QUALITEST™
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Advanced

Concrete Testing Technologies





Compression & Flexural Testing Machines

Rebar Quali-Bend Tensile Testing Machines

Fresh Concrete Testing

Hardened Concrete Testing

Non Destructive Testing (NDT)

About Qualitest

QUALITEST, together with the WorldofTest.com network, is a global supplier of testing technologies that help customers improve their design, development and manufacturing processes. Our mission is to help our customers design, develop and produce their products faster, with higher quality and at a lower cost. A leader in offering the widest range of precision metal testing technologies on the market, Qualitest leverages extensive industry experience to provide products that determine the mechanical properties of metals including steel, aluminum, alloys, iron, and much more.These solutions include portable and low cost instruments as well as bench-top and sophisticated systems to meet your highest demands. With rapidly growing presence in North America and worldwide, Qualitest maintains offices in USA, Canada, UAE, Asia and Mexico with a wide network of sales and service partners. This global presence ensures that Qualitest customers have fast and efficient access to Qualitest service, support and consulting services to realize optimal return on their testing solution investments. Qualitest offers direct after sales service/calibration support or through our authorized and nationwide A2LA accredited and ISO 17025 certified service centers.

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Concrete is a strong and versatile construction material consisting of cement, sand, and aggregate mixed with water. When these ingredients are mixed together, they form a fluid material that is easily molded into shape. Over time, a hard matrix is formed that binds the ingredients together into a durable stone-like material. Often, additives and reinforcements (such as rebar) are added to the mixture to achieve the optimal physical properties.

Concrete is one of the most-used materials in the construction industry. Due to its importance in infrastructure, the quality of concrete must be accurately tested before building a structure that humans rely on for safety and durability. Several variables contribute to defining the quality of concrete, including workability, consistency, strength, elasticity, hardness, setting time, and air content.

General Applications

Concrete has shaped the infrastructure of the modern world and is present in large quantities almost everywhere across the globe. Concrete is widely used for making architectural structures, foundations, pavements, bridges, overpasses, highways, runways, parking structures, dams, and even boats.

The construction industry requires concrete with specific properties such as a high standard of strength, which is probably the most important property that must be tested to comply with industry specifications. The American Standard of Testing Materials and other organizations have developed a variety of methods for testing strength: concrete strength values are usually specified as the compressive strength of either a cylindrical or cubic specimen, and these values usually differ by around 20% for the same concrete mix.

To ensure that the appropriate properties are obtained, quality control and acceptance testing are essential processes for the construction industry to meet international standards for building infrastructure.

Qualitest's Advanced Testing Technologies are the most reliable and cost-effective solutions for Concrete Testing.

Qualitest's Advanced Testing Technologies allow laboratories all over the world to test and evaluate concrete to ensure its strength and safety.

Together with our network of partners, Qualitest offers a complete selection of machines and systems for concrete testing. We supply an extensive range of competitive solutions such as Compression & Flexure testing machines, which are customizable and equipped with advanced software; the widest range of concrete testing machines for both fresh and hardened concrete; and a multitude of Non-Destructive Testing (NDT) instruments complying with the most stringent international standards.

www.WorldofTest.com/concrete-compression-flexure.htm

High & Low Capacity Compression Testing Machines for Concrete

QCRT-AC Series of High & Low Capacity Automatic Compression Testing Machines for Concrete

ASTM C39, ISO EN 7500, EN 12390-3, 12390-4; BS 1881,AASHTO T22

QCRT-AC series of High & Low Capacity Automatic Compression Testing Machines for Concrete range of 600 kN and 5000 kN capacity compression testing machines have been designed for reliable and consistent testing of a wide range of specimens. These compression testers are the results of continuous research to upgrade the testing machines with the latest technologies to conform to the latest standards ASTM C39, ISO EN 7500, EN 12390-3, 12390-4; BS 1881,AASHTO T22 and respectively in terms of its technical properties taking into account client requirements. These also meet the requirements of CE norms for the safety and health of the operator.

Tests can be performed by either on QCRTX Unit or on a computer with using QCRTSoftl Software. The advantages of performing tests on computer with using QCRTSoftl Software, such as reporting, graphical output, etc.

The QCRT-AC Automatic range of 600KN, 1500KN, 2000KN, 3000KN, 4000KN and 5000KN capacity compression testing machines allow inexperienced operators to perform the test. Once the machine has been switched on and the specimen is positioned and centered by the help of centering apparatus, the only required operations are;

- Setting test parameters, including pace rate (only required when the specimen type is changed).
- Pressing the START button on the control unit
- The machine automatically starts the rapid approach, when the specimen touches the upper platen the rapid approach is ended and starts loading at the pace rate that selected by user and stops once the specimen fails.
- Automatically saves the test parameters and test results

Exceeding of the ASTM C-39 standard provisions (starts with the 10% of the machine capacity), QCRT-AC series of Automatic Compression Testing Machines are supplied in Class 1 starting from 50 kN. This exceptional performance enables the machines to be used for a considerable number of applications including:

- Early age compression strength tests
- Flexural tests by using proper accessories
- Mortar (Cement) compression tests by using proper accessories
- Core with low diameter compression tests
- The compression machines consist of a heavy duty welded frame, automatic hydraulic power pack with data acquisition and control system QCRTX.

Safety Features

- Maximum pressure valves to avoid machine overloading
- Piston travel limit switch
- Emergency stop button
- Front and rear transparent durable Plexiglas guards
- Software controlled maximum load value

	Low Capacity		High Capacity				High Capacity Four (4) column			
Model	QCRT-AC:600	QCRT-AC:1500	QCRT-AC:2000E	QCRT-AC:3000E	QCRT-AC:2000A	QCRT-AC:3000A	QCRT-AC:2000E	QCRT-AC:3000E	QCRT-AC:4000E	QCRT-AC:5000E
Capacity	600 kN / 135,000 lb.f	1500 kN / 337,000 lb.f	2000 kN / 450,000 lb.f	3000 kN / 675,000 lb.f	2000 kN / 450,000 lb.f	3000 kN / 675,000 lb.f	2000 kN / 450,000 lb.f	3000 kN / 675,000 lb.f	4000 kN / 900,000 lb.f	5000 kN / 1,124,000 lb.f
Standard	ASTM C39; AASHTO T22	ASTM C39; AASHTO T22	EN 12390-3, 12390-4	EN 12390-3, 12390-4	ASTM C39	ASTM C39	EN 12390-4	EN 12390-4	EN 12390-4	EN 12390-4
The roughness value for texture of loading and auxiliary platens	≤ 3.2μm	≤ 3.2μm	≤ 3.2μm	≤ 3.2μm	≤ 3.2μm	≤ 3.2μm	≤ 3.2μm	≤ 3.2μm	≤ 3.2μm	≤ 3.2μm
Lower platens dimensions	Ø165 mm	Ø216 mm	Ø300 mm	Ø300 mm	Ø165 mm	Ø165 mm	Ø300 mm	Ø300 mm	Ø300 mm	Ø300 mm
Upper platens dimensions	Ø165 mm	Ø216 mm	Ø300 mm	Ø300 mm	Ø165 mm	Ø165 mm	Ø300 mm	Ø300 mm	Ø300 mm	Ø300 mm
Maximum vertical clearance between platens	340 mm	370 mm	340 mm	340 mm	370 mm	370 mm	340 mm	340 mm	520 mm	520 mm
Piston diameter	150 mm	230 mm	250 mm	300 mm	250 mm	300 mm	300 mm	350 mm	400 mm	420 mm
Maximum piston movement	50 mm	50 mm	50 mm	50 mm	50 mm	50 mm	50 mm	50 mm	100 mm	120 mm
Horizontal clearance	230 mm	320 mm	360 mm	425 mm	360 mm	425 mm	385 mm	445 mm	495 mm	515 mm
Power	750 W	750 W	750 W	750 W	750 W	750 W	750 W	750 W	750 W	750 W
Oil capacity	20 L	20 L	20 L	20 L	20 L	20 L	20 L	20 L	20 L	20 L
Maximum working pressure	335 Bar	355 Bar	410 Bar	410 Bar	410 Bar	410 Bar	280 Bar	310 Bar	315 Bar	350 Bar
Dimensions (wxlxh)	660x500x900 mm	750x500x930 mm	810x500x970 mm	875x540x1050 mm	810x500x970 mm	875x540x1050 mm	630x660x1090 mm	735x670x1140 mm	805x710x1370 mm	865x640x1555 mm
Weight	420 kg / 925 lbs	625 kg / 1375 lbs	795 kg / 1750 lbs	1095 kg / 2410 lbs	775 kg / 1705 lbs	1075 kg / 2365 lbs	1030 kg / 2270 lbs	1800 kg / 3960 lbs	2350 kg / 5170 lbs	3150 kg / 6930 lbs

QCRT-SAC Series of High & Low Capacity Semi-Automatic Compression Testing Machines for Concrete

ASTM C39, ISO EN 7500, EN 12390-3, 12390-4; BS 1881,AASHTO T22

QCRT-SAC Series of High & Low Capacity Semi-Automatic Compression (Motorized) range of 600 kN, 1500 kN, 2000 kN and 3000kN capacity compression testing machines have been designed for reliable and consistent testing of a wide range of specimens. These compression testers are manufactured as a result of continuous applications and research studies to upgrade the machines with the latest technologies to conform to the current standards ASTM C39; AASHTO T22; ISO EN 7500 and EN 12390-4 respectively in terms of its technical properties taking into account the client requirements. These machines also meet the requirements of CE norms with respect to the operator's health and safety. Their user-friendly design enable an inexperienced operator to perform the tests.

Exceeding of the ASTM C-39 standard provisions (starts with the 10% of the machine capacity), the QCRT-SAC Series of High & Low Capacity Semi-Automatic Compression Testing Machines are supplied in Class 1 starting from 50 kN. This unique performance enables the machines to be used for a considerable number of applications including:

- Early age compression strength tests
- Flexural tests by using proper accessories
- Mortar (Cement) compression tests by using proper accessories
- Core with low diameter compression tests

The compression machines consist of a heavy duty welded frame, hydraulic power pack with data acquisition system QCRTDAS.

