Concrete Test Hammer

ASTM C-805.

- ***Wide range of non-destructive test applications.***
- ***Accurate results to within approx. 15% on 1,250 to 8,500 psi concrete.***
- ***Calibration curves plot the hammer rebound number versus compressive strength.***
- ***Rubbing stone for test surface preparation.***
- ***Lightweight and portable.***
- ***Carrying case and instructions included.***

The Concrete Test Hammer is used as a control and test instrument for measuring the quality and strength of in-place concrete. This quick and inexpensive instrument is not intended as a substitute for control testing of concrete cylinders.

The Concrete Test Hammer is valuable for use in the field for trouble-shooting to determine when test cores are needed and where they should be drilled. The device is also used to determine the rate of increase in strength of concrete with time and may be used to determine when forms can be removed or loads applied.

Other users have employed the test hammer to estimate the extent of damage done to structures by freezing or by fire and to estimate the quality of concrete in old structures.

Specifications

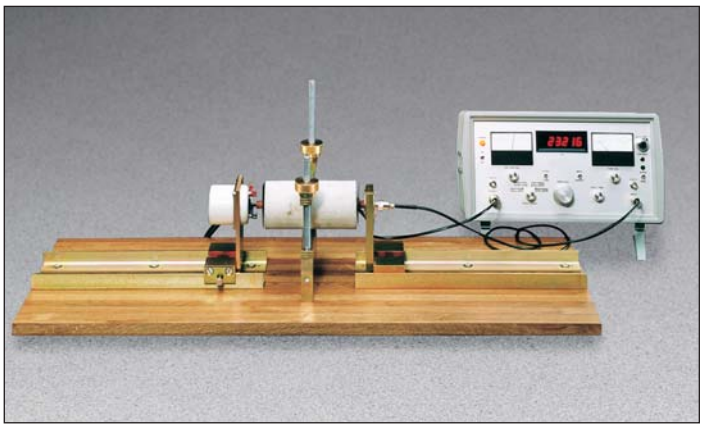
Plunger.	*Applies pressure for hammer rebound.*
Body.	*Includes indicator scale, calibration curves.*
Calibration Curves.	*Plot hammer rebound number vs. compressive strength.*
Rubbing Stone.	*Prepares test surface.*
Accuracy.	*Within 15%.*
Carrying Case.	*Plastic; 12" w. x 6-1/4" d. x 3" h. (305 x 159 x 76 mm).*
Weight.	*Net 3 lbs. (1.4 kg).*

Ordering Information

EI35-1475. With English Calibration Curves.
EI35-1480. With Metric Calibration Curves.

Accessories

EI35-1530. Calibration Anvil.



Resonant Frequency Tester

ASTM C-215, C-666.

- ***Conforms to ASTM C-215 and C-666 specifications.***
- ***Accurate non-destructive method for Young's Modulus of Elasticity, Modulus of Rigidity, Poisson's Ratio and Damping Constant parameters.***
- ***Accepts specimen sizes up to 6" x 6" x 28" (150 x 150 x 712 mm) long.***
- ***Semi-automatic feature facilitates the fast identification of resonance.***

The principal used in the Resonant Frequency Tester is based upon the determination of the fundamental resonant frequency of vibration of a specimen by a driving oscillator, sensed by an accelerometer and then amplified on a meter.

The system has a semi-automatic feature that eliminates cumbersome manual scanning. Frequencies are automatically scanned in one of four ranges and the maximum amplitude is registered. The unit automatically stops scanning at the beginning of the band containing the resonant frequency.

Specifications

Oscillator.	*Frequency range:*	*10 Hz to 100 kHz in 4 switched ranges.*
	Fine Control:	*Two speed control 10:1 and 50:1.*
	Setability:	*Worst case 0.1% of reading.*
	Stability.	*Typically 0.04%, 10 min. after turned on.*
	Output:	*0 to 14V pk-pk into 3 ohms (5V RMS into 3 ohms, 8.3 watts).*
	Output Indicator:	*0 to 10V miniature meter.*
	Output Monitor:	*1V pk from BNC socket for CRO 'X' Drive.*
Frequency Ind.	*Display:*	*6-digit LED.*
	Gate Times:	*1 sec. or 10 sec. switch-selected, LED ind.*
Resonance Ind.	*Indicator:*	*70 mm scale length meter graduated 0 – 100 with indication at 70.7 point for bandwidth measurement.*
	Bandwidth:	*3 dB points; 20 Hz to 350 kHz.*
	Output Monitor:	*2.5V pk for full-scale deflection from BNC socket for CRO 'Y' Drive.*
Driving Transducers.	*Large Mass:*	*Pye-Ling 3 ohm contact vibration generator.*
	Small Mass:	*Electro-magnetic air gap driver.*
Pick-Up Transducers.	*Large Mass:*	*Miniature crystal accelerometer.*
	Small Mass:	*Electro-magnetic air gap receiver.*

Ordering Information

EI35-2480/09. 120-240vAC, 50/60 Hz, 1ø.

