

Advanced

Rubber Testing Technologies



Universal Testing Machines

Durometers . IRHD Hardness

Abrasion Testers

Resilience Elasticity . Vertical Rebound

Carbon Black Dispersion & Content Testers

Rheometers

Flexometers

Specific Gravity . Densimeters

Brittleness Temperature Tester

Freezing Tester

Specimen Dies . Clicker Presses

Gehman . Temperature Retraction Test

Stress Relaxation Tester

PIAST

Compression Set Test

Williams Parallel Plate Plastometer

Block / Aging Ovens

Low Temperature Testers

Thickness Gauges

Tire Plunger

Salt Spray Tester

Thickness Gauges

Resistivity Tester

Fogging Tester

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 plastics & rubber testing technologies on the market, Qualitest leverages extensive industry experience to provide products that determine the mechanical properties of polymers including rubber, plastics and other elastomers. These solutions include portable and low cost hardness testers 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 and Asia 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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Rubber & Elastomers

Rubber compounds are one of the most complex and universally used materials and the flexibility of the compounds and their ability to absorb particle filler like carbon black, silica, and clay in amounts more than their own weight results in a wide range of properties, possible to achieve. Quite often, rubber and elastomer compounds are used where resistance to impact, or toughness is desired. Where elasticity during stretching and recoil are needed, rubber and elastomers are ideal materials. An elastomer can be stretched to many times its original length yet bounce back without permanent deformation.

Some rubber and elastomer products are quite economical. One of the popular elastomers for many consumer products, such as toys has been plasticized PVC. To minimize the cost of a low performance rubber product, the compound can be heavily filled with clay. On the higher end of the price range, specialty elastomers made of exotic compounds are used for aerospace applications and possess critical properties for high temperature environments. As a rule of thumb, higher performance and higher temperature usage specifications mean higher cost products and more careful and complex testing is required.



General Applications

Tires are a typical example of a product made from optimized compounds consisting of several natural and synthetic rubber compounds along with numerous reactive agents and carbon and other particles. The complex rubber compounds used in tires have taken many years to optimize and still intense formulating and testing continues on improving their consistency and performance.

Rubber compounds used for shoe soles, tires, gaskets, belts, and pulleys are optimized formulations, utilizing precise amounts of many different components. This complexity makes testing functions, a huge responsibility within any organization whose products include performance specifications.

The high capacity of rubber to absorb filler materials and mix with other polymers enables these compounds to achieve an expansive range of properties. Tires, hockey pucks, drive belts, running shoe soles, exercise mats are all examples of rubber compounds optimized with different compounds and levels of fillers. Latex gloves are a form of natural rubber with limited vulcanizing and little or no fillers.

Polyamide based elastomers provide some of the highest strength and toughness properties known and are used in top of the line clothing and sports gear.

One of the higher performance elastomers used in applications requiring durability is considered to be Polyurethane. Where molding of many small parts require to be inexpensive, Thermoplastic rubber (TPR) is a common choice.

Silicone based elastomers and fluoropolymer elastomers are also used in high temperature applications.

Universal Testing Machines

Use of Universal Testing Machines in the Rubber and Elastomer Industry

Test methods and standards such as ASTM D412, are widely used in the rubber industry to determine tensile properties of vulcanized rubber. A dumbbell shaped rubber specimen is pulled in tension until rupture. Test data are recorded on 100% and 300% modulus values, tension set and set after break, peak and break load and elongation. Extensometers are commonly used, due of the rubber's extensibility, to accurately measure the elongation or stretch while loading is applied to the rubber sample.

In Tire cord testing, breaking strength evaluation, breaking toughness, elongation at break, and work to break are common measured parameters. Load at specified elongation may also be required as described in ASTM D885 method. In addition, the adhesion of vulcanized rubber to a single strand of wire is an important characteristic. A wire is cured into a block or pad of rubber and the force necessary to pull the wire out of the rubber is measured. ASTM Methods D1871 and D2229 are often used in rubber laboratories.

The tear resistance of rubber materials is also important to many applications and testing, according to ASTM D624 Test standard and a tensile test is performed on a specially shaped sample. The resistance to tear is calculated from the maximum force and thickness of specimen. As described in ASTM D1564 standard, testing of foam materials may be done in compression and tension as well as tear. In compression testing, a specified percent compression relating to the initial thickness is accomplished then the test load measured. The resulting force to compress the sample a specific percentage is recorded. A tear resistance procedure may also be applied with the material's tear resistance expressed as force per inch of thickness. At the end, a tensile test procedure on a dumbbell shaped specimen provides ultimate stress and elongation data.

