CORROSION

James Instruments Inc. specialises in Non-Destructive Testing equipment for concrete and other construction materials. Central to the improvement of the construction infrastructure are tools that evaluate the condition of existing construction. Destructive and Non-Destructive Testing (NDT) techniques are applied. Destructive tests can provide direct information, but are relatively expensive, time-consuming and cause damage to the structure. Destructive test results often cannot be evaluated using statistical approaches because the number of locations in the structure that can be tested without damage to the structure is limited. On the other hand, Non-Destructive Testing (NDT) techniques are relatively inexpensive to apply, and they can detect, localize, and characterize flaws and damage in concrete, wood and other construction material structures without leaving any undesirable discontinuities or causing damage to concrete members.

Test Well. Build Well.
**STRENGTH TESTING**

**Windsor® Probe Test System**
Most Advanced System For Compressive Strength Testing of Standard and High Performance Concrete.

- Z-WP-1000 – Windsor® HP Probe System (system does not include probes)
- Z-WP-534 – Windsor® Probe Manual System (system does not include probes)
- U-PRS-01 – 75 Silver Probes & 75 Power Loads for Testing Standard Density Concrete
- U-PRS-02 – 75 Gold Probes & 75 Power Loads for Testing Lightweight Concrete

**Windsor® Pin Test System**
For Strength Testing of Concrete, Brick and Mortar Features Special Chuck for Mortar Joint.

- W-P-2000 – Complete Windsor® Pin System (system does not include pins)
- W-P-1040 – Case of 40 Hardened Steel Pins for Windsor® Pin System

**Rebound Hammers**
Strength Testing for Concrete, manual and digital versions available, low, impact and high impact strength available. Digital Hammers include Reboundlinx software for data transfer.

- W-D-1500 / W-D-1505 – Basic Digital Rebound Hammer for Standard/Low Impact
- W-C-7312 – Test Juvil to Calibrate Rebound Hammers

**James Bond Test™ MK III**
For Testing Tensile Strength of Overlay, and Overlayments.

- P-C-7200 – James Bond Test™ Mark III Complete System

**Anchor Test Systems**
Measures a wide range of anchor strengths in construction materials.

- P-C-7280 – Standard Anchor Test Kit for Load Verification
- P-C-7281 – Standard Anchor Test Kit for Testing Load Failure
- P-C-7290 – Super Anchor Test System

**Mini R-Meter™**
Economic System for Rebar Location.

- R-HR-8100 – Mini R-Meter™ Complete System, with PC Software
- R-HR-8000 – Mini R-Meter™ Basic System

**Rebarscope®**
Advanced System for Rebar Location and Bar Size Determination. The unit is also capable of locating non ferrous metals as well such as copper, aluminium, some stainless steels, wire, and more!

- R-C-410 – Rebarscope® Complete System includes Scan Cart and Rebarlinx™ Software
- R-C-400 – Rebarscope® Basic System

**Cementometer™**
Hand Held Microwave Moisture Meter for Water/Cement Ratios of Fresh Concrete.

- P-C-7290 – Super Anchor Test System

**Vu-Con³**
Impact Echo System For Field Evaluation of Concrete Structures and Concrete Thickness Determination.

- V-W-100 – Vu-Con³ Complete System

**V-Meter MK IV™**
Ultrasonic Pulse Velocity System For Finding Voids and Cracks, and Determining Other Material Properties.

- V-C-400 – V-Meter MK IV™ Complete System
- V-C-401 – V-Meter MK IV™ System w/ Software, include two 54KHz transducers

**Emodumeter™**
For Resonant Frequency Testing Determining Young’s Modulus(E) and Poisson’s Ratio.

- E-V-400 – Complete Emodumeter™ System

**Transducers**
A complete line of low frequency transducers are available for every need.

**Aggrameter™**
For instantaneous determination of the moisture content of sand, fine aggregate and coarse aggregate using a unique microwave sensor.

- T-S-100 – Aggrameter™ Complete System

**Aquameter™**
Moisture Meter for Concrete, Brick, Masonry, Wood and Other Construction Materials.

- T-M-170 – Aquameter™

**Aquaprobe™**
Advanced Microwave Soil Moisture Meter for Professional Use.

- T-S-30 – Aquaprobe™ Soil Moisture Meter Complete System
- T-S-35 – Aquaprobe™ Soil Moisture Meter Basic System

**EMODUMETER**
Ultrasound System for resonant frequency testing determining Young’s Modulus (E) and Poisson’s Ratio.

**Vu-Con³**
Impact Echo System for field evaluation of concrete structures and concrete thickness determination.

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For instant determination of the moisture content of sand, fine aggregate and coarse aggregate using a unique microwave sensor.

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**James Bond Test™ MK III**
For testing tensile strength of overlays, and overlayments.

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REBAR LOCATORS

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Most Advanced System For Compressive Strength Testing of Standard and High Performance Concrete.
Z-WP-1000 – Windsor® HP Probe System (system does not include probes)
Z-WP-54 – Windsor® Probe Manual System (system does not include probes)
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R-C-400 – Rebarscope® Basic System

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R-HR-800 – Mini R-Meter™ Basic System

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**Aquameter™**
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T-S-30 – Aquaprobe™ Complete System

**Cementometer™**
Hand Held Microwave Moisture Meter for Water/Cement Ratios of Fresh Concrete
TC-20 – Cementometer™ Type L Complete for Low w/c Ratios
TC-10 – Cementometer™ Type R Complete for Normal Range w/c Ratios

**Aquameter™**
Moisture Meter for Concrete, Brick, Masonry, Wood and Other Construction Materials
T-M-170 – Aquameter™ Complete System

**Aquameter™**
For Micro Wave Soil Moisture Meter for Professional Use
TS-30 – Aquaprobe™ Complete System
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For in-place strength testing of normal and high performance concrete.

Product Information

Measures the compressive strength of concrete accurately and effectively, on-site in the field.

The Windsor® HP Probe system rapidly and accurately determines the concrete compressive strength of a structure by driving a probe into the concrete with a known amount of force. Improved and enhanced over thirty years, this modern system is capable of measuring concrete with a maximum compressive strength of 17,000 PSI (110MPA). It has been ruggedized for use in the construction environment, yet refined to provide the user with a simpler system to operate. An electronic measuring unit has been added to help ensure proper test results which can be recorded for later review or uploading to a personal computer.

It is non-destructive and can be used with equal effectiveness on fresh and mature concrete. Equally accurate results are obtained on horizontal or vertical surfaces provided that the probe is perpendicular or at right angles to the test surface.
Windsor® Probe

Features & Benefits

• New electronic measuring system enhances accuracy and efficiency
• Measurement to 17000 psi (110 MPa)
• Memory for data storage and uploading to PC
• Safe: no accidental discharge and no recoil
• Fast and economical use
• Determines the developing strength of concrete; improves safety, ensures quality and reduces
• Monitors the strength for rehabilitation as concrete ages

Applications

• Form Removal
• Structural Analysis
• Light-weight concrete strength determination
• Standard concrete strength determination
• High-strength concrete strength determination
• High-precision determination

Conforms to the Following Tests, Specifications and Practices

• ASTM C-803 Standard Test Method for Penetration Resistance of Hardened Concrete
• ACI 228.1R-03: In-Place Methods to Estimate Concrete Strength
• ACI 228.2R-98: Nondestructive Test Methods for Evaluation of Concrete in Structures
• ANSI A.10-3
• BS 1881 Part 207 Testing Concrete
• TS 13537 Test Method for The Determination of Penetration Resistance of Hardened Concrete

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Örnek Sanayi Sitesi 1263. Sokak No. 26, Ostim, Ankara, Türkiye
Probes

Two probe styles are available: one for light-weight, low density concrete with air filled aggregate and the other probe for more standard mix designs. Also, two standard power settings facilitate testing fresh concrete as well as mature mixes.

There are two power settings available, low and standard power. The low power is used where concrete strength is less than 3000 psi (19.4 MPa). The newly designed silver probes can be used for high performance concrete with strength up to 17000 psi (110 MPa). The probes are made of a high strength alloy, specially heat treated and annealed to achieve a hardness of Rockwell C 48. Special machining of each probe eliminates stress concentrations.

The gold probe has a 56% greater cross-sectional area than the silver; it is recommended for light weight concrete - less than 125 lbs/cu. ft. (2003 Kg/M3) in density. The silver probe is used with concrete having a density greater than 125 lbs/cu. ft. (2003 Kg/M3).