Ultrasonic Concrete Tester

ASTM C-597.

- ***Non-Destructive testing of in-situ or pre-cast concrete.***
- ***Direct digital readout of transit time.***
- ***Simple calibration — no special bar required.***
- ***Battery or AC operation.***
- ***Optional hand-held terminal.***

The Ultrasonic (Pulse Velocity) Concrete Tester is a fully portable instrument used for assessing the quality of in-situ or pre-cast concrete.

The main uses of the instrument include: measurement of concrete uniformity; finding the location (or absence) of voids, cracks and other imperfections; examining the deterioration of concrete due to age, fire damage, frost or chemical attack; determination and monitoring of concrete strength.

The standard unit can be operated from both AC or battery power. It is supplied complete with two 54 kHz transducers, cables, and carrying case.

Specifications

Ranges.	*24-500 KHz, based on transducer selected.*
Accuracy.	*0.1 microsecond.*
Pulse Repetition Rate.	*1, 3 or 10 microseconds - switch selected.*
Power Supply.	*Ni-cad rechargeable batteries or AC power.*
Dimensions.	*7.5" x 4" x 8" (190 x 100 x 220 mm).*
Weight.	*Net 6 lbs (2.7 kg).*

Ordering Information

Note: Shown with optional hand-held terminal; not included, order separately.

EI35-2310/09. 115-230vAC, 50/60 Hz, 1ø.

Accessories

EI35-2312. Hand-Held Terminal. Features RS232 output for uploading to a PC; direct reading of calculated P-wave velocity and S-wave velocity; direct reading of calculated modulus of elasticity and Poisson's ratio.

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" (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 state 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").

Specifications

Locating Range.	*Up to 14" (360 mm) maximum.*
Cover Accuracy.	*±2 mm or ±5% up to 75% of the maximum range.*
Auto Sizing Range.	*Up to 8" (200 mm) for larger bars.*
Bar Size Calibration.	*No. 2 - No.14 bars.*
Display Type and Scale.	*LCD, English and Metric (selectable).*
Power.	*Rechargeable battery (charger included).*
Dimensions.	*Meter: 7" x 4" x 1-3/4" (180 x 100 x 45 mm).*
Probe.	*5" x 2-3/4" x 1-1/2" (127 x 70 x 38 mm).*
Instrument Weight.	*Net 5 lbs. (2.2 kg).*

Ordering Information

EI35-2020. 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.

Crack Detection Microscope

- ***Specifically designed for measuring crack widths.***
- ***4 mm measuring range.***
- ***Includes pocket size carrying case.***

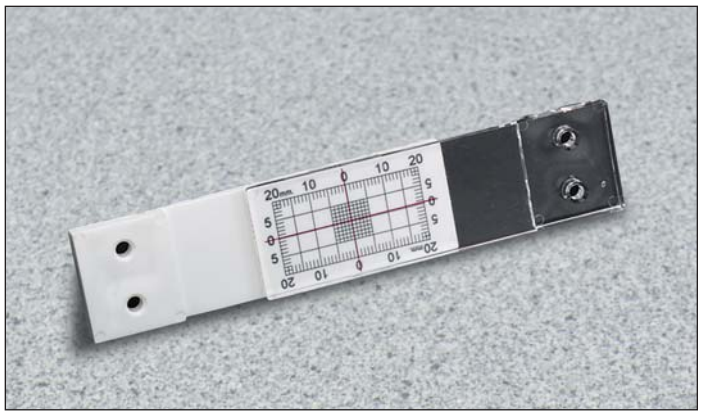
Cracks can appear in a structure for a variety of reasons including frost action, sulphate expansion, natural shrinkage, expansion or movement and corrosion of reinforcement.

The Crack Detection Microscope is specifically designed to measure the crack width in concrete. This high definition microscope operates via a battery powered, adjustable light source.

Specifications	
Magnification.	*X 35.*
Measuring Range.	*4 mm.*
Divisions.	*0.02 mm.*
Dimensions.	*1.5" x 3.5" x 6" (40 x 90 x 150 mm) in case.*
Weight.	*Net 19.4 oz. (550 g).*

Ordering Information

EI35-2505.



