Surface Hardness

Surface hardness is used to measure the resistance of concrete to impact or penetration. From the measurements it is possible to obtain an estimation of the concrete strength and quality.

Concrete Test Hammers

EN 12504-2; ASTM C805

The method is based on the principle that the rebound of an elastic mass depends on the hardness of the surface which it strikes. The test is fast and is unlikely to cause damage to the concrete.

Ordering Information

EL35-1480
Concrete Test Hammer, Normal. The hammer is intended for testing the quality of concrete in finished structures such as buildings and bridges. Supplied complete with carrying case and carborundum stone, the hammer is suitable for testing concrete with compressive strengths of 10 to 70 N/mm². Weight 1.4 kg

EL35-1480 Concrete Test Hammer, Normal

Testing Anvil

The anvil is used to enable routine checks to be made on the operation of EL35-1480 and EL35-1500 hammers.

Ordering Information

EL35-1530
Testing Anvil. Weight 16 kg

EL35-1530 Testing Anvil

Cover to Reinforcement

Micro Covermeter

- Direct digital read-out of bar size, type and concrete coverage in both English and Metric units of measure
- ‘Auto Scan’ quickly locates rebars in bridge decks that do not have the minimum preselected concrete coverage. Unit gives both an audio alert of location and direct readout coverage of those bars that are out of specification
- Effective reading depth of up to 14 in. (360 mm) for larger sized bars
- Ability to automatically size bars to within ±1 bar size.

The Micro Covermeter enables you to locate and size reinforcement bars as well as determine concrete coverage. This precision hand-held instrument is essential for highway departments, consulting engineers and contractors for use in evaluation of in-place structures, pavements, bridges, parking garages and pre-stressed or post-tensioned members. The probe is designed for general all purpose use and is excellent for locating deeper bars (up to 14 in.).

Specification

- Locating Range: Up to 360 mm maximum
- Cover Accuracy: ± 2 mm or ± 5% up to 75% of the maximum range
- Auto Sizing Range: Up to 200 mm for larger bars
- Display Type and Scale: LCD, Metric and English (selectable)
- Power: Rechargeable battery (charger included)
- Dimensions: Meter: 180 x 100 x 45 mm
- Probe: 127 x 70 x 38 mm
- Instrument Weight: Net 2.2 kg

Ordering Information

EL35-2015 Micro Covermeter

Includes probe, carrying case and manual.

Special Note:
When bar size is an important parameter, e.g. for structural calculations, it is essential to confirm the readings by exposing the bar.
Pulse Velocity Measurement

The basic principle of this method of testing is that the velocity of an ultrasonic pulse through concrete is related to its density and elastic properties. Some care is necessary when testing, but an experienced operator may obtain a considerable amount of information about a concrete member. The advantage of this method is that the pulse passes through the complete thickness of the concrete so that the significant defects can be detected.

Applications

The measurement of concrete uniformity
Determination of the presence or absence of voids, cracks and other imperfections
Deterioration of the concrete which might have occurred due to age or through the action of fire, frost or chemical attack
Measurement of layer thickness and elastic modulus
Determination and monitoring of concrete strength

Pundit

BS 1881-203, EN 12504-4; ASTM C 597

- Non-destructive strength testing
- Crack and void detection
- Measurement of layer thickness and elastic modulus
- Uniformity and deterioration of concrete

It has been designed with site testing particularly in mind and is simple to operate, with a high order of accuracy and stability. The majority of concrete testing will require transducers with a frequency of 54 kHz.

As standard the unit is supplied with Windows compatible software, enabling test results to be downloaded to PC.

Data is presented in Excel (this needs to be resident on the PC).

Specification

<table>
<thead>
<tr>
<th>Dimension (l x w x h)</th>
<th>160 x 250 x 100 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time measurement</td>
<td>0.1 to 999.9 m sec</td>
</tr>
<tr>
<td>Ranges</td>
<td>0.1 to 999.9 m sec</td>
</tr>
<tr>
<td>Accuracy</td>
<td>± 0.1 m sec</td>
</tr>
<tr>
<td>Transmitter, pulse</td>
<td>1.2 kV, 500 V or 250 V, 1.5 msec</td>
</tr>
<tr>
<td>Power supply</td>
<td>Battery: Ni-Cad rechargeable</td>
</tr>
<tr>
<td></td>
<td>Mains: 110 – 240 V AC, 50 – 60 Hz, 1 ph</td>
</tr>
<tr>
<td>Display</td>
<td>128 x 128 dot LCD with back lighting</td>
</tr>
<tr>
<td>Weight</td>
<td>8.2 kg</td>
</tr>
</tbody>
</table>

Ordering Information

Pundit Plus Ultrasonic Concrete Tester complete with two 54 kHz transducers each with 3.6 metres of cable, coupling agent, carrying case and instruction manual. Weight 8.2 kg

For 110 - 220 V AC, 50 – 60 Hz, 1 ph

Spare

EL35-2305 Coupling Agent, thick grade
**Concrete**

**Non-destructive testing of hardened concrete**

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### Crack Measurement

**Crack Detection Microscope**

Specifically designed for measuring crack width in concrete, this high definition microscope operates via an adjustable light source provided by high power batteries. Supplied in a pocket sized carrying case.