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Örnek Sanayi Sitesi 1263. Sokak No. 26, Ostim,
Ankara, Türkiye
Windsor® Probe

Specifications

<table>
<thead>
<tr>
<th>Z-WP-1000 Windsor® HP Probe System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approximate Compressive Strength Range (Varies with mix design)</td>
</tr>
<tr>
<td>1500 PSI / 10 MPA to 17000 PSI / 110 MPA</td>
</tr>
<tr>
<td>Weight</td>
</tr>
<tr>
<td>26 lbs / 11.8 Kg</td>
</tr>
<tr>
<td>Case Dimensions</td>
</tr>
<tr>
<td>20” x 16” 14” 510mm x 410mm x 356mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Z-WP-700 Windsor Probe Electronic Unit with Windsorlinx software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
</tr>
<tr>
<td>4 lbs</td>
</tr>
<tr>
<td>Power</td>
</tr>
<tr>
<td>2 “AA” Batteries</td>
</tr>
<tr>
<td>Display</td>
</tr>
<tr>
<td>2x16 Trans. Reflective</td>
</tr>
<tr>
<td>Operating Temperature</td>
</tr>
<tr>
<td>32° to 122° F / 0° to 50° C</td>
</tr>
<tr>
<td>Software</td>
</tr>
<tr>
<td>Windsorlinx - Windows PC Compatible / USB Interface Required</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Z-WP-534 Windsor® HP Probe System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approximate Compressive Strength Range (Varies with mix design)</td>
</tr>
<tr>
<td>1500 PSI / 10 MPA to 9000 PSI / 62 MPA</td>
</tr>
<tr>
<td>Weight</td>
</tr>
<tr>
<td>26 lbs / 11.8 Kg</td>
</tr>
<tr>
<td>Case Dimensions</td>
</tr>
<tr>
<td>20” x 16” 14” 510mm x 410mm x 356mm</td>
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</tbody>
</table>

Sales Numbers

- Z-WP-1000 Windsor® HP Probe System
- Z-WP-700 Windsor Probe Electronic Unit with Windsorlinx software
- Z-WP-534 Windsor® Probe Manual System
- Z-WP-1000-Ext Windsor® Probe System Extended Warranty

Consumables (must be purchased separately)

- U-PRS-01 Silver Probes for Standard Density Concrete
- U-PRS-03 Gold Probes for Lightweight Concrete

Purchasing Notes: Probes contain a powder charge as such they are considered a hazardous good for shipment purposes. Please contact us for ordering outside the United States so we can review the proper shipping procedures with you.

We would also recommend the R-HR-8000 Mini R-Meter for locating safe areas to test.
For in-place strength testing of concrete, brick and mortar.

Product Information

Measures the compressive strength of concrete, mortar and brick in-situ, quickly and accurately. A non-explosive instrument, the Windsor® Pin System uses a spring-loaded device to drive a steel pin into the concrete (mortar or other material). The depth of penetration of the needle correlates to the compressive strength of the material under test. A removable chuck and a small pin size facilitate the testing of mortar joints; this is the only system for testing the in-place strength of brick mortar joints.

Features & Benefits

- Portable and completely self-contained.
- Safe to use - non explosive.
- Economical - steel pin can be reused.
- Non-destructive.
- Removable chuck facilitates testing of mortar strength in masonry.
- Conforms to ASTM C-803
- Test new concrete products and structures for early strength.
- Evaluate the in situ strength in existing structures, e.g., after suspected fire damage.
- Test strength of block, brick, and mortar joints within an existing structure, e.g., load bearing walls.
- Test polymer concrete and patching compound.
- Quality control of precast elements such as block, brick slabs and pipe.
The principle of the Windsor® Pin system is that a spring drives a steel pin into the surface of the material. Since the depth of penetration is inversely proportional to compressive strength, the device provides a fast and safe way of determining the in situ strength of material.

The spring is loaded by tightening the retraction nut until the trigger mechanism latch closes to hold the spring in place. The stored potential energy is 91 lbs. in (108 NM). With the spring loaded it is compressed to a distance of 0.8 inches. Thus once the trigger is pulled there is enough force to test compressive strength of concrete to a maximum of 5300 PSI (36.9 MPA). The pin is made of a special high strength steel specifically designed for building material penetration and can be used about seven times. The Windsor Pin System comes with a go/no go gauge to test the pin(s) after each use. If the length is reduced sufficiently and the pin goes through the gauge, the pin(s) should be replaced. Not doing so will severely impact test results.

(Technical continued on next page)
Technical continued...

With the chuck on both the micrometer and the pin driver, flat surfaces can be easily and accurately measured. Simply make sure the chuck rests against the surface and pull the trigger. After the pin has penetrated the surface, clean the hole with the blower provided and measure depth of penetration. Compare this penetration depth to the previously prepared chart for the compressive strength of your material. Strength charts for typical mortar and concrete are provided with the unit.

With the chuck removed, the pin driver is capable of accurately testing mortar joints. By inserting the V-barrel into the mortar joint, the pin will directly penetrate at the center of the joint. Then by following similar procedures as above, the compressive strength of the mortar joint can be accurately and safely tested. A similar V-shape on the micrometer facilitates measurement.

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Windsor® Pin Test System

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<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>18 lbs. (8.1 Kg)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>17 x 12 x 6 inches (43 x 30 x 15 cm)</td>
</tr>
<tr>
<td>Concrete Compressive Strength Maximum</td>
<td>6500 PSI (45 MPA)</td>
</tr>
<tr>
<td>Mortar Compressive Strength Maximum</td>
<td>7000 PSI (48 MPA)</td>
</tr>
<tr>
<td>Stored Potential Energy</td>
<td>91 lbs. - 108 Nm</td>
</tr>
</tbody>
</table>

Sales Numbers

**W-P-2000**: Windsor® Pin Test System

Consumables (must be purchased separately)

**W-P-1040**: Case of Hardened Steel Pins (40 Pins)
**W-053-10224-000**: One Hardened Steel Pin (1 pin)

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Örnek Sanayi Sitesi 1263. Sokak No. 26, Ostim, Ankara, Türkiye
Ultrasonic pulse velocity system for finding voids and cracks, and determining other material properties

Product Information

Concrete
The V-Meter MK IV™ is widely used and accepted for quality control and inspection of concrete. It can measure and correlate concrete strength to standard strength measurement, permitting non-destructive testing of complete structures. It will identify honeycombs, voids, frozen concrete, cracks and other non-homogenous conditions in concrete. Ultrasonic testing can be applied to new and old structures, slabs, columns, walls, fire damaged areas, hydroelectric structures, pipe, prefab and pre-stressed beams, cylinders and other concrete forms. A wide range of transducers are available.

Wood
The V-Meter MK IV™, ultrasonic testing of wood can, nondestructively, detect knots, shakes, splits, grain orientation, windfall cracks and presence of decay and rot. Basic parameters such as modulus of elasticity and density can be calculated. Practical applications include field testing of utility poles and structures, grading in the manufacturing process, fire ladder inspection, examination of laminates and paper roll density. The velocity of ultrasonic energy pulses traveling in a solid material are related to the density and elastic properties of the material. The pulse velocity is thus a measure of density and elastic properties of the material.

Ceramics
The V-Meter MK IV™ has been successfully applied to a range of ceramic products – including tile, refractory bricks and blocks, and kiln furniture, as well as graphite. In an increasing number of refractory and ceramic applications, the ultrasonic pulse velocity testing technique has been used with positive results. UPV testing has enabled users to improve their production processes, increase the integrity and quality of their products, and reduce scrap and reject rates, thereby saving both time and money. In today’s economy, such bottom-line benefits are difficult to ignore.

Applications

- Locate Honey Combs and Voids in Concrete
- Locate Cracks in Concrete, Ceramics, Masonry or Stone
- Determine Fire Damage Extent in Concrete or Masonry
- Crack Depth Determination
- Determining Young’s Modulus (with optional Shear Wave Transducers)
- Find Hidden Areas of Rotting Wood
Features & Benefits

- System has a direct digital read-out of transit time, and read out of wave form on daylight display, back lit LCD.
- Rugged and splash resistant case is built for tough construction environments. Portable, and lightweight with both rechargeable battery and standard A-C power.
- Includes a signal and trigger output for use with external oscilloscope or other data input device. Digital calibration means no special bar required. Trigger levels and Signal amplification can be digitally adjusted.
- Conforms to ASTM C-597, BS 1881-203 and other international standards
- USB interface for computer control. Veelinx™ software allows complete control of the system as well as data upload to a PC and data analysis.
- Direct reading of calculated P-wave velocity and S-wave velocity. The unit can also calculate modulus of elasticity of material using optional S-Wave Transducers. Direct reading of Poisson’s ratio
- A large range of Accessories and Ultrasonic Transducers available.
Standards

- ASTM C-597 - "Standard Test Method for Pulse Velocity Through Concrete"
- BS EN 12504 - 4:2004 (Formerly BS 1881-203) "Determination of Ultrasonic Pulse Velocity"
- ASTM D2845 - 08 "Standard Test Method for Laboratory Determination of Pulse Velocities and Ultrasonic Elastic Constants of Rock"
- ASTM E494 - 10 "Standard Practice for Measuring Ultrasonic Velocity in Materials"
- ACI 228.2 R "Nondestructive Test Methods for Evaluation of Concrete in Structures"
- ISO1920-7: 2004 "Testing of Concrete -. Part 7: Non-Destructive Tests on Hardened Concrete"
- IS13311 Part 1: "Non-Destructive Testing of Concrete Methods of Test Part 1 - Ultrasonic Pulse Velocity"
# Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency range</td>
<td>24 to 500 kHz, based on transducers selected.</td>
</tr>
<tr>
<td>Receiver sensitivity</td>
<td>250 micro volts, between 30 kHz and 100 kHz.</td>
</tr>
<tr>
<td>Receiver input impedance</td>
<td>approximately 100 k Ohms.</td>
</tr>
<tr>
<td>Transit time measurement</td>
<td>0.1 to 6553.5 microseconds, direct digital display. 4 hours continuous operation</td>
</tr>
<tr>
<td>Measurement accuracy</td>
<td>0.1 microseconds.</td>
</tr>
<tr>
<td>Transmitter output</td>
<td>pulse 1000/500V, 2 microseconds.</td>
</tr>
<tr>
<td>Transmitter pulse group rate</td>
<td>selectable 1, 3 or 10.</td>
</tr>
<tr>
<td>Gain Selection</td>
<td>1, 5, 10, 25, 50, 100, 250, 500</td>
</tr>
<tr>
<td>Battery</td>
<td>14 Volt. 4-10 hours continuous use (Lithium Ion).</td>
</tr>
<tr>
<td>Display</td>
<td>320 by 240; backlit for daylight use.</td>
</tr>
<tr>
<td>Storage</td>
<td>1800 plus readings</td>
</tr>
<tr>
<td>Software</td>
<td>Windows XP compatible.</td>
</tr>
<tr>
<td>Temperature</td>
<td>0° - 50°C</td>
</tr>
<tr>
<td>Instr. Weight</td>
<td>6 lbs. (2.75 Kg)</td>
</tr>
<tr>
<td>Ship Weight</td>
<td>17 lbs. (7.7 Kg)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>4.5&quot; x 8.5&quot; x 10.5&quot; (114.3mm x 223.5mm x 267mm)</td>
</tr>
</tbody>
</table>