Calibrated Crack Monitor

- ***Inexpensive, simple yet accurate device for monitoring crack movement.***
- ***Weather resistant, water proof design permits use in salt water.***
- ***Hot-stamped crosshairs and grid.***

The Calibrated Crack Monitor is a simple, accurate device for monitoring the movement of cracks and joints in concrete, brick, or cement block structures.

The Calibrated Crack Monitor consists of two acrylic plates. One plate is white with a black grid calibrated in millimeters, and the overlapping transparent plate has red crosshairs centered over the zero lines of the grid.

After installation, the tape which holds the plates together is cut, allowing the two plates to move independently of each other. Any vertical or horizontal movement of the crack or joint will cause the crosshair to change position on the grid. A chart is supplied with each gauge for periodic recording of movement. The position of the crosshairs is copied onto a grid facsimile on the chart.

Specifications	
Construction.	*Acrylic plastic; hot-stamped crosshairs and grid.*
Discrimination.	*0.5 mm.*
Max. Crack Width Movement.	*3/4" (20 mm); longitudinal.*
Max. Upward Movement.	*3/8" (10 mm); transverse.*
Coeff. of Thermal Expansion.	*3.80 x 10-5 in/in/°F. (6.84 x 10-5 mm/mm/°C).*
Dimensions.	*Grid: 1-1/2" x 3/4" (40 x 20 mm).* *Plates: 1-1/4" x 4" x 1/4" (32 x 102 x 6.3 mm) ea.* *Overall: 1-1/4" x 5-3/4" x 1/4" (32 x 146 x 6.3 mm).*
Weight.	*Net 2 oz. (57 g).*

Ordering Information

EI35-2510. Includes crack progress chart.

Windsor HP Probe System
ASTM C-803.

- ***Approved for tests on both fresh and mature concrete.***
- ***Can measure concrete strength up to 17,000 psi (110 MPa).***
- ***Supplied complete with new electronic measuring device.***

The new Windsor HP Probe System is designed to evaluate the compressive strength of concrete in-place. The test is non-destructive and can be used on fresh or mature concrete with equal effectiveness.

The system features a new electronic measuring device for enhanced accuracy and efficiency. Three individual tests can be automatically averaged and displayed on the LCD in compliance with ASTM procedures. The data together with time and date of the test can be stored in the memory for subsequent uploading to a PC.

The silver probes can be used for high performance concrete with a strength up to 17,000 psi (110 MPa).

Specifications

System Components.	*Drive unit, electronic measuring device, templates, measuring caps, gauge plates and carrying case.*
Weight.	*Net 18 lbs. (8.5 kg).*
Probes (Optional).	*Silver Kit: For tests on concrete with strengths up to 17,000 psi (110 MPa). Probes are made of high strength alloy, heat treated and annealed to Rockwell C 48.*

Ordering Information

Note: Probe and Power Loads; not included, order separately.

EI35-1450.

Accessories

EI35-1452. Silver Probe Kit. Includes 3 probes and power loads. Sufficient for one test only.

ASR Detect™
Alkali Silica Reaction (ASR) Kit

- ***Complete test can be performed on-site.***
- ***Minimal technician training and no special equipment required.***
- ***Uses only two, environmentally safe dyes.***
- ***Identifies ASR in concrete and differentiates ASR from other causes of degradation.***

One of the primary causes of premature concrete deterioration is alkali-silica reaction (ASR). ASR causes concrete to deteriorate when sodium and/or potassium from cement attacks silica rich components of aggregate, producing gels that expand and eventually crack the structure.

In use, two reagents are applied to the broken surface of a concrete core and the excess rinsed off. On contaminated concrete, the resulting stains reveal the presence of ASR. The stains also reveal the extent of the ASR in the concrete and indicate the stage of ASR progress. A yellow color indicates that degradation has begun and a pink color warns that degradation is advancing.

Specifications

Components.	*One 60 ml bottle of yellow reagent, one 60 ml bottle of pink reagent, one 250 ml bottle of distilled water, two dispensing pipettes, protective gloves, goggles, apron and carrying case.*

Ordering Information

EI35-2170.

Special Note:
ASR Detect is a Trademark of Los Alamos National Laboratory.

Vapor Emission Test Kit

ASTM E-1907, F-1869.