Adhesion of rubber to substrates such as metal combine the reinforcement qualities of metal with the vibration, sealing and flexibility of rubber. To evaluate the bond's integrity and strength under tension, shear, peel, and cleavage according to ASTM D-429 test method, Adhesion testing is considered one of important methods.

The physical properties of rubber O-rings require special fixtures which pulls an O-ring sample between two round drums. Measured results typically include ultimate elongation, tensile stress, tension set and compression set. Evaluating O-rings at low temperature using a temperature retraction test may also be performed using ASTM method D1329.

Rubber tensile and tear testing methods are according to ASTM D412 and D624 test methods, which can be fulfilled by our range of universal testing machines.

There are many other test evaluations that are performed in rubber labs, such as hardness, abrasion, resilience, dispersion, specific gravity, flexure, stress relaxation, fatigue, COF, brittleness, and rheological flow properties or viscosity, which you can find the corresponding testing instruments in this rubber testing brochure.



Universal Testing Machines

Q-Series Advanced Universal Testing Machines

www.WorldofTest.com/utm.htm

The Q-Series Universal Tensile/Compression Testing Machines, with a stylish look and state-of-the-art design, meet the highest demands of quality-testing professionals and test applications in the rubber and plastics industry.

The Q-Series UTMs' high resolution and the capability to extend the load cell user field to 1/500 allows users to perform accurate tests at very low loads, enabling the widest range of coverage with a single load cell.

Other advantages of the new Q-Series tensile testers starting from Q5 and up include a minimum test speed of 0.0005 mm/min., a stroke reading of 0.5 µm and a two-year warranty.

Programming tests and monitoring results can be performed through the powerful and intelligent GraphWork test software, which allows complete and accurate data management, in accordance with North American and international test standards. The advanced, modular software comes with a comprehensive library of test standards—in accordance with American Society for Testing and Materials (ASTM) and international norms—included at no extra cost.

The low-cost single column UTM model Q2.5 also comes with an integrated control console with high definition backlit display, and can optionally be supplied with the advanced GraphWork software.

For rubber and plastics industry, normally capacities up to 50kN loadframes are being used, however the Q-Series UTMs are available with capacities up to 2,000 kN (440,000 lbf) in electro-mechanical design used for higher strength materials such as metals and composites. Qualitest also offers extended height or width loadframes for higher elongation materials or oversized samples.

For rubber, elastomers and plastics, we offer a wide range of tensile grips such as pneumatic, wedge, eccentric roller, pincer and screw grips with various jaw inserts to guarantee the optimum performance and test results. In addition to tensile grips, fixtures for other applications such as compression, flexure, COF, peel, shear, tear tests, as well as extensometers, temperature chambers, load cells and flexible leasing/financing plans are available upon request.



Q2.5 Single Column UTM



Q25 UTM w/ optional Extensometer



Tear Test



Extended Column Q-series UTM

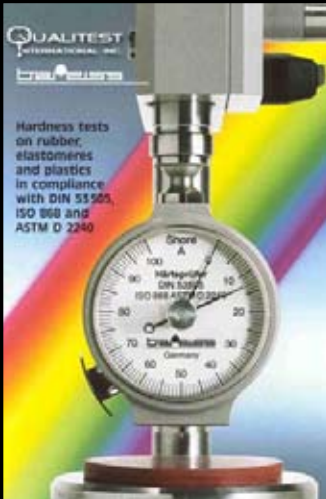


Q25 UTM w/ optional Temperature Chamber

Table-top Q-Series Universal Testing Machines	
Models	Capacity
Q2.5 Single column	2.5 kN / 550 lbf / 250 kgf
Q5 Double column	5 kN / 1,100 lbf / 500 kgf
Q10 Double column	10 kN / 2,200 lbf / 1,000 kgf
Q25 Double column	25 kN / 5,500 lbf / 2,500 kgf
Q50 Double column	50 kN / 11,000 lbf / 5,000 kgf
Q100 Double column	100 kN / 22,000 lbf / 10,000 kgf

Durometers . IRHD Hardness Testers

Portable Models



HP-Series Analog Durometer - Our range of HP Durometers are suitable for accurate hardness measurement of all natural and synthetic rubber products, plastics, acrylic glass, acetates, casting resin, polyester, thermoplastics, PVC, neoprenes, hardboards, wood, leather, and fruits within the Shore A, D, B, O, OO, OOO, C, DO scales and much more.

