete surface.

Combination of Pundit-SCHMIDT for the Concrete Strength

This is a method (often referred to as the Rebultra method) by which the concrete strength can be calculated using a combination of the rebound value of the concrete and the UPV. Using these two independent factors will give greater accuracy, but must be calibrated using local materials.

Pundit Link Analysis Software

The Windows based software Pundit Link, developed by Proceq SA, unlocks the full capabilities of the Pundit Lab, providing the user with:

- Waveform visualisation and analysis
- Interactive adjustment of trigger point
- On-line time data acquisition
- Full remote control of the instrument
- Export of data to third party applications

System requirements: Windows XP, Windows Vista, Windows 7, USB port. An Internet connection is necessary for future software and firmware updates.

Transducer frequencies

Comes standard with 54kHz transducers, although a range of frequencies are available from 24kHz to 150kHz. There are also exponential transducers available for dry coupling and wood applications. There are also new 250kHz Shear wave transducers available for expert users.

The Pundit comes standard with:

- Pundit Unit
- Two 54kHz transducers
- Two 1.5m transducer cables
- Ultrasound couplant
- Calibration Bar
- USB charger with USB-cable
- Pundit link Software
- Operating Manual

Technical Specifications

Accuracy	0.1µs
Display	79 x 21 mm passive matrix OLED
Transmitter	12 V, 250V, 350V, 500V, AUTO
Battery	4 x AA batteries, primary or rechargeable
Mains Power	Via USB Charger
Operating Temp	-10° to 60°C
Instrument dimensions	172 x 55 x 220 mm
Instrument weight	1.3 kg (incl. batteries)

About PCTE

PCTE have over 30 years' experience in the measurement and testing of construction materials. PCTE can provide more than just the equipment, they can provide expert training. PCTE have a service centre in Sydney in which they can provide calibration, repairs and warranty repairs.

Other Equipment

PCTE supply three main ranges: NDT, Lab and Geotech Instrumentation.

NDT includes: Rebound Hammers, Covermeters, Ultrasonics, GPR, Corrosion Testing, Coating Testing and Foundation Testing

Lab includes equipment for: Concrete, Cement, Aggregate, Soil, Asphalt and Metal

Geotech Instrumentation includes: Strain Gauges, Piezometers, Inclinometers, Extensometers, Tiltmeters, Load Cells and Dataloggers