Safety Features

- Maximum pressure valves to avoid machine overloading
- Piston travel limit switch

	Low Capacity		High Capacity			
Model	QCRT-SAC:600	QCRT-SAC:1500	QCRT-SAC:2000E	QCRT-SAC:2000A	QCRT-SAC:3000E	QCRT-SAC:3000A
Capacity	600 kN / 135,000 lb.f	1500 kN / 337,000 lb.f	2000 kN / 450,000 lb.f	2000 kN / 450,000 lb.f	3000 kN / 675,000 lb.f	3000 kN / 675,000 lb.f
Standard	ASTM C39	ASTM C39	EN 12390-4	ASTM C39	EN 12390-4	ASTM C39
The roughness value for texture of loading and auxiliary platens	≤ 3.2μm	≤ 3.2μm	≤ 3.2μm	≤ 3.2μm	≤ 3.2μm	≤ 3.2μm
Lower platens dimensions	Ø165 mm	Ø216 mm	Ø300 mm	Ø165 mm	Ø300 mm	Ø165 mm
Upper platens dimensions	Ø165 mm	Ø216 mm	Ø300 mm	Ø165 mm	Ø300 mm	Ø165 mm
Maximum vertical clearance between platens	340 mm	370 mm	340 mm	370 mm	340 mm	370 mm
Piston diameter	150 mm	230 mm	250 mm	250 mm	300 mm	300 mm
Maximum piston movement	50 mm	50 mm	50 mm	50 mm	50 mm	50 mm
Horizontal clearance	230 mm	320 mm	360 mm	360 mm	425 mm	425 mm
Power			550 W	550 W	550 W	550 W
Oil capacity	20 L	20 L	20 L	20 L	20 L	20 L
Maximum working pressure	340 Bar	362 Bar	410 Bar	410 Bar	410 Bar	410 Bar
Dimensions (wxlxh)	590x500x 800 mm	680x500x 930 mm	740x500x 970 mm	740x500x 970 mm	805x540x 1050 mm	805x540x 1050 mm
Weight	405 kg / 890 lbs	610 kg / 1345 lbs	780 kg / 1715 lbs	760 kg / 1675 lbs	1080 kg / 2380 lbs	1060 kg / 2330 lbs

QCRT-MC Series of Low Capacity Manual Compression Testing Machines

ASTM C39

QCRT-MC Series of Low Capacity Manual Compression Testing Machines range of 600 kN and 1500 kN capacity Manual Compression Testing Machines are designed to perform reliable compression tests on concrete specimens especially suitable for on-site applications when electric power supply is unavailable.

Being a low cost alternative, the Qualitest QCRT-MC manual testing series combines precision and simplicity with the unique design of the manual power pack which is hand operated and enables even an inexperienced operator to perform excellent compression and flexure tests onsite. These compression testers are manufactured as a result of continuous applications and research studies to upgrade the machines with the latest technologies to conform to the current standards ASTM C39 in terms of its technical properties taking into account the client requirements

Exceeding of the ASTM C-39 standard provisions (starts with the 10% of the machine capacity), the QCRT-MC:600 and QCRT-MC:1500 are supplied in Class 1 starting from 50 kN. With their exceptional performance, the QCRT-MC:600 and QCRT-MC:1500 are a reliable and economical solution for remote site locations where electrical power is unreliable, or nonexistent. The compression machines consists of a heavy duty welded frame, hydraulic power pack and data acquisition system QCRTDAS.

QCRT-AFXT Series of Concrete Automatic Flexural Testing Machines

ASTM C78, C293 and C496, EN 12390-5, EN 12390- 6, EN 1338, EN 1340, BS 1881

QCRT-AFXT Series of Automatic Concrete Flexural Testing Machines range of 200 kN, 300 kN and 600 kN capacity machines have been designed for reliable and consistent testing of flexural test on standard concrete beams, concrete or natural stone kerbs, concrete paving flags, and natural stone slabs and tensile splitting test of concrete paving blocks. These flexure testing machines are the result of continuous research to upgrade the testing machines with latest technologies to conform to the latest standards ASTM C78, C293 and C496, EN 12390-5, EN 12390- 6, EN 1338, EN 1340, BS 1881 in terms of its technical properties taking into account client requirements. These also meet the requirements of CE norms for health and safety of the operator.

Tests can be performed by either on QCRTX Unit or on a computer with using QCRTSoftl Software. The advantages of performing tests on computer with using QCRTSoftl Software, such as reporting, graphical output, etc.

QCRT-AFXT Automatic range of 200 kN, 300 kN and 600 kN capacity flexure testing machines allow inexperienced to perform the test. Once the machine is switched on and specimen is placed, then the only required operations are;

- Setting test parameters, including pace rate only required when the specimen type is changed.
- Pressing the START button on the control unit.
- The machine automatically starts the rapid approach; switches the test speed after 1% of the load capacity of the machine and stops once the specimen failure.
- Automatically saves the test parameters and test results.

QCRT-AFXT Series of Automatic Flexural Machines have the accuracy of Class 1 starting from 2% of the full capacity.

The flexure testing machines consists of heavy duty welded frame, automatic hydraulic power pack with data acquisition and control system QCRTX. Flexural test assemblies should be ordered separately

Safety Features

- Maximum pressure valves to avoid machine overloading
- Piston travel limit switch
- Emergency stop button
- Software controlled maximum load value

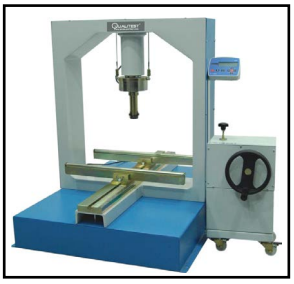
QCRT-SAFXT Concrete Semi-Automatic Flexural Testing Machines

ASTM C78, C293 and C496, EN 12390-5, EN 12390-6, EN 1338, EN 1340, BS 1881

QCRT-SAFXT Concrete Semi-Automatic Flexural Testing Machine with range of 200 kN capacity flexure testing machine was been designed for reliable and consistent testing of flexural test on standard concrete beams, concrete or natural stone kerbs, concrete paving flags and natural stone slabs and tensile splitting test of concrete paving blocks. These flexure testing machines are the results of continuous research to upgrade testing machines with latest technologies and to conform to the latest standards ASTM C78, C293 and C496, EN 12390-5, EN 12390-6, EN 1338, EN 1340, BS 1881 in terms of its technical properties taking into account client requirements. These testers also meet the requirements of CE norms for health and safety of the operator. The QCRT-SAFXT Concrete Semi-Automatic Flexural Testing Machine with range of 200 kN capacity flexure testing machines allow inexperienced operators to perform the test. The flexural testing machines consist of heavy duty welded frame, hydraulic power pack with data acquisition system QCRTDAS. The QCRT-SAFXT Concrete Semi-Automatic Flexural Testing Machine have the accuracy of Class 1 starting from 2% of the full capacity. Flexural test assemblies should be ordered separately.

Safety Features

- Max pressure valve to avoid machine overloading
- Ram travel switch to prevent excessive piston travel



QCRT-MFXT Concrete Manual Flexural Testing Machines

ASTM C78, C293, C496, EN 1338, 1340, 12390-5, 12390-6; BS 1881;

QCRT-MFXT Concrete Manual Flexural Testing Machine with 200KN capacity is designed to perform reliable flexure tests on standard concrete beams, concrete or natural stone kerbs, concrete paving flags, and natural stone slabs and tensile splitting test of concrete paving blocks. Especially suitable for on-site applications when electric power supply is not available.

Being a low cost alternative, QCRT-MFXT testing machine combines precision and simplicity with the unique design of the manual power pack. Hand Operated Hydraulic Power Pack enables even an inexperienced operator to perform the flexure tests on-site. The QCRT-MFXT flexural machine have the accuracy of Class 1 starting from 2% of the full capacity.

QCRT-MFXT flexure testing machine consists of a heavy duty welded frame, manuel hydraulic power pack and data acquisition system QCRTDAS. Flexural test assemblies should be ordered separately

Rebar Quali-Bend Tensile Testing Machines

ASTM C39, ASTM E8, ASTM F606, ASTM A931, ASTM A416, ASTM E190, EN10002-1, ISO 6892-1, ISO 15630-3, ISO 7438, ISO 898-1,

Rebar Quali-Bend Series of Concrete Rebar Tensile Testing Machines are designed for high-capacity tension, on concrete reinforcement bar (Rebar) for quality control, product development, and research or process development. These frames feature single ultra-large test space and so users can easily load and unload specimens, meanwhile, these frames are capable of accommodating a large variety of specimen dimensions, grips, fixtures and extensometers. These testing machines are guaranteed to meet EN, ISO, ASTM and other national and international specifications for accuracy.

Models:

Rebar Quali-Bend Series of Concrete Rebar Tensile Testing Machines are computer controlled and designed in the range of 600KN to 3,000KN (132,000 lbf to 660,000lbf).

Features:

- Long test stroke provide capability to meet a variety of testing requirements of international standards without changing the crosshead adjustment.
- Rigid 4-column load frame providing superior axial and lateral stiffness and minimum maintenance, low reaction at specimen failure.
- Ultra-large test space accommodates a large variety of specimen dimensions, grips, fixtures, furnaces, and extensometer.
- Chrome plated columns for easy cleaning and longest life.

Grips:

- Grip control system is mounted directly at the machine.
- Wedge action grip & side action grip are used in the Rebar Tensile Testing Machines.
- Compression platens or bending / folding devices may be fixed directly into wedge grips.
- Unchanged height of lower grip and accessible test level making it easy for operators to install specimens and test fixtures.
- Full capacity hydraulic wedge grips offer fully open-front design making specimen loading efficient and safe for the operator.