These durometers are the highest precision models on the market with very easy handling. HP Durometers can be used as portable instruments and together with our test stands as bench-top units. All of our analog durometers have a round, clearly arranged and antiglare scale. The scale's graduation is always 0 - 100, divided in 100 units. The most important advantage of these handy analog durometers is the absolute precise indication of their measured values, due to the unique design and sophisticated engineering applied in the spring mechanism. Generally durometers are recommended to undergo annual calibration, however again due the excellent spring design and mechanism of HP durometers, these units will maintain their calibrations and accuracy within the ranges for a few years.

Our durometer line is optionally available with a maximum indicating pointer. (models ending with "S"). This feature makes the maximum value easier to read and allows the determination of the flow characteristics of the material after a certain test time. The type A durometer, combined with the screw-on loading weight according to ASTM D 2240 and DIN 53505, guarantees a constant measuring result.

BS 61 Test Stand is an ideal accessory to be used with our HP Durometers for higher volume bench-top measurements. The pick-up device allows a quick and easy mounting of the durometer. The built-in loading device for hardness tests within Shore A range, guarantees a constant pressure as prescribed in DIN 53505 and ASTM D 2204. The hardness results can be measured without subjective influences because of this constant load.

www.WorldofTest.com/durometer.htm



HPE-II Digital Durometers - HP-E II Series Durometers are high-end hardness testers for accurate and repeatable hardness measurement of rubber, plastics and other elastomers within the Shore A, D, B, O, OO, OOO, C, DO scales and much more.

The new generation of HPE offers extended range of applications as well as data logger and a new innovative radio data communication feature, which makes the HPE Series the most technologically advanced digital durometers on the market at a reasonable price.

HPE II can be conveniently used in any vertical or horizontal directions, and also in hard to reach areas. This unit can be used with the optional test stand as a bench-top laboratory instrument.

The patented pressure mechanism, integrated into the HPE, ensures a constant contact pressure according to standards, eliminating measuring errors caused and influenced by tilting or slope contact. The electronics is made into a robust and rugged aluminum shell, while the operation is done via a clearly arranged keyboard with an easy to read display. With using two buttons, the instrument is switched on and off and the measuring time can be adjusted from zero to 99 s. A flashing display indicates the current real-time measurement; while a beep signal alarms the end of the measurement. The measured value will be shown on the display until the next measurement, and subsequently the measured value can be transferred to PC or printer via the RS232-interface.

www.WorldofTest.com/hpe.htm



P&J Plastometer - Our top quality Pusey & Jones (P&J) hardness tester (Plastometer) is the most popular model on the market for determination of the penetration depth on rubber and elastomer materials e.g. rubber rollers and standard blocks made of rubber with a minimum thickness of 13 mm as well as paper rollers.

The electronic dial gauge is integrated in the instrument and shows the indentation depth in 0,000 mm units directly. With the help of a vertical spindle which is integrated on the back of instrument, the dial gauge can be moved up and down conveniently and precisely.

The dial gauge is equipped with a zero setting function. This makes it possible that the reading of the dial gauge can be set for zero by a single pressure of the zeroing key as soon as the indenter together with the measuring bar is lifted about 3 mm by lowering the body of the instrument.

The total load of 9,8 N is applied by lowering the loading lever on the right side. The test result can be read after a measurement time of 60 seconds. The basic equipment includes an adjustable feet which can be adjusted according to the test sample diameter and dimension. With the help of precise and user-friendly design of our P&J hardness tester, you can perform easy, quick and repeatable measurements under load.

www.WorldofTest.com/puseyandjones.htm

Durometers . IRHD Hardness Testers

Benchtop Models



DigiTest Automatic Motorized - DigiTest offers the highest level of precision, user-friendliness and repeatability for hardness measurement in any of Durometer A/D/B/C/DO/OO/OOO/Micro A/ Micro D as well as IRHD Micro/ Normal/ Soft/ Supersoft scales.

The modular construction of DigiTest allows the users to obtain this tester with a configuration to meet their basic needs in the most cost-effective way, and upgrade their system with additional measuring heads according to any of Durometer or IRHD scales, at any time at nominal cost. With the help of a newly developed plug-in system, all of the measuring heads are plugged into the pick-up bracket, and recognized and adjusted fully automatically.

DigiTest eliminates the operator's influence on the test results, and thus ensures the highest precision and repeatability for your measurements.

Whether your samples are flat or uneven-shaped, or if you want to measure the hardness of O-rings, Gaskets, etc. you can always find the most suitable configuration from our list of parts, and optional accessories. With the optional HardTest software, you can transfer, analyze, and archive your measuring results in your PC.