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (l x w x h)</td>
<td>40 x 90 x 150 mm (in case)</td>
</tr>
<tr>
<td>Magnification</td>
<td>40</td>
</tr>
<tr>
<td>Measuring range</td>
<td>4 mm</td>
</tr>
<tr>
<td>Divisions</td>
<td>0.02 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>550 g</td>
</tr>
</tbody>
</table>

**Ordering Information**

**EL35-2505**

Crack Detection Microscope

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**Digital Crack Measuring Gauge**

![Digital Crack Measuring Gauge](image)

- 100 mm gauge length
- Digital display
- Quick and simple measurements

This precision crack measuring gauge has a measuring range of ± 50 mm. It is manufactured from high quality materials and is supplied complete with setting out bar in a fitted box.

**Specifications**

- Nominal gauge length: 100 mm
- Measuring range: ± 50 mm
- Resolution: 0.01 mm and 0.0005 inch
- Accuracy over full range: 0.03 mm and 0.001 inch
- Operating temperature range: 0 to 40ºC

**Ordering Information**

**EL35-2520**

Digital Crack Measuring Gauge supplied without locating discs.

**Accessories**

Stainless Steel Locating Discs

see EL35-2854

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**Strain Measurement**

The measurement of small strains in concrete and other materials involves the use of specialised measuring equipment and accessories. The range of devices offered by ELE ensure that accurate measurements are taken and strain is monitored with confidence.

**Demec Strain Gauge**

BS 1881-206

The 'Demec' range of mechanical strain measurement devices are ideally suited for the measurement of strain in concrete structures, rock strata etc, in remote areas and under adverse conditions. Supplied with a reference bar, setting-out bar and case.

**Ordering Information**

**EL35-2838**

'Demec' Mechanical Strain Gauge 50 mm gauge length

**EL35-2846**

'Demec' Mechanical Strain Gauge 200 mm gauge length

**EL35-2854**

Stainless Steel Locating Discs box of 100

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**Crack Detection Microscope**

EL35-2505 Crack Detection Microscope

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**Digital Crack Measuring Gauge**

EL35-2520 Digital Crack Measuring Gauge

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**Demec Strain Gauge**

EL35-2846 Demec Strain Gauge
**Permeability and Water Absorption**

**Initial Surface Absorption Test**
BS 1881-208

The apparatus described complies with the requirements of BS 1881. The ISAT is particularly useful for testing pre-cast units.

**Ordering Information**

EL35-3985
*Reservoir, Capillary Tube and Scale* complete with connections to cap. Weight 1.3 kg

EL35-3989
*Cap* for clamping onto smooth surfaces, manufactured from clear plastic and fitted with a rubber gasket.

EL35-3993
*Cap* similar to EL35-3989 but having a knife-edge in place of a rubber gasket for contact with round surfaces or when clamping cannot be used.

**Concrete Impermeability**

The impermeability of concrete can be determined in the laboratory by applying water under a controlled pressure to the surface of 200 mm square concrete prisms and measuring the penetration of water in to the specimen.

**Concrete Impermeability Apparatus**
EN 12390-8; DIN 1048

The apparatus consists of a powder-coated steel frame with the measuring locations manufactured from corrosion-resistant material.

Pressure to the sample is generated by way of compressed air applied to the integral water tank and controlled by a pressure regulator, with a pressure gauge.

The apparatus is supplied with three measuring locations with central spindle.

As standard the unit is designed for specimen dimensions of 200 x 200 mm, and 150 x 150 mm, with provision for sample heights of 110 to 140 mm. The test area is 78.5 cm² (diameter of 100 mm).

Test pressure is over the range 50 - 1000 kPa.

A source of compressed air up to a maximum of 1500 kPa is required.

**Specification**

Dimensions (d x w x h) 470 x 1250 x 1350 mm
Weight 80 kg

**Ordering Information**

EL35-4002
*Concrete Impermeability Apparatus* for 3 test specimens
200 mm Cube Mould

see EL34-4620

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**In-situ Water Permeability of Concrete**

The Water Permeability Test Kit is a portable unit, capable of measuring in-situ permeability. It has a dual measuring range of 0 - 1.5 bar or 0 - 6 bar.

Consisting of a sealed water reservoir and all necessary attachments, the unit is supplied complete in a carrying case. Dimensions 460 x 310 x 100 mm (l x w x h).

**Ordering Information**

EL35-4043
*Permeability Test Kit*. Weight 3 kg

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**Charging the water reservoir of EL35-4043**