Technical Specifications

Model & Specification	QT-HW2-600	QT-HW2-1000	QT-HW2-2000	QT-HW2-3000
Capacity (KN) (lb.f)	600 KN / 135,000 lb.f	1000 KN / 225,000 lb.f	2000 KN / 450,000 lb.f	3000 KN / 675,000 lb.f
Measuring Accuracy (%)	+/-0.5	+/-0.5	+/-0.5	+/-0.5
Test Force Resolution	1/500000	1/500000	1/500000	1/500000
Position Resolution (mm)	0.001	0.001	0.001	0.001
Testing Speed Range (mm/min)	0.1~150	0.1~150	0.1~150	0.1~80
Adjustable Crosshead Speed (mm/min)	350	350	320	260
Ram Stroke (mm)	250	250	250	300
Clearance between Columns (mm)	540	560	680	898
Clearance between Grips (mm)	700	750	800	1200
Clearance between Platens (mm)	580	600	600	1200
Dimensions (mm)	850x600x2115	890x640x2345	1220x890x2850	1380x990x5180
Dimensions, Control Console (mm)	1150x780x900	1150x780x900	1150x780x900	1150x780x900
Power (kW)	2.25	2.25	4.1	4.1
Weight (Kg) (lbs)	2,450 Kg / 5,400 lbs	3,350 Kg / 7,400 lbs	5,700 Kg / 12,550 lbs	16,000 Kg / 35,200 lbs
Weight, Control Console (kg) (lbs)	360 Kg / 800 lbs	360 Kg / 800 lbs	480 Kg / 1,060 lbs	480 / 1,060 lbs

Workability and Consistency of Fresh Concrete

Qualitest is having following test sets which are used to determine the workability and consistency of fresh concrete.

Slump Cone Test Sets

ASTM C143, EN 12350-2, AASHTO T119

The Slump cone test is performed for determining the workability and consistency of concrete.

Features:

- Seamless
- Strong and robust
- Very practical
- Ideal for field use

The cone is manufactured from sheet steel protected against corrosion.

Top dia. 100 mm, base dia. 200 mm, height 300 mm. Weight approx. 2 kg.

There are two versions of set: standard and portable, where the cone clamps on the base for filling and tamping. After the cone is removed, the handle rises over the specimen and the slump is measured using a 22 cm scale engraved in 1 cm increments on the end of the rod.

Both set versions are also available with stainless steel cone.

Kelly Ball Method

ASTM C360

This method is used to determine the penetration of a hemispherical metal weight into freshly mixed concrete, which is related to the workability of the concrete.

The apparatus consists of a cylinder with one end having a hemispherical shape and the other end fit with a graduated handle. The weight assembly is lowered through a frame into the concrete and the penetration measured. The approximate weight of Kelly Ball apparatus is 15 Kg.

Concrete Flow Table

EN 12350-5

The apparatus consists of a double wooden table measuring 700x700 mm hinged at one side. The top table is covered with an inscribed metal plate 2 mm thick: The steel cone, part of the apparatus, has a top dia. of 130 mm, base dia. of 200 mm and is 200 mm high. Complete with wooden tamping rod. All metal parts are protected against corrosion. The approximate weight of concrete flow table is 30 Kg.

Compacting Factor Apparatus

BS 1881:103

The apparatus consists of two conical hoppers having a hinged trap door attached to the lower end of each hopper, allowing the concrete sample to flow freely into the cylindrical mould. The hoppers and the mould are mounted onto a rigid steel frame and are easily removable for cleaning. The complete apparatus is protected against corrosion. The approximate weight of Compacting Factor Apparatus is 50 Kg.

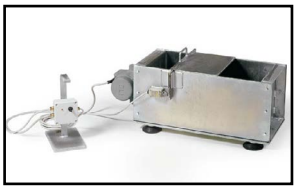
Concrete Workabilimeter

NF P18-452

This method is used to verify the homogeneity of concrete in relation to its workability or plasticity. This test method has particular application for concretes containing chemical admixtures.

The apparatus consists of a metal box divided into two parts and fit with an electrical vibrator system. During operation the concrete is poured into the first section of the box and then the dividing plate is removed. The vibrator is immediately switched on and the time is recorded when the concrete has spread uniformly across the whole box.

- Overall dimensions: 800x400x400 mm
- Weight approx.: 30 kg



Fresh Concrete Testing

K-Slump Tester

ASTM C1362

This device is used to determine the workability and degree of compaction of fresh concrete after being placed in the forms. It can be used for in-situ measurements or inside test moulds and forms. Results can be correlated against the slump test.

The operation is very simple: insert the tester into the concrete up to the level of the disc, after 60 seconds, a measuring rod is lowered onto the surface of the concrete and the K-slump is read directly on a scale. The calibrated hollow tube has a dia. of 20 mm.

- Total length: 300 mm
- Weight approx.: 500 g

Waltz Container

EN-12350-4

The apparatus consists of a metal box with handles.

- Dimensions: 200x200x400 (h) mm
- Weight approx.: 5 kg

Vebè Consistometer

ASTM C1176, ASTM C1170, EN 12350-3

This test method is used to measure the consistency of stiff to extremely dry concrete. Consistency is measured as the time required for a given mass of concrete to be consolidated by vibrating in a cylindrically shaped mould. The small vibrating table operates at a fixed amplitude and frequency.

Versions available:

- QT-VebCON:I conforming to EN 12350-3
- QT-VebCON:II conforming to ASTM C1170 and ASTM C1176
- QT-VebCON:III conforming to ASTM C1176

The operating principle is practically identical and the units differ from one to the other in the shape of the container and swivel arm with surcharge weight. The 50 lb (22.7 kg) surcharge weight, which is part of the QT-VebCON:II unit (conforming to ASTM C1170), can be replaced by the 20 lb (9 kg) sliding weight conforming to ASTM C1176. The equipment conforming to ASTM C1176 supplied along with 20lb (9kg) surcharge weight.

Concrete Rheometer

QT-ViskomatNT Rheometer

www.WorldofTest.com/viskomat-nt.htm

The QT-ViskomatNT Rheometer is a versatile rotational viscometer for determining the workability of fine grained building materials such as cement paste, mortar, fine concrete, plaster etc. with maximum particle size of 2 mm. Following results can be obtained using this Rheometer:

- Flow curves and rheological parameters temperature dependent workability properties
- Stiffening behavior as a function of time
- Stirring speed effects of concrete admixtures and mineral blending agents on workability

Features:

- Robust apparatus for industrial environments
- Quality control, research and development
- Informative, easy to use test procedures
- Automatic running of predefined test procedures which can be either standardized or tailored to your own requirements
- Inhomogeneous materials measureable with particles up to 2 mm using special paddles to avoid separation

QT-ViskomatXL Rheometer

www.WorldofTest.com/viskomat-xl.htm

The QT-ViskomatXL Rheometer is filling the gap between the QT-ViskomatNT for mortar and paste with a specimen volume of 360 ml and the concrete QT-RheoBT2 Rheometer with a sample volume of 20L. The operation principle of the QT-viskomatXL is similar to that of the QT-viskomatNT. So a mixer formed probe is measuring the torque, and the specimen vessel is rotating. An additional scraper is cleaning the wall of the vessel.The speed may be 0.001 to 180 rpm in both directions, clockwise or counter clockwise. You may define the speed in several steps, in a linear increase or decrease of speed. As option also an oscillating or a logarithmic mode is possible. The QT-ViskomatXL has a torque range from 0.300Ncm with a resolution of 0.05Ncm and accuracy better than 0.2Ncm. Optional we can install a sensor with a torque range up to 1000Ncm and an accuracy of 0.8NcmTemperature control is realized by a double wall specimen container, where a cooling liquid is circulating. The specimen temperature is measured with a RTD mounted inside the shaft of the probe.The sampling rate may be set from 0.005s to 10min.As option you may run the QT-ViskomatXL with a shear stress controlled mode. So you preset the torque over time, and the speed is automatically controlled to achieve the predefined torque. The QT-ViskomatXL is controlled via a network interface. Simply connect your PC and start your Internet Explorer for full control and data transfer. There is not any need for installation of special software.

QT-RheoBT2 Rheometer

www.WorldofTest.com/bt2.htm

The QT-RheoBT2 is a compact rheometer for fresh concrete. Opposite to the spread table method the QT-RheoBT2 concrete rheometer tests the concrete at various loads. Therefore the relative yield-stress and relative viscosity can be determined. The unique design of the QT-RheoBT2 Concrete rheometer avoids structural breakdown and segregation during measuring. The QT-RheoBT2 is a small, powerful stand alone and easy to use equipment.

Main Features

- Quick measurement
- Easy to operate
- Portable
- No structural breakdown during the measurement
- No segregation ore sedimentation during the measurement

Fresh Concrete Testing

Gyratory Compactor for Concrete

NT Build 427

Fresh concrete is generally considered no-slump if it has a slump less than 2 cm and a VeBe time longer than 5 sec. approx. Therefore it consists of a stiff mass that has to be compacted by means of pressure combined with vibration, rolling and/or extrusion, generally a shear movement in order to grant a good interlocking between the aggregate particles. Gyratory Testing Machine well reproduce in laboratory the compaction of no slump concrete by mean of vertical pressure combined with the gyratory movement. Since 1985 the gyratory compactor has been used for concrete materials in Finland and Scandinavia. The method is used for mix design and quality control mainly in concrete product plants, where low workable and zero slump concrete is used (for such products as hollow-core slabs, tubes and paving blocks).

The method is used for:

- Mix design simulating selected production processes
- Specimen preparation for strength tests (fresh and cured)
- Research of mix related phenomena (workability, curing time, admixtures, etc.)