The Automatic DigiTest system, fully meets or exceeds International standards according to: ASTM D 2240, ASTM D 1415, DIN 53505, DIN 53519 sheet 1,2, ISO 868, ISO 48, NFT 51 123, NFT 46 003, and BS 903 Part. A 26.

www.WorldofTest.com/digitest.htm



O-Ring Automat - The main reason for developing this system has been the increasing customer demands who want to improve their efficiency and perform in-line measurements on O-rings in series of 50 to 100 rings in IRHD micro scale acc. to the standards DIN 53519 sheet 2, ISO 48, NFT 46003, ASTM D 2240 and BS 903 Part. A 26.

The most important advantage is that a larger quantity of tested samples provide a far more reliable results and better statement of the quality of the material.

O-Ring Automat allows automatic measurements on O-rings with a cord diameter between 0,6 an 5 mm and an outer diameter of up to maximum 30 mm.

O-rings with larger diameters and shapes can be tested in single measurements. The O-rings are pushed on a bar magazine and are fed by an automatic sledge system. The centering device of the rings guarantees that they are tested at the highest position. At the end of the measurement they can be either passed or rejected according to the defined parameters.

www.WorldofTest.com/oringautomat.htm



Micro Compact IRHD II Hardness Tester - New Generation - The 2nd series of this popular IRHD Hardness Tester line has more convenient and user-friendly operation. Accurate IRHD Micro hardness measurement of soft elastomers such as O-rings, seals and gaskets, with thickness down to 0.6mm, is guaranteed.

IRHD Micro Compact II offers new advantages, with an excellent price/quality ratio. Testing of O-rings, molder samples with irregular shapes, seals, etc. are ideal applications for this model. A quick center lever allows quick and precise positioning of the samples and the measuring head comes with integrated display and keypad for ease of use. IRHD Micro Compact II comes with standard RS-232 data interface as well as exchangeable indenters.

The quick centering devices, Barofix and Centrofix, allow ideal positioning of O-rings as well as elastomer tubes and hoses for precise hardness measurement on the suitable section of the samples. The optional "HardTest" windows-based software, offers data logging, management of articles, display of graphics and hardness curves, statistical evaluation, and further analysis of the measured values.

As a service benefit and for quick and low-cost calibration purposes, the customers can send only the measuring heads of the instrument while keeping the test stand and base of the instrument at their lab. The new IRHD Micro Compact II fully meets and exceeds ASTM D 1415, DIN 53519 sheet 2, ISO 48, and other international standards.

Standard Configuration:

- Test Stand
- Measuring device IRHD M (micro) in storage case
- Serial interface cable RS 232
- Operating instructions

www.WorldofTest.com/irhdmicrocompact.htm

Abrasion Testers



DIN Abrasion Tester - Our advanced DIN Abrasion tester conforms to DIN 53516, and ASTM D 5963 standards, and is the most popular DIN Abrasion Tester worldwide. This model determines the resistance of elastomers in regards to the loss of abrasion. Abrasion tests in compliance with this test standard are performed on materials which are subject to wear and tear during their working life, such as tires, conveyor and drive belts, shoe soles according to DIN 53543. Since wear is always a result of the abrasion, different test methods were applied for the simulation of the long term wear, while the DIN method has been proven to be the best one. This method enables comparative tests for the control of the uniformity of specific materials. The obtained test results provide important parameters in respect with the wear of elastomers in practical applications. The abrasion is defined as a volumetric loss of a cylindrical sample, which is moved across an abrasion sheet of a defined abrasiveness with a defined pressure and which makes a defined distance at a constant speed.

www.WorldofTest.com/abrasion.htm



Rotary Abrasion Tester - Rotary Abrasion Tester (compare to Taber-type Abrasion Tester) is a cost-effective and high quality instrument used to determine the abrasion for rubber, leather, plastics, fabrics, paper, paint, plywood, tiles, glass, etc. and is built in conformance to ASTM D4157, DIN-53754/53799/53109/52347, and TAPPIT476. For this method of abrasion, a four-inch diameter sample is mounted on a rotating turntable. Abrasive wheels are applied to the sample using a fixed weight. For a specified number of cycles, the abrasive wheels wear away the sample. Usually, two elastomer samples are tested. The result is calculated by measuring the weight loss per thousand cycles of abrasion. Abrasive wheels are commonly made of vitrified clay, and they come in a several levels of coarseness. The test procedure is to abrade specimens against a pair of grinding wheels under a specified pressure. The Rotary Abrasion Tester is supplied with Vacuum unit and optionally a trimming machine may be obtained.