# Sales Numbers

- **V-C-400**: V-Meter MK IV Complete System (includes two 54 KHz Transducers and Velocilinx Software)
- **V-C-401**: V-Meter MK IV System w/o Software (includes two 54 KHz Transducers)
- **V-C-402**: V-Meter MK IV Basic System (includes Velocilinx Software, but no Transducers)
- **V-C-403**: V-Meter MK IV Basic System w/o Software (no software, no Transducers)
Impact Echo System for measuring the thickness and quality of concrete

The Vu-Con® System provides the engineer with the sturdiest, most reliable system for impact echo analysis. No moving parts and implementation of the latest micro-computer technology has created a system that is both sophisticated and reliable. The unit comes with a 90 mm (3.5”) by 115 mm (4.5”) graphic display screen that is easily viewed in daylight. This allows rapid analysis of results in situ. It may store more than 200 individual tests with time and date indication.

The data is easily uploaded to a PC for inclusion in reports and data analysis. Data communication takes place via the RS-232 port and Windows compatible PC software. The unit allows the user to select sensitivity levels to adapt to varying conditions in the field.
Vu-Con® System

Features & Benefits

• Accurately determines concrete thickness without drilling cores or using similar destructive techniques.
• Quickly locates delaminations and voids in concrete slabs & structures where access is limited to a single side.
• Rugged design for field use.
• Rapid results within seconds at the jobsite.
• Large easy to view display for data analysis on site and in daylight.
• Data can be stored and uploaded to a PC for later analysis and inclusion in reports.
• Conforms to ASTM C-1383.

Applications

• Roads and Runways
• Retaining Walls
• Bridge Decks
Vu-Con® System

Theory of Impact Echo Method

The James Vu-Con® System uses the impact echo method to evaluate concrete and masonry structures. The impact echo method is based on the use of impact generated stress waves that propagate through the material and are reflected by both the materials external surfaces and internal flaws.

This method can be used to make accurate non-destructive measurements of thickness in concrete slabs and plates, and to locate internal flaws such as honey combing, debonding and delaminations. It can measure thickness, locate cracks, voids and other defects in masonry structures where mortar bonds the masonry together. Finally, the impact echo method is not affected by the presence of steel reinforcing bars.

The method works by creating a short duration mechanical impact on the surface of the material under examination. This is typically performed by small steel balls that produce low frequency stress waves that propagate through the material and reflect off of other surfaces and internal flaws back to the surface used for testing (See diagram below). By recording and analyzing the vibration from the mechanical impact at the surface, thickness and other physical features (referred to in the preceding paragraph) can be determined. The advantage of using an impact rather than other more classic ultrasonic techniques is the low frequency and the long wave length of the stress waves that are produced. Low frequency stress waves treat concrete and masonry as a single elastic homogeneous material as they propagate through.

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email: info@NDTjames.com
800-426-6500 • 773-463-6565
3727 N. Kedzie Ave., Chicago, IL 60618-4545, USA

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email: foreas@foreas.com
+90 (312) 386 26 76 (Pbx)
Örnek Sanayi Sitesi 1263. Sokak No. 26, Ostim, Ankara, Türkiye
# Vu-Con® System

## Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instr. Weight:</td>
<td>6 lbs. (2.75Kg)</td>
</tr>
<tr>
<td>Ship Weight:</td>
<td>17 lbs. (7.7 Kg)</td>
</tr>
<tr>
<td>Dimensions:</td>
<td>4.5” x 8.5” x 10.5” (114.3mm x 223.5mm x 267mm)</td>
</tr>
<tr>
<td>Frequency Range:</td>
<td>0 - 50kHz</td>
</tr>
<tr>
<td>Impactor Sizes:</td>
<td>6, 8, 10, 12, 14, &amp; 16mm</td>
</tr>
<tr>
<td>Gain Selection:</td>
<td>0.1, 0.5, 1, 2.5, 5, 10, 25 &amp; 50</td>
</tr>
<tr>
<td>Battery:</td>
<td>14.4 Volt. 4-8 hours continuous use</td>
</tr>
<tr>
<td>Display:</td>
<td>320 by 240; backlit for daylight use</td>
</tr>
<tr>
<td>Storage:</td>
<td>200 plus readings</td>
</tr>
<tr>
<td>Software:</td>
<td>Windows PC Compatible / USB Interface Required</td>
</tr>
<tr>
<td>Temperature:</td>
<td>0 - 50°C</td>
</tr>
</tbody>
</table>

## Sales Number

**V-V-100** Vu-Con® System
Advanced system for rebar location and bar size determination

Product Information

The James Rebarscope® is the digital version of a classic rebar locator, rebar finder which enables the user to not only locate reinforcement bars but also determine rebar depth and the rebar size. The Rebarscope® rebar locator is also capable of locating non ferrous metals as well such as copper, aluminium, some stainless steels, wire, and more!

Above, the Rebarscope® is shown with the Rolling Scan cart, used for surveying a large area such as a parking garage. At left, Rebarscope® in a typical application.
Rebarscope®

Applications

- Structural Engineers
- Rebar Mapping
- Rebar Network Analysis
- Utility Mapping

Features & Benefits

- Eddy current sensor design for greater accuracy with built in temperature compensation, no need to zero the sensor.
- Single sensor for all depth ranges.
- Separate sensor and main instrumentation unit to scan difficult to access areas.
- Locates rebar, post tension cable, conduit, and copper pipe.
- Rugged and splash resistant case. Daylight visible display.
- Optional Scan Cart logs distance data as well as location of rebar.
- Locates up to 8” (200 mm) deep. Determines bar size up to 4.5” (115 mm) deep.
- Conforms to ACI 318, BS 1881 Part 204, DIN 1045, CP 110, EC 2, SIA< 162, DGZfP B2.

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Örnek Sanayi Sitesi 1263. Sokak No. 26, Ostim, Ankara, Türkiye
Built for the professional, the Rebarscope® is the most Advanced System for finding the location, depth, and size of steel reinforcement bar, post tension cables, copper and conduit in concrete brick, masonry or other non-metallic construction materials.

The eddy current sensor is specifically designed to react to the outer surface of the metal object. It is uninfluenced by small metal particles in the concrete, whether the concrete is fresh or hardened, wet, or dry. The eddy current sensor also allows the unit to locate both ferrous as well as non-ferrous metals in concrete and other non-metallic construction materials. This sensor has also been designed with temperature compensation circuitry as well. The temperature compensation circuitry not only improves accuracy and performance but allows the operator to use the equipment without a "zero" procedure first. As always only one sensor is required for all depth ranges and functions of the equipment.

The latest in microprocessor technology not only conditions the signal from the sensor for more accurate and dependable results but provides the user with the information they need. Rebar diameter can be estimated by using a simple system of comparison. All this is fully automated for consistent, repeatable results with increased resolution over previous models.

The microprocessor can also statistically analyze the data, searching automatically for minimum cover points, and the least cover of a group of points. A Cover Map or display of cover points as a symbolic map of a structure can assist the user in finding problematic areas. Built in memory can store over 80 thousand individual data points for later processing. Feedback to the user can also be made via the direct view, sunlight readable digital screen, or via head phones. By separating the sensor from the main instrumentation unit, difficult to reach area’s can be handled with ease.

The optional Scan Cart can be used to graphically display a cross section of the concrete and the location of the metal objects within. With its built in encoder objects can be located with both distance and depth recorded. Rebarlinx® the fully integrated P.C. software allows the upload and storage of data points via USB. The ruggedized Rebarscope® provides the field engineer/technician with all the tools necessary to locate and determine what and where all metal objects are within the structure.

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Örnek Sanayi Sitesi 1263. Sokak No. 26, Ostim, Ankara, Türkiye
Specifications

Main Unit

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>5.4 lbs (2.5 Kg)</td>
</tr>
<tr>
<td>Size</td>
<td>10.63&quot; L x 9.68&quot; W x 4.88&quot; H (27cm x 24.5cm x 12.4cm)</td>
</tr>
<tr>
<td>LCD Size</td>
<td>320 x 240 pixels</td>
</tr>
<tr>
<td>LCD Dimensions</td>
<td>3.5&quot; L x 4.65&quot; H (8.9cm x 11.8cm)</td>
</tr>
<tr>
<td>Recharging Voltage</td>
<td>18v</td>
</tr>
<tr>
<td>Memory Capacity</td>
<td>80,000 data points</td>
</tr>
<tr>
<td>Battery Life</td>
<td>4-6 Hrs. continuous run time</td>
</tr>
</tbody>
</table>

Probe Dimensions

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Weight</td>
<td>1.0 lb (0.45 Kg)</td>
</tr>
<tr>
<td>Size</td>
<td>5&quot; L x 2.4&quot; W x 1.6&quot; H (12.7cm x 6cm x 4.1cm)</td>
</tr>
</tbody>
</table>

Scan Cart Dimensions

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>1.0 lb (0.45 Kg)</td>
</tr>
<tr>
<td>Size</td>
<td>8.25&quot; L x 5.6&quot; W x 2.25&quot; H (20.1cm x 14.2cm x 5.7cm)</td>
</tr>
<tr>
<td>Maximum Scan Length</td>
<td>48 ft. (14.6 m)</td>
</tr>
</tbody>
</table>

The Rolling Scan cart for use with the Rebarscope® complete system, allows you to easily and accurately determine rebar cover and location when surveying a large area such as a parking garage or bridge deck.