Two Versions with pneumatically operated vertical pressure are available:

- QT-GyrCom:I Gyratory compactor for cement and concrete. 230 V, 50 Hz, 1 ph (other voltages on request)
- QT-GyrCom:II Gyratory compactor for cement and concrete. Research version with shear resistance measurement 230 V, 50-60 Hz, 1 ph.(other voltages on request)

The machines are supplied complete with one 100mm dia mould and accessories to perform the test. Both the models are supplied complete with WIN-ICT software for the machine control, Data acquisition and compaction curve processing and Excel Macro for gyratory compaction test complete for data procession. PC not included.

Air Entrainment Meters

ASTM C23, EN 12350-7, AASHTO T152

The EN and ASTM standards describe two methods for the determination of air content of compacted fresh concrete: Water column type (eg. Our model QT:AEM:III) and Pressure gauge type (eg. our models QT:AEM:II 7 liters cap. and QT:AEM:I 8 liters cap). The air content is a very important parameter for the behavior of concrete to weathering and to verify the air content variation due to the use of chemical additives to increase the workability of concrete. All models utilize the principle of Boyle's law.

QT:AEM:III Water Column Type, 5 L Cap: The water column type consists essentially of a stainless steel flanged cylindrical vessel with cover assembly, incorporating the measuring cylinder, pressure gauge and valves. Supplied complete with hand pump and calibration cylinder apparatus which is essential for adjustment to site barometric pressure.

The cylindrical vessel of all models can also be used as unit weight measure for fresh concrete for density determination.

QT-AEM:II Pressure Gauge Type, 7 L Cap

QT-AEM:I Pressure Gauge Type, 8 L Cap

The gauge meter models consists essentially of a flanged cylindrical vessel, complete with cover assembly incorporating a pressure gauge, air pump and valves.

Features

- Faster testing: fewer pump strokes
- Quick action clamping system
- Lightweight, durable and compact
- Not affected by changes in barometric pressure
- Direct pressure gauge readings

Concrete Mortar Penetrometers

AASHTO T197, UNI 7123

QT-CMP:I is conforming to ASTM, AASHTO and UNI standards, consists of a spring loaded device which is graduated from 1 to 100 daN, supplied complete with a set of needle pint of 650, 325, 160, 65, 32 and 16 mm area.

A sliding ring indicates the load reached. Supplied complete with carrying case.

- Weight approx.: 5 kg

QT-CMP:II: This pocket size penetrometer has a stainless steel plunger 32.3 mm^2 (1/20 sq. in.) area, graduated 0 to 5 MPa.

- Weight approx.: 300 g

QT-CMP:III: This dial model has a stainless steel plunger 32.3 mm^2 (1/20 sq. in.) area, 57 mm dia., dial with dual scale: 0 to 5 Mpa and 0-700 p.s.i. The readings remain locked in position until released by push button. The calibration can be easily verified with an ordinary balance.

- Weight approx.: 200 g

Shrinkage & Expansion Tester

Shrinkage Cone – QT-SHC

www.WorldofTest.com/shrinkagecone.htm

Qualitest Shrinkage cone QT-SHC is designed with a double wall metal vessel for easy heating and cooling using an external liquid temperature control unit. A laser beam measures the very early shrinkage and expansion of building materials touch free and with 1 micron resolution. With the patented innovation of the Shrinkage Cone deltaEL it is possible to measure the shrinkage or expansion of fluid building materials in the first minutes and hours after start of mixing. The expansion of the building material is registered touch-free and very exact by a laser beam. There is no mechanical coupling between the fluid and the sensor. To ensure that the measured distance correlates with the relative length change of the material we use a specially designed specimen container. The length change is registered with a resolution of 1/10 micron and the measurement values are digitized and stored by the software delivered with the system. Synchronous with the length change, temperature, rel. humidity may be stored by the software.

Shrinkage Drain – QT-SHD

www.WorldofTest.com/shrinkagedrain.htm

Qualitest Shrinkage Drain QT-SHD is made of a 1m long u-shaped stainless steel profile which contains the specimen. To avoid wall friction the drain is covered with a removable Neopren ® sheet. On one side a removable anchor is fixed. On the other side this anchor is movable and sliding on three wheels. The motion of this anchor is registered by a high sensitive LVDT probe. As displacement sensor we are using a digital probe which is connected to the Probe Interface Electronics, which converts the analogue signals from the probe head into a digital format. Up to 10 probes may be connected over a digital bus system. The distance between the probes and the Data logger may be several hundreds of meters. A data-logger supplied with the system records the data of several shrinkage drains and are stored in the logger as standard ASCII files. Optionally a synchronous registration of temperature and humidity is possible. Two temperature channels and a mixed temperature / humidity channel are available. The logger has a network interface (Ethernet) So you can easily integrate it into local Intranet. With standard web-browser software you can readout the data, and visualize it. Data handling can be done using Microsoft Excel or any similar visualization program. No special PC software is necessary.

Thin Layer Shrinkage System – QT-TLSS

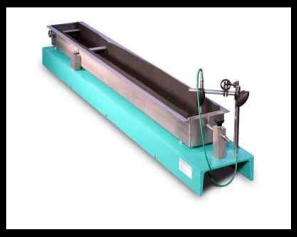
www.WorldofTest.com/thin-layer-system.htm

Some building materials like self-leveling flooring compounds or plasters are applied in thin layers. These fast setting mortars set are harden within a couple of hours and subsequent drying of such a thin layer is generally terminated after the first day. In order to investigate the dynamics of early shrinkage and expansion we developed a special set-up of two laser units which are horizontally aligned. This set-up allows to investigate the different formulation parameters and their influences onto the different stages of shrinkage and expansion, namely the plastic shrinkage, setting expansion and drying shrinkage. The

the latter, begin, intensity and duration of setting are key to the overall shrinkage/expansion behavior. With building materials applied in thin layers shrinkage is one of the major issues because of two reasons: The high surface-volume ratio causes evaporation to be a dominant mechanism for strong and fast physical shrinkage, and the intense hydration reactions can cause a pronounced chemical shrinkage, or in case of ettringite formation a strong expansion.

Bending Drain – QT-BD

www.WorldofTest.com/bendingdrain.htm



With the Qualitest Bending Drain QT-BD you measure the shrinkage and bending of building materials. Also you may simulate with a built in electrical heating a real world floor heating. High precision measurements are guaranteed, by two static abutments and a massive u-shaped steel base plate. A neoprene foil between the form work and the material avoids friction and blocking of material, also when expanding materials are used. The form work is static independent from the mortar beam which is supported by two well defined points. The Bending Drain has an Intra- / Internet connection and an integrated data logger. No special PC is required during the measurement. The instrument is fully controlled by your network browser software, like the Internet Explorer or similar software. All data are stored inside on non-volatile memory for weeks or months. By one mouse click you can load the data directly into your Excel worksheet over a network. You may also transfer you data with a removable Compact Flash card.You may integrate several Bending Drains into your network, but each of it is working independently. Two high resolution LVDTs with a stroke of 5mm and a resolution of 0.3µm are delivering high reliable results. Two RTDs are measuring the temperature on the bottom of the form work as well in the air or in the specimen. An additionally moisture/temperature sensor may be connected. For the floor heating you can program a temperature profile over time. For example rising the temperature after 6 days from 20°C to 60°C holding it for 3 days, and coming down to 20°C again.

Hydraulic Shrinkage Mould – QT-HSM

UNI 11307

The UNI 11307 method is suitable for the determination of hydraulic axial shrinkage on concrete beams during hardening. According to this method, steel pins shall be glued on the head surfaces of the specimen in order to measure the dimensional changes of specimens properly stored in temperature and specified humidity conditions. The test is performed with the QT-HSM:I beam mould and the shrinkage measurement by the QT-HSM:II apparatus.

Beam Mould is made of precisely machined cold finished steel. Steel Pins are glued on the beam ends surfaces. Shrinkage Measurement Apparatus consists of metal stand, fitted with reference bar and digital gauge 12.5x0.001 mm, with output for PC.

Three Gang Moulds _ QT-TGM

UNI 8147, UNI 8148

Three Gang Moulds are designed for determining the restrained expansion of a concrete or mortar containing expansive agent. Made from steel. Each gang is complete with rods and restrained end plates. Following two models are available.

QT-TGM:I, conforming to UNI 8148 , size:80x80x240 mm, Weight approx.: 15 kg

QT-TGM:II, conforming to UNI 8147 , size: 50x50x250 mm, Weight approx.: 10 kg

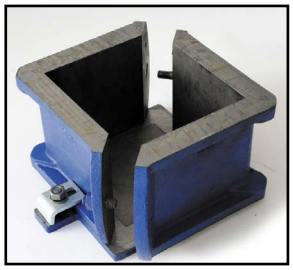
Cube, Cylinder & Beam Moulds

Cube Moulds

EN 12390-1

The proposed models range from the traditional cast iron version conforming to EN 12390-1 standards, ideal for laboratory use, to the plastic models, very practical for field use and ideal for production control.

Cast iron models QT-MCu:I and QT-MCu:II, can be supplied, on request, complete with certificate of compliance stating the individual verification with certified instruments.



Cylinder Moulds

ASTM C39, EN 12390-1, AASHTO T23, AASHTO T126

The proposed models range from the traditional steel models conforming to EN, ASTM and AASHTO standards, to the slitting plastic models, very practical for field use and ideal for production control. Steel models can be supplied, on request, complete with certificate of compliance stating the individual verification with certified instruments.

Beam Moulds

ASTM C31, ASTM C192

The proposed models range from the traditional steel models conforming to ASTM standards, to the slitting plastic models, very practical for field use and ideal for production control.

- Plastic Beam Moulds: A one piece mould manufactured from a robust plastic which is resistant to shock and abrasion. Ideal for field use, the specimen is ejected from the mould by com¬pressed air requiring only a simple clean and oiling before being ready for use again. Two sizes available: 100x100x500 mm (QT-PB:II) and 150x150x600 mm (QT-PB:III).

