

## Concrete quality and homogeneity evaluation

To estimate homogeneity and structural integrity the most appropriate methods are those that utilise ultrasonics. The main aim is to measure the transit time of sonic/ultrasonic pulses through concrete. The pulse velocity is dependant

upon the density and the elasticity properties of the material. By comparing pulse velocities it is possible to evaluate homogeneity and identify the presence of cracks, voids, honeycombing, anomalies and non-homogeneity of elastic properties. To gather more information concer-

ning the material under study, different test methods can be combined, particularly ultrasonic readings with rebound hammer readings so as to obtain additional information concerning concrete strength

### SUMMARY OF THE MOST RELEVANT TEST METHODS AND RELATED APPLICATION

Measurement	Application	Code	Description
Ultrasonic pulse velocity	Uniformity/homogeneity of concrete Location of internal defects	58-E0048	Ultrasonic concrete tester
		58-E0049/A 58-E0049/B	Combined testers for ultrasonic and rebound tests
	Cross-hole pile integrity testing system	58-E4600/D	Pile integrity test system

### ULTRASONIC PULSE VELOCITY TESTER

#### ■ 58-E0048

#### Ultrasonic pulse velocity tester

#### STANDARD

**EN 12504: Part 4**, BS 1881: 203, ASTM C 597, NF P18-418, UNI 9524

#### General description and specifications

To measure the velocity of propagation of ultrasonic pulses through concrete.

#### Microprocessor incorporated

Frequency range: 24 to 150 kHz

Receiver input impedance: 1 MΩ

RS 232 output

Connectable to oscilloscope

Transit time measurement:

from 0.1 to 1999.9 μs

Pulse rate:

from 1 to 10 per second, selectable

Accuracy: 0.1 μs

Transmitter output: 800 V

Battery operated

Battery life: 18 working hours

Dimensions: 138x80x200 mm

Weight approx.:

1.1 kg, complete set 2.9 kg



Ultrasonic tester 58-E0048

#### The tester is supplied complete with:

- Two 54 kHz transducers (Transmitter and Receiver) with 3 m cable
- Calibration rod
- Coupling agent (250 cc bottle)
- Nylon carrying case.

- Non-destructive evaluation of homogeneity of concrete, presence of cracks and voids, deterioration, age effects
- Non-destructive evaluation of the mechanical properties of the concrete
- Light, portable and easy to use

#### Accessories and spare parts

Testing heads, oscilloscopes and calibration rods same as those listed for the 58-E0049/B and 58-E0049/A models. See following pages.



Ultrasonic tester 58-E0048 with oscilloscope 58-E0048/10