Sales Numbers

R-C-410 Rebarscope® Complete System
Includes: Main Unit, Probe, 8ft & 12ft Cable, Scan Cart, Headphones, Charger, Complete Software (Basic and Scanning Software), USB Cable, Sizing Template, 2 Extension Rods

R-C-450 Rebarscope® Basic with Rebarlinx™ Software
Includes: Main Unit, Probe, 8ft Cable, Sizing Template, Charger, Headphones, USB Cable, and Basic Software.

R-C-400 Rebarscope® Basic System
Includes: Main Unit, Probe, 8ft Cable, Sizing Template, Charger, and Headphones

R-C-475 Scan Cart upgrade only
Includes: Scan Cart, 2 Extension Rods, 12ft Cable, Scanning Software. Turns your Basic Unit into a complete system.

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Örnek Sanayi Sitesi 1263. Sokak No. 26, Ostim, Ankara, Türkiye
A simple and economical method for identifying areas of probable rebar corrosion

**Product Information**

An economical method for identifying areas of corrosion.

A high impedance voltmeter is connected between the reinforcing steel and a Cu-CuSO4 reference electrode on the concrete surface where a measurement can be made for the half-cell potential.

This is a measurement of the probability of corrosion activity. By testing at a fixed distance apart, a grid of half-cell potentials can be developed and areas delineated.

To analyze the results, the measurements made with Cor Map® can be plotted on a grid and lines of equipotential contours drawn, highlighting areas of possible corrosion activity.

**Features & Benefits**

- Easy to use.
- Detachable electrode extension pieces facilitate measurements in hard to reach locations.
- High impedance digital meter is designed for tough field conditions.
- Electrode is designed for use on horizontal, vertical and inverted positions.
- Economical.
- Conforms to ASTM C-876, BS1881:201, UNI9535, and other international standards.
Cor-Map® System

Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Weight w/ Wire Reel</td>
<td>22lbs (10kg)</td>
</tr>
<tr>
<td>Voltmeter Input Impedance</td>
<td>Selectable 10MΩ, 36 MΩ, 80 MΩ, 100 MΩ, 160MΩ, 200MΩ</td>
</tr>
<tr>
<td>Voltmeter Battery</td>
<td>9 Volt</td>
</tr>
<tr>
<td>Length Wire on Cable Reel</td>
<td>250 ft (75 m)</td>
</tr>
<tr>
<td>Wetting Agent Capacity</td>
<td>25 ml</td>
</tr>
<tr>
<td>Electrode Extension Length</td>
<td>18 inches (410mm)</td>
</tr>
<tr>
<td>C-CM-4300</td>
<td>Cable reel with 250 ft. (80 meters) cable</td>
</tr>
<tr>
<td>C-CM-4000</td>
<td>Complete system</td>
</tr>
</tbody>
</table>

Applications

Locate corroding steel reinforcement
Particularly useful for:
- Bridge Decks
- Parking Garages
- Concrete Piers & Docks
- Substructure
- Tunnel Lining
- Foundations

Sales Numbers

C-CM-4000 Cor-Map® System
Advanced system for corrosion potential data acquisition and analysis

**Product Information**

By measuring and mapping the voltage potential found in the concrete we are able to determine rapidly the presence of corroded steel reinforcement without costly and time consuming demolition of the concrete.

This is done by recording the voltage between the rebar and a half cell, which is mapped across the surface of the concrete. Areas of rust with high corrosion will exhibit significantly lower voltages than areas without corrosion, thus areas of corroding steel reinforcing bar in concrete can be rapidly found.

There is no need to know the exact position of the steel reinforcing bar or the amount of cover, the presence of the steel is all that is required. However, the voltmeter has to be connected to an exposed piece of the rebar network, and because the concrete is being tested, any material on the surface should be removed.

**Features & Benefits**

- Ruggedized Electronics allows rapid analysis of data in the field or office.
- Conforms to ASTM C-876, BS1881:201, UNI9535, and other international standards.
- Electrode is designed for use on horizontal, vertical and inverted positions.
- Temperature and humidity sensors facilitate inclusion of environmental conditions in data analysis.

**Applications**

- Locate corroding steel reinforcement
- Repair cost estimation
Half Cell Reference Electrode

The Cor-Map® II system comes complete with a rugged half-cell designed for the tough construction environment. Porous ceramic tips are used in order to provide a long life, and eliminate problems from clogs in the Cu/CuSO4 half-cell. These specially shaped tips have been designed to allow the half cell to take readings in the vertical, horizontal or inverted position. There is also a semi transparent full-view window, allowing liquid level observation without removal of the sealed ends; while still protecting the half cell from damage by sunlight.

Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrument Weight</td>
<td>6 lbs. (2.75 Kg)</td>
</tr>
<tr>
<td>Ship Weight</td>
<td>15 lbs. (6.8 Kg)</td>
</tr>
<tr>
<td>Instrument Dimensions</td>
<td>4.5 in. x 8.5 in. x 10.5 in. (115mm x 225mm x 267 mm)</td>
</tr>
<tr>
<td>Battery</td>
<td>12 Volt 4 - 10 Hours Continuous Operation</td>
</tr>
<tr>
<td>Display</td>
<td>320 x 240 pixels backlit for daylight use</td>
</tr>
<tr>
<td>Storage</td>
<td>Over 5000 readings</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0 - 50°C</td>
</tr>
<tr>
<td>Temperature Reading Range</td>
<td>-273 - +130°C</td>
</tr>
<tr>
<td>Temperature Accuracy</td>
<td>+/- 0.5%</td>
</tr>
<tr>
<td>Humidity Reading Range</td>
<td>0 - 100%</td>
</tr>
<tr>
<td>Humidity Accuracy</td>
<td>+/- 5%</td>
</tr>
</tbody>
</table>

Data Analysis

The fully integrated data acquisition and analysis unit has been designed for the rapid analysis of data in the field or office. As large amounts of data are normally generated, interpretation of this information can be very difficult. Employing the simple to use menu driven CorMap® main unit, data can not only be collected quickly and easily, but it can also be analyzed directly in the field on the graphic display. The unit produces a symbolic map of the structure, where symbols represent various half-cell potential voltage levels previously acquired. This symbolic map can then be interpreted like a contour map where areas of high potential represent areas most likely to be corroding.

Not only can this information be acquired and analyzed but the unit will also read the general environmental parameters of temperature and relative humidity.

All this data can also be stored and uploaded to a P.C. This allows the user to include the data in subsequent reports and spreadsheets for further analysis. Each data point is also recorded with the time and date to simplify later analysis.
For the quick and easy determination of the strength of concrete.

**Product Information**

**W-M-250 Manual Test Hammer**

The W-M-250 Manual Test Hammer is the traditional instrument used for the non-destructive testing of hardened concrete. This easy-to-use instrument provides a quick and simple test for obtaining an immediate indication of concrete strength in various parts of a structure. The minimum verifiable strength is 1400 PSI (10 MPa) to approximately 9000 PSI (62 MPa). All concrete test hammers measure the surface hardness of the material they are testing; this is then correlated to concrete compressive strength.

The manual concrete test hammer, aka rebound hammer, schmidt hammer, swiss hammer, sclerometer, is the most widely used non-destructive instrument for compressive strength determination. However, it typically has the largest coefficient of variation; therefore its result should be verified with another non destructive test such as the V-Meter MK III.

**W-M-255 Low Impact Manual Test Hammer**

The W-M-255 Low Impact Manual Test Hammer is the instrument used for the non-destructive testing of hardened concrete for thin wall thicknesses. The unit is also used on rock cores. It’s low impact energy does not damage brittle specimens. The minimum verifiable strength is 1400 PSI (10 MPa) to approximately 9000 PSI (62 MPa). All concrete test hammers measure the surface hardness of the material they are testing; this is then correlated to concrete compressive strength.

The Low Impact Test Hammer has a number of specialized applications. It is typically used for thin concrete specimens (between 50mm (2”) and 100mm (4”) thick) such as sidewalks, bridgedecks and some driveways. The unit can be used on plaster and mortar as well to verify consistency. The Test Hammer is also used on brittle rock cores where a larger impact will damage the specimen. Finally, it is also suitable for paper and film rolls where the larger impact energy of a standard hammer will damage the surface of the material being tested. Paper and Film testing are a significant application for the Low Impact Manual Test hammer.

**Features & Benefits**

Easy to use manual calculation of the mean rebound number.