- Steel Beam Moulds: Three sizes available: 100x100x400 (QT-MB:I), 100x100x500 (QT-MB:II) and 150x150x600 (QT-MB:III).

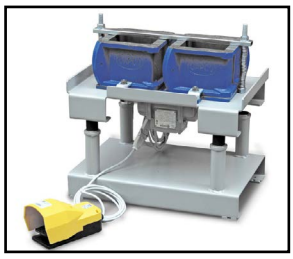
Concrete Compaction

Vibrating Tables

EN 12390-2

www.WorldofTest.com/tonijolting.htm

Vibrating tables are robustly manufactured to operate with minimum noise level. 3000 vibrations per minute (3600 at 60 Hz). Retaining edges to avoid the casual fall of the mould from the table. Model QT-VibT:III is fit with two vibrators for a better and uniform vibration on all the table surface.



Vibrating Plates

EN 12390-2

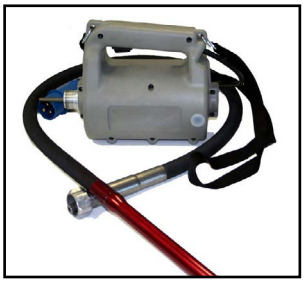
Vibrating plates are light and portable, operated by the car lighter, they are ideal for field use. They are suitable for vibrating plastic mould up to 150 mm and cylinder moulds up to dia. 160x320 mm. Vibrating plates are supplied complete with elastic cord to fit the mould on the vibrating plate.

Poker Vibrators

ASTM C31,ASTM C192, AASHTO T23, AASHTO T126, EN 12390-2

Poker vibrators are Ideal for the internal compaction of concrete specimens both in laboratory and in site, and a good alternative to the traditional tamping bar especially when there are large number of specimen to be compacted.

There are two available versions for poker vibrators: Electric operated version and petrol operated version.



Moist Curing Rooms

ASTM C192, ASTM C511EN, 12390-2, ASTM C31

A suitable curing room of about 150 m3 can be easily assembled using a curing room vaporizer, finned type electric heaters, humidity/temperature sensor and electric control panel. Each of the following items can be purchased individually.

Model QT-MCR:III Curing Room Vaporizer: It can humidify curing rooms up to 150 m3. Supplied complete with automatic level control for water main connection.

- Vaporiser capacity: 0.5 l/h
- Power: 40 W
- Dimensions: 360 mm dia., x 230 mm
- Weight approx.: 3.5 kg

QT-MCR:I Digital Control Panel includes humidity and temperature display, main switch and auxiliary contact for door open with pilot lamp.

- Dimensions: 250x140x300 mm
- Weight approx.: 6.5 kg

Humidity and Temperature PT 100 Sensor

Working Range:

- Humidity: up to 100%
- Temperature: -40 to +80°C
- Dimensions: 120x80x300 mm
- Weight approx.: 0.5 kg

Programmable Accelerated Curing Tanks

ASTM C684 | BS 1881:112

This test method covers procedures for curing concrete specimens under conditions intended to accelerate the development of strength. Three versions are available:

- QT-PACT:I model which cover the ASTM C684 (Procedure A, warm water method) and BS 1881:112 for 35-55°C hot water method.
- QT-PACT:II similar to the above, but covering steam method.
- QT-PACT:III model, covering both hot water and steam method.

These special curing tanks have been designed for hot water curing or steam curing in accelerated strength concrete. The interior is made from stainless steel. The electronic programmer can control up to four test cycles with different thermal gradients and curing time to a defined temperature value for a complete automatic curing cycle. The control panel include a 28 column thermal printer.

Specimen Grinding Machines

ASTM D4543, EN 12390-2

www.WorldofTest.com/blankingpress.htm

Specimen grinding machines are used to grind and polish concrete specimens, natural stones, ceramic materials, etc. The cube and cylinder specimens can be easily locked on the table and the grinding head 330 mm dia. can be radially moved either manually or automatically in both directions so the only manual operation requested is the lowering of the grinding head by the top hand wheel. The machine is supplied complete with safety chip guard that when removed stops automatically the machine –, coolant tank, motor pump and one set of abrasive sectors. Diamond grinding sectors are available on request. The machine is supplied complete with clamping element for 100, 150 and 200 mm cubes.

There are following two available models.

- QT-SGM:I Standard version in which the radial displacement of the grinding head is motor operated and actuated by a push button.
- QT-SGM:II Automatic version in which the radial displacement is fully automatic and controlled by travel limit switches.

All the other characteristics are identical in both models.

Technical Specifications

- Table dimension: 775x280 mm
- Grinding wheel dia: 330 mm
- Max vertical daylight: 350 mm
- Min vertical daylight: 145 mm
- Max specimen size: 200 mm cubes and 160x320 mm cylinders
- Grinding head stroke: 205 mm
- N° of grinding segments: 10
- Grinding wheel speed: 1400 r.p.m.
- Automatic cross feed in both directions (model QT-SGM:II only)
- Safety guard with door locking switch conforming to CE
- Total power: 2200 W
- Overall dimensions (lxwxh): 1200x1020x1640 mm
- Weight approx.: 350 kg
- Gross weight approx.: 415 kg

Cylinder Capping Equipment

ASTM C31 | ASTM C192 | ASTM C617 | EN 12390-3 | AASHTO T23 | AASHTO T126

When testing concrete cylinder specimens it is essential that the two ends are perfectly flat. This range of equipment allows the ends of the various sizes of concrete cylinders or cores to be capped using the sulphur capping compound.

Cylinder Cappers: They are used to assure plane end surfaces perpendicular to the axis of the cylinder during the capping. Base and capping plate machined from steel. Guide is machined from cast aluminium or steel.

Cylinder Carriers: A simple accessory for an easy handling of specimens. Only available for dia. 150 mm (6”x12”9 and 160x320 mm sizes.

Capping Compound: The compound is a mixture of sulphur and mineral filler to give a high finish and performance.

Melting Pot: It is used to melt the capping compound. The temperature is set and maintained at the desired value. Adjustable electronic thermoregulator and pilot lamp fully isolated conforming to CE requirement.

- Capacity: 5l approx.
- Temperature range: from +30 to 150°C
- Power: 700 W
- Dimensions:
  internal 200 mm dia.160 mm depth
  external 285 mm dia.x 275 mm high
- Weight approx.: 2.7 kg

Capping Plate for Concrete Blocks: It is used for capping concrete blocks with cement paste. 500x300 mm, 20 mm thick, made from steel, accurately machined. It is protected against corrosion.

Drilling Machines

Universal Core Drilling Machines – QT-UCDM

This robust versatile machine is ideal for field where it is necessary to core at any angle. The extension columns permit the holding at a maximum vertical or horizontal distance of 3850 mm. The rack feed (drilling excursion) is 1000 mm long.

The core bits, strap wrench and extension columns, are not part of the machine and have to be ordered separately.

The core bits we propose have fixed standard coupling assuring the best alignment, fast and easy fitting and disassembling.

Features

- Full 360° operation for coring at any angle
- Main column extendable in height up to 3850 mm
- Robust and stable unit
- Rack feed (drilling excursion) 1000 mm long
- 3 working speeds

Portable Core Drilling Machines – QT-PCDM

The machine is composed by three main parts:

- Electric motor speed reducer
- Light alloy base with adjustable feet, and wheels
- Support column

These three parts can be easily assembled and disassembled for transportation. The support steel column can be angled with respect to the base. The motor support is mounted on rollers and ball bearings. The aluminium base can be easily fit on site by anchors, by suitable holding column or by vacuum using the appropriate accessory. The machine can be used at any angle within the horizontal position by the appropriate fixing making sure that flushing water does not drop directly onto the motor. For internal use we suggest the machine is fit with a water collector system (QT-WCoR Water collecting ring).

- Steel tilting column up to 60-75°
- Slide with rollers and ball bearings
- Aluminium base fixable by anchors or vacuum horizontally or vertically

Concrete Water Impermeability Tester

DIN 1048, ISO/DIS 7031, EN-12390-8 & UNI 9533

www.WorldofTest.com/contrete-water-impermeability-tester.htm

The concrete water impermeability testing system is designed with many different standards in mind including DIN 1048, ISO/DIS 7031, EN-12390-8 & UNI 9533. This impressive piece of machinery comes in different models with either 3 or 6 measuring points and with or without quantitative measurement of water permeability. The supporting structure is very stable and is at a convenient height to allow the easy access. The pans are made out of stainless steel, the specimens are easy to insert due to the clamping device.The water impermeability tester is designed for standardized 150 x 150x 120 mm or 200 x 200x 120 mm cubes with a pressure of 5 bar (0.5 N/mm2). The maximum pressure is 8 bar which is produced by the compressor. The overall dimensions are 137.5 x 45 x 128 cm (LxWxH) and weigh about 120kg.

Freeze Thaw Tester

www.WorldofTest.com/freeze-thaw-tester.htm

CDF / CIF Freeze Thaw Tester – QT-CDF/CIF - FTT

ASTM C666-96,DIN 4226,DIN 52104,EN-12390-9,EN 13581

Durability is, after the strength of the material, one of the most important properties of concrete. The importance depends on the type of building and the environmental conditions. Durability is a key property, especially in road constructions, where a high resistance to freeze-thaw cycles is of major importance and is thus one of the major criteria in testing. The CDF/CIF test set-up enables the freeze-thaw test to be carried out in accordance with CDF recommendations from RILEM. The advantage of this test method is in the very good reproducibility of the results that are given. With this test procedure, the weathered quantity of a surface is measured by a number of freeze-thaw cycles. The test specimens are thereby placed in a solution of sodium chloride to stress the surface. The result gives an estimate for the resistance to freeze-thaw cycling for the concrete being tested.