- ***Pre-installed gasket system eliminates need to handle sticky tape material.***
- ***Unique O-ring design seals dome to concrete instantly and installs quickly.***
- ***Instructions provide simple 1-2-3 step approach.***
- ***Precision dome reduces variability.***
- ***Specifically metered calcium chloride ensures consistent measurement up to 20 pounds.***

Designed for measurement of concrete moisture, the Vapor Emission Test Kit consists of the equipment needed to conduct the anhydrous calcium chloride test. This test works by a change in weight of moisture-absorbing anhydrous calcium chloride and represents the amount of moisture transmitting out of a large concrete surface area.

A scientifically engineered dome and a packet containing the proper type and amount of calcium chloride reduce variability in results. A pre-installed gasket ensures accuracy and easy installation. A gram weight scale with gradations to 1/10 of a gram is required.

Specifications

Absorbant.	*Anhydrous calcium chloride.*
Dome.	*Clear plastic with butyl rubber gasket.*
Weight.	*Net 5 oz. (120 g).*

Ordering Information

EI35-3968. Pack of 12.

Accessories

EI78-7140. Triple Beam Scale. 2610 g capacity.

Concrete Permeability Test System

- ***Measures both air and water permeability at the same time.***
- ***Permeability measurements at the surface as well as within the concrete mass can be determined.***
- ***The porosity of sealants and surface mortars can be checked.***

Permeability, an important parameter in assessing concrete durability, can be accurately measured by this unique field test system.

In air permeability test applications, the system measures the time it takes for air to flow into a known volume of a sealed, evacuated chamber in the concrete, while reducing the vacuum.

For water permeability testing, the device uses the same chamber, filled with water and measures the total time in seconds for a volume of 0.01 ml of water to escape.

Through the use of the Surface Chamber Kit, the system can be used to measure the surface porosity of the concrete.

Specifications

Power Supply.	*Standard 9V battery.*
Weight.	*12 lbs. (5.4 kg).*

Ordering Information

EI35-4050.

Corrosion Mapping System

ASTM C-876.

- ***Ideally suited for use on bridge decks, concrete piers and docks, highway slabs and parking garages.***
- ***Complete system packaged in a convenient carrying case for easy transport to the field.***

Half cell potential measurements serve as an important means of determining the probability of corrosion activity on the structure reinforcing steel. These measurements, which are related to the electrochemical nature of corrosion, allow an accurate survey to be performed in a short period of time.

Data from these surveys can be plotted to provide an easy to interpret graphic picture of the structure. From these plots, probable corrosion areas and the total area of the structure subject to corrosion can be determined.

The Corrosion Mapping System consists of all the necessary items required to perform this test in accordance with ASTM C-876 Testing Standard.

Specifications

Half-Cell Type.	*Silver/Silver Chloride (Ag/AgCl).*
Measurement Spacing.	*Min. 2" (50 mm); Max. 502" (1,275 mm).*
Row Spacing.	*Min. 0" (0 mm); Max: 12,900" (32,767 mm).*
Memory Capacity.	*15,866 half-cell readings; 128 max. scans.*
Power Supply.	*Battery powered. Charger 90/250vAC, 50/60Hz, 1ø, AC (auto selectable).*
Operating Temperature.	*0 to 40°C.*
Dimensions.	*9.5" x 5.3" x 11" (240 x 135 x 280 mm).*
Weight.	*Net 64 lbs. (29 kg).*

Ordering Information

EI35-2165.

Chloride Field Test System

- ***On-site results within 5 minutes.***
- ***Low cost per sample compared to laboratory testing.***
- ***Covers a range of 0.002% to 2% chloride by weight.***
- ***Digital display for direct reading of lbs/cu. yd. and percentage of chloride by weight.***

The Chloride Field Test System is designed for on-site testing of chloride content in concrete. The system measures the electrochemical reaction of a drilled powder sample of concrete in an extraction liquid. A direct, temperature compensated reading of the percent of chlorides is automatically displayed.

The system consists of a hand-held digital meter with combination electrode, 12 jars of extraction liquid, 5 jars of colored calibration liquid, electrode wetting agent and carrying case.

Specifications

Meter.	*Battery powered, high impedance electronic meter with temperature compensation circuits and microprocessor for direct conversion to percent of chloride.*
Electrode.	*Chloride combination type with externally mounted temperature sensor, cable and connectors.*
Components.	*12 jars (20 ml each) of extraction liquid, 5 jars of colored calibration liquid, 1 jar of wetting agent, spray bottle, collection pan and blower, clamping pliers, drill bit and anchors, scales and carrying case.*
Weight.	*Net 10 lbs. (5 kg).*

Ordering Information

EI35-2167.