All James Test Hammers conform to:

<table>
<thead>
<tr>
<th>Standard</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTM C-805</td>
<td>USA</td>
</tr>
<tr>
<td>BS-1881-202</td>
<td>Great Britain</td>
</tr>
<tr>
<td>ISO/DIS 8045</td>
<td>International</td>
</tr>
<tr>
<td>EN 12 504-2</td>
<td>Europe</td>
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<tr>
<td>ENV 206</td>
<td>Europe</td>
</tr>
<tr>
<td>NFP 18-417</td>
<td>France</td>
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<td>B 15-225</td>
<td>Belgium</td>
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<td>JGI/T 23-2001</td>
<td>China</td>
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<tr>
<td>JG 817-1993</td>
<td>China</td>
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</tbody>
</table>
Manual Rebound Hammer & Low Impact Manual Rebound Hammer

Specifications

Manual Test Hammers W-M-250 & W-M-255

<table>
<thead>
<tr>
<th>Specification</th>
<th>W-M-250</th>
<th>W-M-255</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>2 lbs.</td>
<td>2 lbs.</td>
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<tr>
<td>Size</td>
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<td>10.5”</td>
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<tr>
<td>Shipping Weight</td>
<td>6 lbs.</td>
<td>6 lbs.</td>
</tr>
<tr>
<td>Carrying Case Dimensions</td>
<td>15.5 x 11.5 x 2.5”</td>
<td>15.5 x 11.5 x 2.5”</td>
</tr>
<tr>
<td>Impact Energy W-M-250</td>
<td>2.2 Nm</td>
<td>0.735 Nm</td>
</tr>
<tr>
<td>Impact Energy W-M-255</td>
<td>2.2 Nm</td>
<td>0.735 Nm</td>
</tr>
</tbody>
</table>

Test Anvil for Calibrating Test Hammers

It is recommended that calibration of the rebound hammers be checked regularly usually after about 2000 strokes. The James Calibration Anvil (W-C-7312) has been designed for just that purpose.

Sales Numbers

W-M-250 Manual Rebound Hammer
W-M-255 Low Impact Manual Rebound Hammer
W-C-7312 James Calibration Anvil

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email: info@NDTjames.com
800-426-6500 • 773-463-6565
3727 N. Kedzie Ave., Chicago, IL 60618-4545, USA
Digital Rebound Hammer & Low Impact Digital Rebound Hammer

Digital hammers for the quick and easy determination of the strength of concrete.

Product Information

James Instruments™ Digital Test Hammers are an advanced, completely automated system for estimating concrete compressive strength. Its calculation, memory and recording functions allow for quick, easy and accurate test results.

Discard values for multiple test results can be set. The mean, median and compressive strength can also be calculated. The addition of modern microprocessor technology allows the data to be stored, printed and transferred to a personal computer for further analysis, or inclusion in your reports.

The unit comes with an integrated alpha numeric digital display, and control panel and can switch between standard or metric units.

Digital Model W-D-1500/W-D-2000

Our Standard Test Hammer for the automatic calculation of mean rebound number, compressive strength and more. Model W-D-1500 is the Basic System. The Complete System, Model W-D-2000, includes the Field Printer, PC connection and software for downloading. The field printer mounts on the belt for ease of use. Connection to a personal computer is via the USB interface.

Digital Model W-D-1505/W-D-2005

The Low Impact Test Hammer has a number of specialized applications. Like the Standard Test Hammer, it provides automatic calculation of mean rebound number, compressive strength and more. The Low Impact Hammer is typically used for thin concrete specimens such as sidewalks, bridge decks and some driveways. The unit can be used on plaster and mortar as well to verify consistancy. The Low Impact Test Hammer is also used on brittle rock cores where a larger impact will damage the specimen. Finally, it is also suitable for paper and film rolls where the larger impact energy of a standard hammer will damage the surface of the material being tested.

Model W-D-1505 is the Basic System. The Complete System, Model W-D-2005, includes the Field Printer, PC connection and software for downloading. The field printer mounts on the belt for ease of use. Connection to a personal computer is via the USB interface.

Features & Benefits

Digital Model W-D-1500/W-D-1505

Basic systems for the automatic calculation of mean rebound number, compressive strength and more. Standard or Low Impact.

Digital Model W-D-2000/W-D-2005

Complete Systems – Standard or Low Impact – include the Field Printer, PC connection and software for downloading.

All James Test Hammers conform to:

<table>
<thead>
<tr>
<th>Standard</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTM C-805</td>
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</tr>
<tr>
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<td>Great Britain</td>
</tr>
<tr>
<td>ISO/DIS 8045</td>
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<tr>
<td>EN 12 504-2</td>
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<td>Europe</td>
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<tr>
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<td>France</td>
</tr>
<tr>
<td>B 15-225</td>
<td>Belgium</td>
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<tr>
<td>JGJ/T 23-2001</td>
<td>China</td>
</tr>
<tr>
<td>JGG 817-1993</td>
<td>China</td>
</tr>
</tbody>
</table>
Digital Rebound Hammer & Low Impact Digital Rebound Hammer

Specifications

<table>
<thead>
<tr>
<th>Display</th>
<th>2x16 Trans &quot; reflective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>All Aluminum for rugged construction environment</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0° to 50° C (32° to 122° F)</td>
</tr>
<tr>
<td>Batteries</td>
<td>2 AA</td>
</tr>
<tr>
<td>Approximate Size</td>
<td>100mm x 100mm x 270mm (4 x 4 x 10)</td>
</tr>
<tr>
<td>Approximate Weight</td>
<td>1.6 Kg (3.5 lbs.)</td>
</tr>
<tr>
<td>Printer Size</td>
<td>64mm x 49mm x 31mm (2.5 x 1.9 x 1.2)</td>
</tr>
<tr>
<td>Printer Weight</td>
<td>up to 0.270 kg (0.6 lbs) with paper</td>
</tr>
<tr>
<td>Battery</td>
<td>Internal Lithium ion with 1 yr. approx. life</td>
</tr>
<tr>
<td>Charger</td>
<td>100VAC * 240VAC 5 VDC 3.0A</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0° to 50° C (32° to 122° F)</td>
</tr>
<tr>
<td>Software</td>
<td>Windows PC Compatible / USB interface required</td>
</tr>
<tr>
<td>Impact Energy W-M-1500/2000</td>
<td>2.2 Nm Standard Impact</td>
</tr>
<tr>
<td>Impact energy W-M-1505/2005</td>
<td>0.735 Nm Low Impact</td>
</tr>
</tbody>
</table>

Sales Numbers

W-D-1500 Digital Rebound Hammer Basic System
W-D-2000 Digital Rebound Hammer Complete System
W-D-1505 Low Impact Digital Rebound Hammer Basic System
W-D-2005 Low Impact Digital Rebound Hammer Complete System

www.NDTjames.com
email: info@NDTjames.com
800-426-6500 • 773-463-6565
3727 N. Kedzie Ave., Chicago, IL 60618-4545, USA

www.foreas.com
email: foreas@foreas.com
+90 (312) 386 26 76 (Pbx)
Örnek Sanayi Sitesi 1263. Sokak No. 26, Ostim, Ankara, Türkiye
For the determination of the Resonant Frequency of materials.

Product Information

Principle
The principle used in the Emodumeter® is based upon the determination of the fundamental resonant frequency of vibration of a specimen generated by an impact and sensed by an accelerometer. The frequency spectrum is computed and displayed by the meter.

System
The Emodumeter® has an automatic feature that computes the maximum amplitude, which eliminates cumbersome frequency scanning. Frequencies are automatically shown in the display and a cursor allows the user to move along the frequency spectrum. Also the time domain signal and the frequency spectrum can be stored and uploaded to a PC for further analysis and inclusion in reports.

Resonance Frequency
The Emodumeter® performs a Fast Fourier Transform that allows the identification of the resonance frequency in the Frequency Spectrum.

Durability of Concrete
The determination of flexural resonance is very important when studying the degradation of concrete under accelerated freezing and thawing cycles and aggressive environments on concrete specimens.
Emodumeter®

Features & Benefits

- Conforms to ASTM C-215 and C-666.
- The only method of calculating the following material parameters non destructively:
  - Young’s Modulus of Elasticity,
  - Modulus of Rigidity,
  - Poisson’s Ratio,
  - Damping Constant.
- Available for specimen sizes up to 6 inches (150mm) cross section dimension and from 1.75 inches (45mm) to 28 inches (700mm) in length.
- Automatic identification of the resonance frequency. Large easy to view display for data analysis of time domain and frequency spectrum signals.
- Data can be stored and uploaded to a PC for further analysis and inclusion in reports.
- Fast and easy to use system.

Applications

- Freeze Thaw Analysis
- Young’s Modulus Determination
- Damping
- Coefficient Analysis

The Emodulinx® Software has been designed to help the engineer manage and interpret the huge amount of data available when utilizing the Emodumeter®. The Emodulinx® software enables the user to upload data from the V-Meter device to a PC. The Emodulinx® software also can be used to control the Emodumeter® remotely.
Advantages of Resonance Methods

1. Tests can be repeated over a very long period on the same specimen; the number of test specimens required is therefore greatly reduced.

2. The results obtained with the resonance method on the same specimen are more reproducible than those obtained with destructive tests and groups of specimens.

For the determination of the resonant frequency of materials, the Emodumeter® measures the resonant frequencies of the three different modes of vibration Longitudinal, Transverse (Flexural) and Torsional.