Slab Tester - Freeze Thaw Tester – QT-ST-FTT

EN 1340, EN 1339, EN 1338, EN 1367-1, EN ISO 12390-9, DIN V 18004, EN 12371

www.WorldofTest.com/slabtester.htm

Qualitest's Slab Tester QT-ST-FTT is a temperature and time controlled frost-thaw test system. It allows freezing and thawing of concrete specimen according to EN 12390-9 and EN 1339 EN 1367-1, DIN V 18004 and 1340:2002. The Slab Tester is made of stainless steel, standard delivery includes: slab test set-up, 4 shelves, electronic controller, manual. Qualitest's slab freeze thaw tester is designed to accommodate specimen testing for freezing in air and thawing in air or water. The tester conforms to several European and international standards. The slab tester is not only used for concrete testing but also for testing of natural stones and tile-glues. Optional data logger / Internet connection and a flooding mechanism are also available.

The Slab tester is suitable for tests according to the following standards

CEN/TS 12390-9:2006 (Former prEN 12390-9) :Testing hardened concrete - Freeze-thaw resistance - Scaling

EN 1340: Concrete kerb units - Requirements and test methods

EN 1339: Concrete paving flags - Requirements and test methods

EN 1338: Concrete paving blocks - Requirements and test methods; German version EN 1338:2003

EN 1367-1:Tests for thermal and weathering properties of aggregates - Determination of resistance to freezing and thawing

DIN V 18004:Use of building products in construction works - Test methods for aggregates according to DIN V 20000-103 and DIN V 20000-104

EN 12371:Natural stone test methods - Determination of frost resistance

EN 1348:Adhesives for tiles - Determination of tensile adhesion strength for cementitious adhesives

Non- Destructive Testing (NDT)

Concrete Strength Testers

This category of products comprises the range of instruments utilized to evaluate construction material strength. The range of instruments is typically considered to be two parts. The first are non-destructive field tests of compressive strength. The second are tensile field tester systems to either determine the tensile strength of an overlay or bond material, or tensile strength of anchors embedded in the concrete. The first group is pure Non-Destructive Testing where the strength of the material is determined by correlation to another parameter more easily available and readily apparent. This is typically the hardness of the concrete or the resistance to penetration by either a pin or probe. The Windsor Probe, Windsor Pin and our line of Rebound Hammers all fall within this category. These are widely used standard tests and as such have seen use throughout the world. The second set of instruments is our concrete tensile testers. These have been optimized to both test the strength of the anchors and repair overlay material. They can be used to test until failure or to simply verify that the material will not be affected by a specific amount of force. A number of considerations were taken into account when designing this line of products, include viscous damping of the resultant failure backlash, portability, and ruggedness. If you are looking for High capacity Compression Machines for Concrete Cylinders and Cubes. The line of products represents the most effective and efficient way to evaluate construction material strength in the field and utilize the latest in technology in order to guarantee accurate results. We supply a wide range of non-destructive test equipment for concrete and other coarse grained materials. Our instruments measure and analyze strength, and structure, and are rugged, quality equipment for field u se, backed by factory service and an ongoing program of research and development. All instruments are NIST traceable and conform to the corresponding ASTM standards.

Windsor HP Probe System

ASTM C-803, BS 1881, ANSI A.10-3, BS 1881 #207

www.WorldofTest.com/windsorhpprobe.htm

The Windsor HP Probe measures the compressive strength of concrete accurately and effectively on site and in the field.

Applications:

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

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 a rugged body 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.

Two probe styles are available: one for lightweight, 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.

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 costs
- Monitors the strength for rehabilitation as concrete ages
- Conforms to ASTM C-803 and other official tests

The Windsor HP System does not require great skill to use. This system has widespread use in testing concrete in-situ; on conventionally placed, sprayed or precast concrete; on horizontal or vertical slabs; on floors or overhead; on fresh or mature concrete. The system is safe to use. The driver cannot be discharged unless it is fully depressed with some force against the actuating template which rests against the surface being examined. The Windsor HP Probe™ System is designed to evaluate the compressive strength of concrete in place. 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. A hardened steel alloy probe is propelled at high speed by an exactly measured explosive charge into the concrete and its penetration measured. Each power load is guaranteed to have an energy level to give an exit muzzle velocity tolerance within Â±3%. The compressive strength of the concrete is directly related to the resistance to penetration of the crushed aggregate and cement matrix: this is determined by the distance required to absorb the specific amount of kinetic energy of the probe. The compressive strength of the concrete is empirically related to the penetration that varies with the hardness of the aggregate. This relationship is recognized by determining the Moh's scale of hardness of the aggregate and applying a correction factor to the penetration.

Hardened Concrete Testing

Windsor Pin System

ASTM C-803

www.WorldofTest.com/windsorpinsystem.htm

The Windsor Pin system measures the compressive strength of concrete, mortar and brick in-situ, quickly, accurately. A non-explosive instrument, the Windsor Pin System uses a spring loaded device to drive a steel pin into the concrete or mortar. 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. Conforms to ASTM C-803.

Concrete Rebound Hammers

ASTM C-805, BS-1881-202

www.WorldofTest.com/concretehammer.htm

Application

Concrete Rebound Hammers are spring activated and conform to ASTM C-805 as well as other European and Asian Standards for the quick and easy determination of the strength of concrete. Concrete Rebound Hammers are made to the most exacting machine tolerances to provide the end user with a consistent test every time.

Advantages

- ASTM C-805 as well as other European and Asian Standards
- High Benefits to Cost Ratio
- Handy & Portable
- Impact Energy level of 1.6ft.lbs (0.225kgm)
- Hammers come complete with carrying case.
- Quick Non-Destructive Test

Digital and manual schmidt type concrete test hammers for quick and easy determination of concrete compressive strength. Available in 'N' and 'L' type. These rebound hammers indicate the compressive strength of hardened concrete. Qualitest offers a complete line of Concrete Rebound Hammers for the occasional user as well as the engineering professional. All concrete rebound hammers are spring activated and conform to ASTM C-805 as well as other European and Asian Standards. All are made to the most exacting machine tolerances to provide the end user with a consistent and repeatable test every time.

Digital Concrete Rebound Hammer Model QT-D2000

Qualitest's 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. You can switch between standard or metric units.

The field printer mounts on the belt for ease of use. Connection to a personal computer is via the RS-232 interface

Digital Model QT-WD1500

Automatic calculation of mean rebound number, compressive strength and more; Application: Rapid estimate of concrete strength.

Manual Concrete Rebound Hammer Model QT-WM250

This is our manual version of the concrete rebound 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)

Calibration Anvil Model QT-WC7312

Used for verifying your concrete rebound hammer It is recommended that calibration of the test hammers be checked regularly usually after about 2000 strokes. The Calibration Anvil (QT-WC7312) has been designed for just that.

Features & Benefits

- Digital Model QT-WD2000: Automatic calculation of mean rebound number, compressive strength and more; Field Printer, PC connection and software for downloading.
- Manual Model QT-WD1500: Automatic calculation of mean rebound number, compressive strength and more.

Bond Tester

James Bond Tester

ASTM: C-4541, BS-1881-207, ACI:503-30

www.WorldofTest.com/jamesbondtester.htm

The James Bond Tester - Pull off Adhesion Tester measures the adhesion of coatings to concrete and metals. The James Bond Tester - Pull off Adhesion Tester measures the pull force used to pull a 2" or 3" disc away from the material being tested. This pressure is displayed on a precision gauge and can be related directly to the strength of the adhesion to the surface being tested. The James Bond Tester - Pull off Adhesion Tester has been successfully used to verify the quality of existing materials, determine the adhesion strength of shotcrete, epoxies and other repair materials.

Features:

- Accurate bond strength of repair mortars, epoxy resin, laminates, overlays, and other coatings
- Calibrated gauge with maximum load indicator
- Viscose damping mechanism to protect against sudden load release
- Adjustable alignment plate with built in levelling facility
- Compact design
- Easy to use

Anchor Test System

www.WorldofTest.com/anchortestsystem.htm

Quali Anchor 2000 – Load Verification Testing Systems

BS 5080

Quali Anchor 2000 - Load Verification Testing Systems enable engineers to confirm the holding power of anchors in most construction materials, either for the purpose of establishing safe working loads or to validate the correct installation of existing fixings. The tensile load of up to 25kN is applied to the fixing mechanically and hydraulics are used to register the load through an accurate analog gauge, making the tester very reliable.

Quali Bond 2002 – Load Verification Testing Systems

BS 5080

The bonding strengths of a wide and varied range of materials including concrete, screeds, repair mortars, epoxy resin coatings, laminates, plastics, paints and enamels may be accurately determined using the Quali Bond 2002 Tester. The Quali Bond 2002 - Load Verification Testing Systems is suitable to be used in the laboratory, workshop, and on-site.

Quali Anchor 2001 – Load Verification Testing Systems

BS 5080

Quali Anchor 2001 - Super Heavy Duty Anchor Test System 145kN (32,500lbf) - Load Verification Testing Systems has been designed to meet the demand for proof load testing of larger construction fixings. A lightweight triangular shape aluminium load spreading bridge has been designed specifically for the Quali Anchor 2001 tester and directs reaction loads away from the fixing, this combined with the tester weighs only 14kg.

Quali Bolt 2003 – Load Verification Testing Systems
Eyebolt & Ringbolt

BS-5845 and EN 795

The Quali Bolt 2003 - EYEBOLT & Ringbolt Tester Kit - Load Verification Testing Systems enables engineers to confirm the holding power of anchors in most construction materials. The Eye Bolt and Ringbolt Tester kit comprises of the necessary accessories to enable the pull test of common Eye bolt and ring bolt fixings. Ladder restraint hooks and most ringbolts in concrete or masonry are an example of what may be tested with this kit. The kit is factory assembled with the ringbolt adaptor screwed into the M12 locking adaptor located in the Tester jaw and the 150 load spreading bridge with the three 75mm hexagon legs with swivel feet.