From these the following material characteristics can be calculated:

- Young's Modulus of Elasticity
- Modulus of Rigidity
- Poisson™ Ratio.
Emodumeter®

Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency range:</td>
<td>from 10 Hz to 40 kHz</td>
</tr>
<tr>
<td>Sampling frequency:</td>
<td>10, 20, 40 or 80 kHz</td>
</tr>
<tr>
<td>Frequency resolution:</td>
<td>from 4.9 to 78.1 Hz</td>
</tr>
<tr>
<td>Record length</td>
<td>1024 or 2048 points</td>
</tr>
<tr>
<td>Output bias level:</td>
<td>9.2 V</td>
</tr>
<tr>
<td>Accelerometer sensitivity:</td>
<td>9.60 mV/g (0.979 mV/m/s²)</td>
</tr>
<tr>
<td>Battery:</td>
<td>12 Volt. 4-10 hours - continuous use</td>
</tr>
<tr>
<td>Display:</td>
<td>320 by 240; backlit for daylight use</td>
</tr>
<tr>
<td>Storage:</td>
<td>200 plus readings</td>
</tr>
<tr>
<td>Software:</td>
<td>Emodulinx® - Windows PC Compatible / USB Interface Required</td>
</tr>
<tr>
<td>Impactors:</td>
<td>Set of 6 hardened steel balls.</td>
</tr>
<tr>
<td>Operating Temperature Range:</td>
<td>0°C to 40°C</td>
</tr>
</tbody>
</table>

Sales Number

V-E-400  Emodumeter® Complete System

www.NDTjames.com
email: info@NDTjames.com
800-426-6500 • 773-463-6565
3727 N. Kedzie Ave., Chicago, IL 60618-4545, USA

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email: foreas@foreas.com
+90 (312) 386 26 76 (Pbx)
Örnek Sanayi Sitesi 1263. Sokak No. 26, Ostim, Ankara, Türkiye

Strength  Locators  Ultrasonics  Corrosion  Moisture
Software for PC Control and Datahandling of the Emodumeter™

**Product Information**

The Emodulinx™ Software has been designed to help the engineer manage and interpret the huge amount of data available when utilizing the Emodumeter™.

**Features & Benefits**

- Upload data from the Emodumeter™ device to a PC.
- Display data graphically to help the engineer evaluate each wave.
- Control the Emodumeter™.
- Configuration settings can be adjusted.
- Existing individual data sets can also be uploaded and graphed to further assist in analyzing the data collection.
- Automatic Upload of Data for Long Term Laboratory of Production Analysis.

---

**Strength** | **Locators** | **Ultrasonics** | **Corrosion** | **Moisture**
**Applications**

- Rapid Laboratory Analysis of Material Samples.
- Property Analysis During Heating and Cooling
- Analysis of Stored Field Data.

**Sales Number**

**V-E-201** Emodulinx™ Software

---

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---

**Strength** **Locators** **Ultrasonics** **Corrosion** **Moisture**
A microwave meter for rapid determination of moisture content in wet cement and concrete

The James Cementometer™ represents a break-through in modern moisture measurement technology. By utilizing the latest microwave and microprocessor science, the Cementometer™ can determine the moisture content of freshly mixed cement, concrete, and mortar. Simply insert the prongs of the probe into the material to be measured and instantaneously the water cement ratio is shown on the easy to read display.

The Cementometer™ Microwave moisture meter uses a two prong sensor to measure the complex dielectric constant of the material in contact with the prongs. As the dielectric constant of water is four to eight times greater than most aggregates and cements, changes in water content directly effect the sensor output. An average of five to ten readings is normally taken in order to ensure a valid reading. This output is then converted by the integrated microprocessor and moisture content is displayed directly.

Two units are available to encompass the full range of water cement ratio’s found in wet concrete. The Cementometer™ Type R handles normal water/cement ratios with its two prong probe. The range of this instrument is approximately 0.35 to 0.65 water/cement. Cementometer™ Type L handles low water/cement ratios with its five prong probe. The range of this instrument is approximately 0.25 to 0.4 water/cement.

The units come calibrated for standard type I, II, and III cements. It can also be programmed with up to ten different mix design by the user. For highest accuracy, the user should program the unit for the material being used. The Cementometer™ Type R has simple to use calibration process that rapidly creates the user programs without the need for external computing devices. Finally, the Cementometer™ can store over 150 readings. Storage is complete with the time and date for future reference. Data can be recalled via USB interface to a personal computer running the James Cementometer™ software.

Features & Benefits

- Fast and easy to use; simply insert the prongs into the material being tested
- Accurate
- Completely Portable
- Full range of water cement ratio’s Instantaneous readings
Cementometer™ Type R handles normal water/cement ratios with its two prong probe. The range of this instrument is approximately 0.35 to 0.65 water/cement.

The Cementometer™ Type R has a simple to use calibration process that rapidly creates the user programs without the need for external computing devices.
Cementometer™ Type L
handles low water/cement ratios with its five prong probe. The range of this instrument is approximately 0.25 to 0.4 water/cements.
## Specifications

### T-C-10 – Cementometer™ Type R
(for regular water cement ranges)

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water/Cement Ratio Range</td>
<td>approx. 0.35 to 0.65</td>
</tr>
<tr>
<td>Power</td>
<td>4AA Batteries</td>
</tr>
<tr>
<td>Display</td>
<td>2x16 Char. Trans - reflective</td>
</tr>
<tr>
<td>Data Link</td>
<td>USB</td>
</tr>
<tr>
<td>Weight</td>
<td>approx. 4 lbs (1.8 kgs)</td>
</tr>
</tbody>
</table>

### T-C-20 – Cementometer™ Type L
(for low water cement ranges)

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water/Cement Ratio Range</td>
<td>approx. 0.25 to 0.4</td>
</tr>
<tr>
<td>Power</td>
<td>4AA Batteries</td>
</tr>
<tr>
<td>Display</td>
<td>2x16 Char. Trans - reflective</td>
</tr>
<tr>
<td>Data Link</td>
<td>USB</td>
</tr>
<tr>
<td>Weight</td>
<td>approx. 4 lbs (1.8 kgs)</td>
</tr>
</tbody>
</table>

## Sales Numbers

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-C-10</td>
<td>Cementometer™ Type R Complete, for Normal Range Water/Cement Ratios</td>
</tr>
<tr>
<td>T-C-20</td>
<td>Cementometer™ Type L Complete, for Low Range Water/Cement Ratios</td>
</tr>
</tbody>
</table>

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Örnek Sanayi Sitesi 1263. Sokak No. 26, Ostim, Ankara, Türkiye
For instantaneous determination of the moisture content of sand, fine aggregate and coarse aggregate using a unique microwave sensor

**Product Information**

The Aggrameter® T-T-100 utilizes the latest microwave and microprocessor technology to measure moisture content in various fine and coarse-grained materials. The prongs of the probe are inserted into the material to be tested and the percentage of moisture content is instantaneously shown on the easy to read display. An average of five to ten readings is normally taken in order to ensure a valid result. This output is converted by the integrated microprocessor and the moisture content is displayed directly as a percentage of dry weight. The Aggrameter® comes calibrated for both sand and aggregate, and can be programmed by the user with up to ten different materials.

**Features & Benefits**

- Fast and easy to use; simply insert the prongs into the sand or aggregate being tested
- Extension Pole for less fatigue
- Accurate & Instantaneous
- Completely Portable
- Easy to Read Display
- Customizable for Different Materials
Aggrameter®

The software will allow connection of the instrument to a Windows® 7, 8 or 10 personal computer. All the data stored by the unit can be uploaded to the personal computer for inclusion in quality control reports or any other form of later analysis. The software will also allow the user to "customize" the Aggrameter® to a specific material. This will increase the accuracy of the unit.

Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture Range</td>
<td>0 - 20% by Dry Weight</td>
</tr>
<tr>
<td>Frequency</td>
<td>50 Mhz</td>
</tr>
<tr>
<td>Power</td>
<td>2 AA Batteries</td>
</tr>
<tr>
<td>Display</td>
<td>2 x 16 Char. Trans-reflective</td>
</tr>
<tr>
<td>Data Link</td>
<td>USB</td>
</tr>
<tr>
<td>Weight</td>
<td>4 lbs. (1.8kg)</td>
</tr>
<tr>
<td>Length Extended</td>
<td>1000 mm (40 inches)</td>
</tr>
<tr>
<td>Data Storage</td>
<td>Greater than 1,000 Readings</td>
</tr>
</tbody>
</table>

Sales Number

T-T-100  Aggrameter® Complete System
OhmCorr™ Test System

Test Well. Build Well.

Resistivity meter to assess corrosion currents in concrete

Product Information

The James OhmCorr™ assesses concrete resistivity.

OhmCorr™ has two probes spaced 1.97” (5cm) apart which are placed in holes drilled to a depth of 3/8th” (8mm) and filled with conductive gel. The direct digital read-out of resistivity is displayed on the LCD when the control switch is activated.

The James OhmCorr™, when used in conjunction with the James CorMap™ System provides an economic and sound means of diagnoses of corrosion in reinforced concrete.

Features & Benefits

- Assesses damaging corrosion currents in concrete.
- Economic and easy to use.
- Direct digital readout of resistivity. Measuring from two small holes avoids the problems and errors of surface measurements.
- Used in conjunction with CorMap™ System to produce resistivity plots
OhmCorr™ Test System

Specifications

<table>
<thead>
<tr>
<th>Weight complete in carrying case</th>
<th>8 lbs (4 kilos)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display</td>
<td>4-1/2 Digit in LCD</td>
</tr>
<tr>
<td>Resolution</td>
<td>± 0.1K ohms cm (± 1 Digit)</td>
</tr>
<tr>
<td>Range</td>
<td>0.5 - 20K ohms cm</td>
</tr>
<tr>
<td>Battery</td>
<td>9 Volt</td>
</tr>
</tbody>
</table>

Sales Numbers

C-RM-8000  OhmCorr™ Test System Resistivity Meter

Consumables:
C-RM-8045  Conductive Gel

www.NDTjames.com
email: info@NDTjames.com
800-426-6500  •  773-463-6565
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+90 (312) 386 26 76 (Pbx)
Örnek Sanayi Sitesi 1263. Sokak No. 26, Ostim, Ankara, Türkiye

Strength  Locators  Ultrasonics  Corrosion  Moisture
The field test for air and water permeability of concrete using the Figg technique

**Product Information**

Porosiscopé Plus™ measures the time it takes for air to flow into a known volume of a sealed, evacuated chamber in the concrete. While the vacuum reduces from -55 Kpa to -50 Kpa, a measure of air permeability is determined.

For water permeability, Porosiscopé Plus™ 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. Surface porosity is determined in like manner using a specially designed surface chamber.

**Features & Benefits**

- Both air and water permeability are measured by the same instrument.
- Permeability both at the concrete surface as well as within the concrete mass can be determined.
- Porosity in sealants and surface mortars can be checked.
- The test is non-destructive (only a small plugged hole required) and can be completely carried out on site.
- Each test can be completed in only a few minutes and gives reliable reproducible results.
- The test enables meaningful concrete durability predictions to be made.

**Applications**

- Service life prediction
- Coating verification testing
- Determine susceptibility to chloride and carbonation penetration.

---

**Strength** | **Locators** | **Ultrasonics** | **Corrosion** | **Moisture**
**Porosiscope™**

**Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight, complete in carrying case</td>
<td>12.0 lbs. (5.4kg)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>17 x 12 x 6 inches (43 x 30 x 15 cm)</td>
</tr>
<tr>
<td>Power Supply</td>
<td>Standard 9V Battery</td>
</tr>
<tr>
<td>Grinding Wheel Rpm</td>
<td>12000 max</td>
</tr>
</tbody>
</table>

**Porosiscope™ Unit with Accessories**

**Sales Numbers**

- **C-P-6000** Porosiscope (does not include Surface Chamber)
- **C-P-6050** Porosiscope Plus (Includes Surface Chamber. Does not include plugs)

**Consummables:**
- **C-P-6060** Pack of 25 Test Plugs

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+90 (312) 386 26 76 (Pbx)
Örnek Sanayi Sitesi 1263. Sokak No. 26, Ostim, Ankara, Türkiye
Field Kit for the determination of chloride ion content in concrete, fresh cement, masonry, most other construction materials, and water.

**Product Information**

The Chlorimeter™ produces results on-site, within minutes that are accurate and comparable to expensive laboratory tests. It measures the electrochemical reaction of a weight-ed sample placed in an extraction liquid. It automatically shows a temperature compensated reading of percent of chlorides on its digital display. A wide range - from 0.002 to 2% chloride by weight - is covered.

**Features & Benefits**

- Fast - Results within minutes at the site.
- Economical - Low cost per sample compared to laboratory testing.
- Accurate - Results are comparable to laboratory testing.
- Covers wide range from 0.002% to 2% chloride by weight
- Internal Memory to store readings for later upload to a PC via USB.
- Digital display for direct reading of percentage of chloride by weight.
- Menu in English and Spanish.

**Applications**

- Service life prediction
- Corrosion analysis
Chlorimeter™ Chloride Field Test System

Specifications

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight, with carrying case</td>
<td>12.0 lbs. (5.4kg)</td>
</tr>
<tr>
<td>Case Dimensions</td>
<td>17 x 12 x 6 inches (43 x 30 x 15 cm)</td>
</tr>
<tr>
<td>Power Supply</td>
<td>4AA Batteries</td>
</tr>
<tr>
<td>Chloride Range</td>
<td>.001% to 3% by sample weight</td>
</tr>
<tr>
<td>Sample Size</td>
<td>3 grams</td>
</tr>
</tbody>
</table>

Consummables:

- **C-CL-3000** Chlorimeter™ Chloride Field Test System
- **C-CL-2012** Pack of 12 jars extraction liquid and calibration liquid
- **C-CL-2096** Pack of 100 jars extraction liquid and 20 jars of calibration liquid

Contact Information:

- **www.NDTjames.com**
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- Email: foreas@foreas.com
- Phone: +90 (312) 386 26 76 (Pbx)
- Örnek Sanayi Sitesi 1263. Sokak No. 26, Ostim, Ankara, Türkiye
A microwave meter for rapid determination of moisture content in different types of soils.

**Product Information**

The James **Aquaprobe™** represents a break-through in modern moisture measurement technology. By utilizing the latest microwave and microprocessor technology, the **Aquaprobe™** can determine the soil moisture content of different types of soils and other fine aggregate. Simply insert the five prongs in the soil to be measured and review the percentage moisture on display. A special guide is supplied to assist the user with inserting the prongs in particularly dense soil.

The **Aquaprobe™ Microwave Soil Moisture Meter** uses a five prong sensor to measure the complex dielectric constant of the material encompassed by the outer four prongs. As the dielectric constant of water is four to eight times greater than most natural soil types, changes in water content directly affect the sensor output. This output is then converted by the integrated microprocessor and moisture content is displayed directly as a percentage of dry weight. An average of five to ten readings is normally taken in order to ensure a valid reading, especially as water does not distribute itself evenly for many types of materials.

The basic unit comes pre-calibrated for Lean Clay, Silt, Sand (Ottawa Sand and SP sand) and general type of Silty Sandy soil. These soils represent the most commonly found types. This makes the basic unit the economical choice when evaluating soil moisture levels.

The complete system includes equipment to create custom calibration curves for different types of soil. The instrument can be programmed with up to ten different materials by the user. For highest accuracy, the unit should be programmed for the material being tested. Simple to use Windows™ software is provided for calibrating the unit to the various materials.

Finally, the **Aquaprobe™** instrumentation unit can store over 150 readings. Storage is complete with the time and date for future reference. Data can be recalled via USB interface to a personal computer running Windows™.

**Features & Benefits**

- Fast and easy to use.
- No hazardous chemicals.
- Accurate.
- Completely portable.
- Easy to read display.
- Instantaneous readings.

**Strength**  **Locators**  **Ultrasonics**  **Corrosion**  **Moisture**
Aquaprobe™

Applications

- Highway and Road Contractors
- Geotechnical Engineering
- Foundation Engineering
- Golf Courses
- Earth Moving Works
- Agriculture

Specifications (probe)

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement Range</td>
<td>0 - 15% by Dry Weight</td>
</tr>
<tr>
<td>Frequency</td>
<td>50 Mhz</td>
</tr>
<tr>
<td>Power</td>
<td>2 AA Batteries</td>
</tr>
<tr>
<td>Display</td>
<td>4 x 16 Char. Trans - reflective</td>
</tr>
<tr>
<td>Data Link</td>
<td>USB</td>
</tr>
<tr>
<td>Weight</td>
<td>4 lbs. (1.8kg)</td>
</tr>
</tbody>
</table>

Sales Numbers

- T-S-30 Aquaprobe™ Soil Moisture Meter Complete System
- T-S-37 Aquaprobe™ Soil Moisture Meter Calibration Kit (upgrade for Basic System to Complete System)
- T-S-31 Aquaprobe™ Meter Assembly
- T-S-32 Aquaprobe™ Sensor Unit with Cable

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Örnek Sanayi Sitesi 1263. Sokak No. 26, Ostim, Ankara, Türkiye

www.foreas.com
A simple colored dye field test to detect Alkali Silica Reaction (ASR)

**Product Information**

Field Test to identify Alkali Silica Reaction (ASR) in concrete. Two reagents are applied to the broken surface of a concrete core and the excess rinsed off. On contaminated concrete, the resultant stains reveal the presence of ASR. The stains also reveal the extent of the ASR in the concrete and indicate the stage of ASR progression. Yellow indicates that degradation has begun; pink warns that degradation is advancing.

**Applications**

ASR Detect™ principal application is analyzing existing concrete structures. By identifying ASR deterioration in its earliest stages, ASR Detect™ facilitates the problem being identified when remediation techniques can be applied. Where deterioration is advanced, ASR Detect™ provides a clear picture of the extent and depth of the damage. ASR Detect™ can also be applied to improving the understanding of where, how and why ASR occurs.

**Features & Benefits**

- Test can be carried out completely on site.
- Minimal operator training and no special equipment required.
- Utilizes only two environmentally safe dyes.
- Identifies ASR in concrete and differentiates ASR from other causes of degradation.
- Results obtained in less than five minutes are easy to interpret.
- Economic, fast and easy to use
Advantages

In contrast to the two established methods of ASR Detect™ ion-petrographic analysis and uranyl acetate analysis, ASR Detect™ has numerous benefits.

Because the reagent stains are clearly visible even before the treated sample dries, a complete diagnosis is possible in less than 5 minutes. ASR Detect™ systems are relatively inexpensive. Petrographic analysis requires shipment to a laboratory, adding time and raising the costs to hundreds of dollars per sample, also the uranyl acetate reagent is almost prohibitively expensive. ASR Detect™ is simple enough to use in the field. Its reagent stains are visible to the naked eye and are distinctive enough to be recognized and interpreted by anyone with minimal training. Petrographic analysis requires specially trained technicians working in a well-equipped laboratory. Therefore, the use of ASR Detect™ can considerably reduce the cost of diagnosis by reducing drastically the need for petrographic analysis.

The ASR Detect™ reagents present minimal danger to either human health or the environment. Uranyl acetate is radioactive and contains a heavy metal and therefore, has the potential to cause health and disposal problems. ASR Detect™ provides information not only about the presence but also the severity of ASR. Its affordability allows an engineer to analyze enough samples to obtain an accurate diagnostic picture of an entire structure. The high cost of a petrographic analysis permits only a limited number of samples to be examined.