Quali Scaffold 2004 – Load Verification Testing Systems

www.WorldofTest.com/load-verification-systems.htm#anchor_5

Scaffold Tie Tester

BS 8539, BS 5080, BS EN 795, BS 7883

The Scaffold Tie Tester – Quali Scaffold 2004 - Load Verification Testing Systems meter is part of a purpose made system for the testing, fixings and measurements of the load supplied. The Scaffold Tie Tester – Quali Scaffold 2004 - Load Verification Testing Systems has accessories designed to test Scaffold Anchors and Ringbolts to the requirements of the guidance note TG4-11 issued by National Access and Scaffolding Confederation (NASC) and the Construction Fixings Association (CFA).

Scaffold Tie Tester – Quali Scaffold 2004 - Load Verification Testing Systems will test all types to a maximum tensile load of 20kN.

Quali Anchor 2005 – Load Verification Testing Systems

The portable self-contained 145KN Quali Anchor 2005 Heavy Duty Tester has been designed to meet the demand for proof load testing of larger construction fixings. A lightweight aluminium load spreading bridge has been designed specifically for the Quali Anchor 2005 tester and directs reaction loads away from the fixing, this combined with the tester weighs only 14kg.The Quali Anchor 2005 is supplied with 5 metric Threaded Adaptors M12, M16, M20, M24 & M30 for connecting to threaded stud.

Quali Scaffold 2006 Mid Heavy Duty Tester Kit

Quali Scaffold 2006 Mid-Heavy Duty Tester enables engineers to confirm the holding power of anchors in most construction materials, either for the purpose of establishing safe working loads or to validate the correct installation of existing fixings. The tensile load of up to 50kN is applied to the fixing mechanically and hydraulics are used to register the load through an accurate analog gauge, making the tester very reliable. The load spreading bridge keeps reaction loads away from the fixing. Fixings up to M16 may be located directly in the tester, while a variety of adaptors enable a wide range of other types and sizes to be tested.

Rebar Locators

This category of products comprises the range of instruments used to locate and determine size and depth of steel reinforcing bar in concrete. The first type most widely used utilizes a low frequency electromagnetic field to locate ferrous objects within a structure. The second and latest technology utilizes Ground Penetrating radar to locate steel and other objects within a structure. The HR Rebar Locator and the Data scan both utilize a low frequency electromagnetic field to locate ferrous objects in a structure. By closely monitoring changes in the electromagnetic field the proximity of steel reinforcing bar can be determined. The HR is our most economical model. It uses a simple analog meter to determine the strength of the electromagnetic field and correlate this to either the size of the rebar or the distance to the rebar. The Data scan unit utilizes a more sensitive digital system to monitor the strength of the electromagnetic field. This allows the user more sensitivity in locating steel at greater depth and more closely spaced.

HR Rebar Locator

A rugged hand held field instrument for finding the location, depth and size of reinforcement rebar, post tension, copper and conduit in place. The Mini R-Meter™ is light weight and 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 allows the user to select between Imperial and Metric units, and the data can be saved in the instrument for posterior uploading to a computer. The data is saved in the system with the date and time of the record to help identify prior test 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. The latest in microprocessor technology not only conditions the signal from the sensor for more accurate and dependable results, but also provides the user with the information they need. Built in memory can store over 150 individual data points for later processing.

Rebar Locator – R-Meter MK III

ACI 318, BS 1881 Part 204, DIN 1045, CP 110, EC 2, SIA 162, DGZfP B2

www.WorldofTest.com/r-meter.htm

R-Meter MK III is the digital version of a classic rebar locator, rebar finder which enables the user to locate reinforcement bars and also determine rebar location and rebar size. The R-Meter MK III rebar locator is also capable of locating non-ferrous metals as well. 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; thereby finding not only steel reinforcing bars accurately, but tendons, copper tubing, conduit, and more. 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 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. Cover points can be displayed as a symbolic map of a structure to assist the user in finding problematic areas. Built in memory can store over 80 thousand individual data points for processing. 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 it's built in encoder objects can be located with both distance and depth recorded.

Features and Benefits

- Eddy current sensor design for greater accuracy.
- Single sensor for all depth ranges.
- Locates rebar, post tension cable, conduit, and copper pipe.
- Determine bar size up to 4.5" (115 mm) deep.
- Daylight visible display.
- Rugged and splash resistant case.
- Optional scan cart.
- Locates up to 8" (200 mm) deep.
- Conforms to ACI 318, BS 1881 Part 204, DIN 1045, CP 110, EC 2, SIA 162, DGZfP B2.

Fully integrated P.C. software allows the upload and storage of data points. The ruggedized R-Meter MK III™ provides the field engineer/technician with all the tools necessary to locate and determine what and where all metal objects are in the structure.

Ultrasonic Concrete Testing

This category comprises the range of instruments that use sound or stress waves in order to determine the properties of concrete and other materials non-destructively. The first and most widely used System is our V-Meter, which utilizes the ultrasonic pulse velocity method for evaluating construction materials in the field. Transducers are available for a variety of frequencies from 24 KHz to 500 KHz. This unit has also been modified to suit the special needs of ceramics users and can be found as the Ultrapulse. The PIES, our revolutionary Portable Impact-Echo System, is an advanced instrument for non-destructive detection of flaws and defects in a variety of civil infrastructures ranging from bridges, parking structures and buildings to dams, piles, tunnels, tanks and marine structures. Finally our E-Meter System represents the state of the art in bench top laboratory resonant frequency analysis of materials. This unit comes standard with a test bench designed to handle a variety of modes of vibration, including longitudinal, torsional and flexural. This line of products represents the most effective and efficient way to evaluate concrete and other materials in the field and utilizes the latest in technology in order to guarantee accurate results.

Ultrasonic E-Meter MK II

ASTM C215, ASTM C666

www.WorldofTest.com/e-meter.htm

The E-Meter MKII is used to test and determine the resonant frequencies of the three modes of vibration. Material characteristics such as Youngs Modulus of Elasticity, Modulus of Rigidity, Poissons Ratio and the Damping Constant can be calculated. Frequencies are automatically scanned in one of four ranges. The system can determine flexural resonance of concrete under accelerated freezing and thawing cycles and aggressive environments. The unit is designed for laboratory determination of concrete or other material samples as a non-destructive test, allowing you to perform accurate and repeatable tests on fewer samples. The computational system features an automatic computation of the maximum amplitude eliminating the need for cumbersome frequency scanning testing. The E-Meter MKII conforms to ASTM C-215 and C-666. The E-Meter MKii, in addition to conforming to ASTM C-215 for determining resonant frequency can be adapted for:

ASTM C-623	Glass
ASTM C-747	Carbon and Graphite
ASTM C-848	Ceramic Whiteware
ASTM C-885-78	Refractories
ASTM C-666	Concrete – Freeze Thaw.

Applications

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

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, Poissons 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

Product Information

The principle used in the E-Meter Mk II™ 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. The E-Meter™ MK II 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. The E-Meter™ MK II performs a Fast Fourier Transform that allows the identification of the resonance frequency in the Frequency Spectrum. 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.

Advantages

- Tests can be repeated over a very long period on the same specimen; the number of test specimens required is therefore greatly reduced.
- The results obtained with the resonance method on the same specimen are more reproducible than those obtained with destructive tests and groups of specimens

Ultrasonic V-Meter MKIV

ASTM C-597, ASTM D2845 – 08, ASTM E494 – 10, ISO1920-7, BS EN 12504, IS13311

www.WorldofTest.com/v-meter.htm

Ultrasonic V-meter MKIV is the most advanced ultra-sonic test system for accurately identifying basic characteristics of coarse grained materials.

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 light weight 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. Velocilinx™ 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. Standard Transducers available from 24KHz to 500 KHz enable the unit to test ceramics, graphite, mass concrete pores, and wood. Exponential Transducers for rough surfaces, as well as underwater transducers are also available. Finally a Pre-Amplifier is available for help with long distances or highly attenuative materials.

Non Destructive Testing (NDT)

Concrete

The V-Meter MKIV 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. Typically, the 54 KHZ transducers are used for concrete testing – the signal wavelength is about 3 inches (75mm). Finer materials require higher frequencies for optimum resolution. The basic V-Meter MKIV contains a transmitter, a receiver and a very accurate high speed electronic clock. The transmitter generates an electrical pulse which when applied to a transmitting transducer, converts the electrical energy into a pulse of ultrasonic mechanical vibration. This vibration is coupled with the specimen under test by placing the transducer in contact with the specimen. At another selected point on the specimen another receiving transducer is coupled by mechanical contact. Each transmitted pulse of energy registers on the high speed clock. The first energy wave reaching the receiving transducer is converted back to an electrical signal and turns off the clock. The elapsed time is displayed on the LCD in 0.1 microsecond increments.

Wood

V-Meter MKIV , ultrasonic testing of wood can, non-destructively, 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. In transmitting ultrasonic energy through a coarse grained material such as concrete, ceramics or wood, it is necessary for the wave length of energy to be greater than the diameter of the largest grain particle. If it is not, all of the energy will be reflected back by the particles and none will reach the receiver. Typically, the 54 KHZ transducers are used for concrete testing – the signal wave length is about 3 inches (75mm). Finer materials require higher frequencies for optimum resolution.

Ceramics

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.

Portable Impact Echo System (PIES)

ASTM C1383

www.WorldofTest.com/impact-echo.htm

PIES, our revolutionary Portable Impact-Echo System is an advanced instrument for non-destructive detection of flaws and defects in a variety of civil infrastructures ranging from bridges, parking structures and buildings to dams, piles, tunnels, tanks and marine structures. Capable of inspecting coarse-grain based materials including concrete, masonry and grout, PIES is able to successfully detect flaws such as delaminations, honeycombing, and voids. Not only does it meet and exceed with ASTM C1383, PIES is capable of measuring through sections as thick as 10m (30ft) or as thin as 0.05m (2in). PIES can estimate the uniaxial compressive strength, static and dynamic elastic moduli and Poisson's ratio of concrete samples. PIES Impact Echo System can determine the degree of micro-cracking in concrete elements and structures at early stages, preventing the extension of damage caused by AAR, freeze-and-thaw or various chemical and environmental attacks. Controlled by Ipaq PDA or Netbook PC, which allows for its light weight and ease of use, the standard PIES kit also includes two Piezo-electric sensors, steel impactors, two-channel portable digitizer and Windows compatible software capable of graphing, calculations and presenting for report creation. PIES Portable Impact Echo System offers unparalleled ease of use to test structures using sonic stress waves. The operator taps the surface of the material under test to create a stress wave, while holding the receiving transducer against the surface. The equipment responds to the waves generated and within a second, calculates the distance traveled and hence the thickness of the material. Each test is normally taken in a grid pattern which can subsequently be analyzed to highlight the presence of any anomalies.

Advantages of PIES Portable Impact-Echo System:

- One man operation
- Small footprint, enabling testing in the least accessible locations
- Replacement Netbook or Ipaq is low cost and readily available
- Wires to transducers as short as possible minimizing site damage
- Battery driven instrument with low power consumption to last over 8 hours without charge and with overnight charging capability to 100% capacity

- Large Memory Size
- Unlimited storage capacity
- No loss of data in the event of equipment failure - all data stored immediately to Net book
- Very light miniature transducers (no fatigue over an 8 hour day operation)
- Needle point on transducers enables good contact on the roughest of surfaces
- Two channels (conforms to ASTM C1383 “Measuring P-Wave Speed and The Thickness of Concrete Plates Using Impact-Echo” and enables measurement of surface p-wave speed and crack depth)
- Flat response transducer over a very wide range (enables tests in component thickness between 1in. and 30 ft.)

Corrosion Testing

This category comprises the range of instruments that evaluate parameters related to the corrosion of the concrete or the steel reinforcing bar within the concrete. The Ohmcor and Cormap systems represent more economical methods of evaluating steel reinforcement corrosion. The Cormap Systems use half cell potential mapping in order to identify areas of probably corrosion. The Ohmcorr System is typically used in conjunction with the Cormap system in order to verify the presence of steel reinforcement corrosion. This older technology is still widely used in the field. The Porosiscope and Chloride Field Systems allow the user to rapidly evaluate mechanisms that cause corrosion. The Porosiscope quickly and simply evaluates concrete permeability. The Chloride Field System will rapidly evaluate field chloride levels without expensive and time consuming laboratory tests. Our ASR Detect and Carbodetect systems are chemical indicators to assist in evaluating the two leading causes of concrete corrosion. This line of products represents the most effective and efficient way to evaluate concrete and other materials in the field and utilizes the latest in technology in order to guarantee accurate results. Finally, the extensive range of our Holiday / Porosity Detectors complement our Corrosion line and are used to detect the pinholes, and porosity in order to prevent from corrosion.

CorMap

ASTM C876

www.WorldofTest.com/cormap.htm

Corrosion, which is an electrochemical process, occurs in concrete when oxygen and moisture are present. The actual corrosion is an exchange of energy within different sections of the uncoated reinforcing steel. The relative energy levels can be determined in relation to a reference electrode with a stable electrochemical potential. By connecting a high impedance voltmeter between the reinforcing steel and a reference electrode placed on the concrete surface, a measurement can be made for the half cell potential at the location of the reference cell. This then is a measurement of the probability of corrosion activity in the steel in the vicinity of the reference cell. The reference cell is copper in a copper sulphate solution. By taking half cell potential measurements a fixed distance apart a grid of half cell potentials can be quickly made and thus areas delineated with a high probability of corrosion of the reinforcing steel. To analyze the results, the measurements made with CorMap can be plotted on a grid and lines of equipotential contours drawn, highlighting areas of possible corrosion activity.

C-876 using a copper/copper sulphate half cell:

- For readings of 350mV and greater there is a 95% chance of active steel corrosion
- For readings 200 to 350mV there is a 50% chance of active steel corrosion
- For readings less than 200mV there is only 5% chance of active steel corrosion

The method is particularly useful for:

- Bridge Decks
- Parking Garages
- Concrete Piers & Docks
- Substructure
- Tunnel Lining
- Foundations

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.
- An economical method for identifying areas of corrosion ASTM C-876.

Non Destructive Testing (NDT)

Cor-Map II

ASTM C876

www.WorldofTest.com/cor-map2.htm

Cor-Map II is an advanced System for corrosion potential data acquisition and analysis, allowing the user to quickly identify areas of probable corrosion in the field. For steel reinforcing bars in concrete, corrosion is an exchange of ions from the steel to the concrete. This chemical exchange of ions produces rust (FeO2). It also produces areas of concrete where there is a larger concentration of negative ions due to the corrosion process of the steel reinforcing bar than areas where there is no corrosion. This larger concentration of ions creates a small electric voltage potential. 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 concrete. This is done by recording the voltage between the rebar and half cell, which is mapped across the surface of the concrete. Areas of rust with high corrosion will exhibited significantly lower voltage 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 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

- Ruggedized Electronics allows rapid analysis of data in the field or office.
- Conforms to ASTM C-876 Standard Method of half – Cell Potential of un-coated reinforcing steel in concrete.
- Electrode is designed for use on horizontal, vertical and inverted positions.
- Temperature and humidity sensors facilities inclusion of environmental condition in data analysis.

Chloride Field Test System – QT-CCL 3000

ASTM C114, AASHTO-T260

www.WorldofTest.com/cl2000.htm

Features

- Fast-Results within minutes at the site.
- Economical-Low coat per sample compared to laboratory testing.
- Accurate-Results are comparable to laboratory testing.
- Covers wide range from 0.002% to 2% chloride by weight
- Automatic compensation for changes in ambient temperature
- Digital display for direct reading of lbs/cu. yd. and percentage of chloride by weight
- Correlates to ASTM C114 and meter conforms to AASHTO-T260

Alkali Silica Reaction (ASR) Detection – QT-IAS3000

Features

- Test can be carried out completely on site.
- Minimal operator training and no special equipment required.
- Utilizes only two environmentally safe days.
- 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.

Carbo Detect – QT-CB6000

Colored Dye Field Test for Carbonation

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 un-carbonated concrete and remain colorless when sprayed on carbonated concrete.

Features

- 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 interpreter.
- Economic, fast and easy to use.

Technical Specifications

Carbonation is one if 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 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.

Ohmcorr – QT-CRM8000

Concrete Corrosion Resistively Meter

www.WorldofTest.com/ohmcorr.htm

The electrical conductivity of concrete is an electrolytic process that takes place by the movements of ions in the cement matrix. This ionic movement will take place when contaminants such as chloride ions or carbon dioxide are introduced into the cement mortar matrix. A highly permeable concrete will have a high conductivity and low electrical resistance. Because resistively is proportional to current flow, the measurement of the electric resistance of concrete surface should be avoided. The resistively meter, OHMCORR, has two probes spaced 5cm(1.97 inches) apart which are placed in two holes drilled to a depth of 8mm(3/8 inch) and filled with conductive gel. The concrete resistively is displayed on an LCD when the control switch is activated.

Features

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

Porosiscope Plus – QT-CP6050

www.WorldofTest.com/poroscope.htm

Concrete Air / Water Permeability Tester

Our Poroscope Plus Tester, tests the air and water permeability of concrete – at the surface and beneath. The tester 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, Poroscope 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.

Applications

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

Advantages

- Both air and water permeability of concrete 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 prediction to be made.

Moisture & Flow Testing

www.WorldofTest.com/moisturemaster.htm

Our Moisture Testing line are suited for determining the moisture content of construction materials. This is a critical factor in determining quality of final construction. The Trident utilizes the latest microwave and microprocessor technology to measure moisture content in various fine and coarse-grained sand and aggregates. 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. The Aquameter is an advanced digital instrument, using a high frequency capacitive sensor to accurately 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 measure the water content of concrete, masonry, brick, gypsum and most solid materials. This line of products represents the most effective and efficient way to evaluate concrete and other materials in the field and utilizes the latest in technology in order to guarantee accurate results. Lastly the Fresh Concrete Flow Meter and Flow Gauge, are very useful tools for analysis of the consistency and workability of Fresh Concrete.

Non Destructive Testing (NDT)

Moisture Master - QTM-170

Qualitest's Moisture Meter – QTM 170 is a Hand Held Instrument for Fast Accurate Measurement of Moisture Content in Solid Materials. The Moisture Master utilizes the latest electronic technology to 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 fire wood or pine wood. The search mode has been found to be most effective for higher density materials such as brick, masonry, and gypsum and concrete.

Features & Benefits

- Direct read out 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.

Soil Moisture Meter – Quali Aquaprobe

Our Quali Aquaprobe Soil Moisture Meter represents a break-through in modern moisture measurement technology. By utilizing the latest microwave and microprocessor technology, the Quali 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 Quali 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 Sandysoil. 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 Quali 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™.

Trident Moisture Meter

Trident moisture meter is a microwave meter for rapid determination of moisture content in sand and other fine and coarse aggregates.

Features

- Fast and easy to use: simply insert the prongs into the sand or aggregate.
- Accurate.
- Completely portable.
- Easy to read display.
- Instantaneous reading.

This device represents a break- through in modern moisture measurement technology. By utilizing the latest microwave and microprocessor technology, the trident can determine the moisture content of sand, gravel, crushed stone and other fine and coarse aggregate. Simply insert the prongs of the probe into the material to be measured and instantaneously the percentage of moisture content is shown on the easy to read display. This Microwave 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 aggregates, changes in water content directly affect the sensor output. An average of five to ten reading is normally taken in order to ensure a valid reading. This output I then converted by the integrated microprocessor and moisture content is displayed directly as a percentage of dry weight. The unit comes calibrated for both sand and aggregate. It can also 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 with Windows XP,7 or 8. Software is provided for calibrating the unit to the various materials. Finally, it can store over 150 readings.. Data can be recalled to a personal computer running Windows XP,7 or 8.

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