Sales Numbers

I-AS-3000  ADR-Detect™

What’s included:
• One 60 ML Bottle of yellow reagent
• One 60 ML Bottle of pink reagent
• One 250 ML Bottle of distilled water
• Two dispensing pipettes
• One pair of protective gloves
• One pair of protective goggles
• One apron
• Carrying case

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+90 (312) 386 26 76 (Pbx)
Örnek Sanayi Sitesi 1263. Sokak No. 26, Ostim, Ankara, Türkiye
A simple colored dye field test to detect Carbonation

**Product Information**

**Carbo Detect™** is a simple colored dye field test for detecting carbonation. The single reagent is sprayed on the surface to be checked. The reagent will change to pink in uncarbonated concrete and remain colorless when sprayed on carbonated concrete.

**Technical**

Carbonation is one of the two main causes of corrosion of steel in concrete, the other is chloride attack. The result of the interaction of carbon dioxide gas in the atmosphere with the alkaline hydroxides in the concrete, the carbonation process effectively drops the pH of the concrete to a level where the steel will corrode. The carbon dioxide dissolves in water to form carbonic acid, which can migrate to the reinforcing steel if the concrete cover is low or if the concrete is of poor quality (open pore structure, low cement content, high water cement ratio, or poor curing of the concrete). Carbonation is more common in old structures, particularly buildings.

**Features & Benefits**

- Test can be carried out completely on site.
- Gives depth of carbonation.
- Minimal operator training and no special equipment required.
- Utilizes only one environmentally safe dye.
- Results obtained in less than five minutes are easy to interpret.
- Economic, fast and easy to use.
**Carbo Detect™ System**

**Method**

Carbo Detect™ reagent is a type of pH indicator which will indicate the change of pH on a freshly exposed concrete surface. The indicator is simply sprayed on the surface to be checked. The indicator will change to pink in uncarbonated concrete and remain colorless when sprayed on carbonated (low pH) concrete. If the concrete test area is very dry, a light misting with water will help show the color.

By spraying the indicator along a core drilled from the top surface down to the reinforcement bar it can be readily seen how far the carbonation has progressed and therefore the outlook for corrosion, which will only occur after carbonation reaches the reinforcement bar.

Care should be taken to prevent drilling and coring dust from contaminating the surface to be tested.

**Sales Numbers**

I-CB-6000  Carbo Detect™ system

What’s included:
- 200 ml of reagent - sufficient for approximately 100 tests
- Sprayer
- Carrying Case

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**Strength Locators Ultrasonics Corrosion Moisture**
A rugged hand held field instrument for finding the location, depth and size of reinforcement rebar, post tension, copper and conduit in place

Product Information

The Mini R-Meter™ is a rugged digital hand-held field instrument for finding the location and depth of reinforcement bars in place.

The Mini R-Meter™ is lightweight, inexpensive, and an easy to use unit to locate rebar. Rebar detection of up to 10" (250mm) can be accomplished when locating large diameter rebar. An easy to read display and a 4 hr battery life are just a few advantages that make the Mini R-Meter one of the most advanced hand held units in the field today. The sensor design allows the end user to quickly and accurately locate and determine concrete cover in corners or hard to reach areas. The system also allows the user to select between Imperial and Metric units. The data can be saved in the instrument for later uploading to a computer. The data is saved in the system with the date and time of the record to help identify prior tests taken. The Mini R-Meter rebar locator is also capable of locating non-ferrous metals.

The eddy current sensor was specifically designed to react with the presence of currents on the outer surface of metal objects. It is uninfluenced by small metal particles in the concrete, whether the concrete is fresh or hardened, wet, or dry. The eddy current sensor also allows the unit to locate both ferrous as well as non-ferrous metals in concrete; thereby finding not only steel reinforcing bars accurately, but also tendons, copper tubing, conduit, and more.

Detection and Orientation of Rebar
The exact position and orientation of rebar can be measured quickly and accurately. Rebar-free areas can be identified for coring, grinding, resurfacing, or insertion of new machinery mountings.

The instrument can be used to inspect new structures for compliance with specifications as well as old structures under modification.

Measurement of Concrete Cover
The exact position and orientation of rebar can be measured quickly and accurately. Knowing the size of the rebar, concrete cover can be detected and the distance between the concrete and the surface it will appear in the easy to read display.

Location of Metals
Locate any metals, as pipe, flues, wire, and sheets embedded in concrete, masonry, or wood. Identification is possible to a depth of 10 inches.

Location of Pre-Stressed Cables
Locates the position of cables and lost tendon splices in pre or post tension concrete products.

Applications
- Rebar Locating Detection and Orientation
- Measurement of Concrete Cover
- Concrete Drilling and Sawing
- Repair and Rehabilitation
- Location of Prestressed Cables
- Contractors

Features & Benefits
- Eddy current design for greater accuracy.
- Single sensor for all depth ranges.
- Daylight visible display
- Locates up to 8" (200mm)
- Economical
- Store Data for Later Upload via USB

Strength  Locators  Ultrasonics  Corrosion  Moisture
Mini R-Meter™

Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temp. Range</td>
<td>-5 C to 45 C (23 deg F to 113 F)</td>
</tr>
<tr>
<td>Bar Size Calibration</td>
<td>3/8” to 1 3/8”</td>
</tr>
<tr>
<td>Max. Detection Range</td>
<td>10” (No.11 Bar) 250 mm (36 mm Bar)</td>
</tr>
<tr>
<td>Power Source</td>
<td>2 AA</td>
</tr>
<tr>
<td>Battery Life</td>
<td>4 hours continuous operation</td>
</tr>
<tr>
<td>Software</td>
<td>Windows Compatible/ USB Required. HR-8000 and HR-8100 only</td>
</tr>
<tr>
<td>Operating Weight</td>
<td>Less than 3.5 pounds (1.60 Kg)</td>
</tr>
</tbody>
</table>

Sales Numbers

R-HR-8000 Mini R-Meter
R-HR-8100 Mini R-Meter w/PC Software

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Örnek Sanayi Sitesi 1263. Sokak No. 26, Ostim, Ankara, Türkiye
A Hand Held Instrument for Fast and Accurate Measurement of Moisture Content in Solid Materials

Product Information

The James Instruments Aquameter™ utilizes the latest electronic technology to measure the quantity of water within its sensing field.

The unit has two modes of operation: the pin mode, and search mode. In the pin mode, two pins are pushed into the material and a high frequency field is created between these two pins. In the search mode, the unit uses a high frequency capacitive sensor to sample a large volume of the material, instantaneously.

Changes in this electromagnetic field are directly proportional to the dielectric constant of the material through which it passes. As the dielectric constant of water is almost two orders of magnitude greater than most non-metallic materials, variations in this parameter can be correlated to the moisture content.

After extensive testing of various materials, relationships between the change in this field and moisture content have been determined. These relationships have been digitized and implemented using the latest in micro-computer technology, thereby allowing the user the direct readout of moisture content for concrete, masonry, hard wood, soft wood, gypsum, and brick.

The pin method has been found to be most effective in low density materials such as fir wood or pine wood. The search mode has been found to be most effective for higher density materials such as brick, masonry, gypsum and concrete.

Features & Benefits

- Direct readout of moisture content, no charts or tables required.
- Separate modes for concrete, brick, different woods, and gypsum.
- Measures moisture in most solid materials.
- Color coded LED indicates moisture condition of material.
- Alarm values can be set by user.
- Pin mode for low density materials, capacitive mode for high density materials.
Applications

- Locate leaking pipes in walls and floors.
- Locate seeping water in basements & masonry tanks.
- Check moisture level of material before applying coatings or adhesives.
- Curing condition of wood, stucco, and other construction materials.

Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display</td>
<td>4 digits, 10 mm LCD Tri-Color coded LED indication</td>
</tr>
<tr>
<td></td>
<td>• Green - represents a safe, dry air state</td>
</tr>
<tr>
<td></td>
<td>• Yellow - represents a borderline state</td>
</tr>
<tr>
<td></td>
<td>• Red - represents a damp state</td>
</tr>
<tr>
<td>Measurement Range</td>
<td>0 - 80% (cd00 for Pin type)</td>
</tr>
<tr>
<td></td>
<td>(cd10 for Search/Density type)</td>
</tr>
<tr>
<td>Measurement Depth</td>
<td>Search/Density Mode (w/o Pins)</td>
</tr>
<tr>
<td></td>
<td>– surface only</td>
</tr>
<tr>
<td></td>
<td>Pin Mode (w/ Pins)</td>
</tr>
<tr>
<td></td>
<td>– ~ 0.4 inches (or 10mm)</td>
</tr>
<tr>
<td>Power</td>
<td>(4) AAA Batteries</td>
</tr>
<tr>
<td>Power Off (2 modes)</td>
<td>Manual ‘OFF’ - at any time</td>
</tr>
<tr>
<td></td>
<td>Auto ‘OFF’- after 5 minutes from last key operation</td>
</tr>
<tr>
<td>Operating Conditions</td>
<td>Temperature: 0 - 50˚C</td>
</tr>
<tr>
<td></td>
<td>Humidity: below 90% RH (Relative Humidity)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>165mm x 62mm x 26 mm (~6.5 in. x 2.4in. x 1.0 in)</td>
</tr>
<tr>
<td>Weight</td>
<td>175g (not including batteries)</td>
</tr>
</tbody>
</table>

Sales Numbers

T-M-170  Aquameter

Aquameter™ Complete Kit