www.WorldofTest.com/rotaryabrasion.htm



NBS Abrasion Tester - The NBS abrasion tester is used commonly in the footwear industry, often to compare materials versus rubber. In the test, three elastomer samples are abraded across the surface of a rotating, abrasive drum until 1/10" of the sample is abraded. A rubber standard is tested before and after the test. An NBS index is then calculated based on the cycles to abrade the sample and the rubber standard. The results are indexed to the rubber standard, which is generally of low to medium abrasion resistance. For example, if the tested sample took twice the number of cycles to abrade 1/10", the NBS abrasion resistance would be reported as 200. In this test, higher numbers indicate higher resistance to abrasion. Our NBS Abrasion Tester meets ASTM D-1630 Test Method.

www.WorldofTest.com/nbsabrader.htm



Akron Abrasion Tester - Akron abrasion tester is designed to evaluate the resistance of wear on a variety of products such as rubber tires, shoe soles, etc. This machine conforms to all attributed industry ASTM standards.

www.WorldofTest.com/akronabrasion.htm

Rebound . Resilience . Carbon Black Dispersion



Rebound Resilience Tester - The DigiTest Rebound resilience tester is an advanced and highly accurate instrument for determination of the elasticity of elastomers, soft elastic foam and similar materials under impact stress, and has wide applications in quality control, measurement of dynamic characteristics, differentiation of various material qualities, measurement of the change in materials properties after endurance or aging tests, and much more. The electronic DigiTest Rebound resilience tester conforms to: ASTM D 1054, DIN 53512, DIN 53573, and ISO 4662 test methods. Standards define the resilience elasticity as the ratio of the regained energy in relation to the applied energy. This ratio of energy corresponds with the quotient of the height of the resilience and the height of the drop of the pendulum.

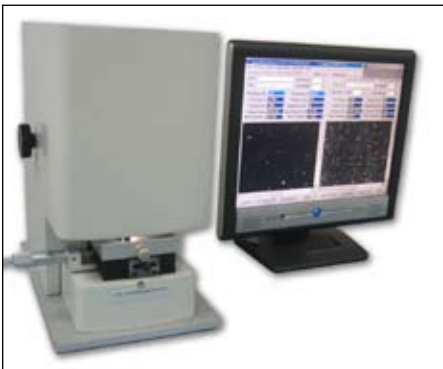
www.WorldofTest.com/resilience.htm



Vertical Rebound Tester - The vertical rebound tester also known as resiliometer measures resilience of elastomers by dropping a plunger of controlled weight and geometry from a fixed height on the rubber test specimen. It is especially useful in developing compounds to absorb vibration. The lower the resilience, the less vibration can be transferred.

The vertical rebound tester complements durometers in the testing labs and conforms to ASTM D 2632.

www.WorldofTest.com/verticalrebound.htm



Carbon Black Dispersion Tester - This test is to ensure uniform dispersion of carbon black in the polymer substrate, which influences the product's characteristics and is therefore vital to check. Our Tester is packed with features at a very reasonable price. The main features include: Pixel and dispersion analysis, based on methods A and B of ASTM D-2663 to carry out the calculation and analyze the count of particles, diameter, distribution, and area etc., as well as Philips 10-grade automatic judgment, where you can save the Philips 10-grade images and data as the standard for comparison, and display the grade of the testing results.

The users can also have 1000 file groups and can set their own standard pictures for automatic comparison and grade judgment, and via the advanced software the users can generate comprehensive reports.

www.WorldofTest.com/carbonblackdispersion.htm



Carbon Black Content Analyzer - The tube oven ES14 / Carbon Black content analyzer can be used for the following and similar test methods:

- * ISO 247 Rubber - Determination of Ash
- * ISO 1408 Rubber - Determination of carbon black content
- * ASTM D297 Rubber - Determination of carbon black and ash content
- * ASTM D1603 Plastics - Test method for carbon black in olefin plastics

Temperature controller, over temperature thermostat, drying tube, flow meters, wash bottles and 5 quartz glass boats are included.

www.WorldofTest.com/carbonblackcontent.htm

Rheometers



Oscillating Disk Rheometers (ODR) - The Oscillating Disk Rheometer determines the selected vulcanization characteristics of rubber compounds. This test is used to characterize or compare various samples to ensure your company is working at its optimum state of quality. The Servo driven system provides extremely steady oscillation frequencies as well as low noise to ensure test accuracy, convenience and increased lifespan of the machine. Operated with a remote computer via RS-232, we can analyze results taking data at 100,000 readings per second. The machine allows for selectable times and torques during setup or in testing to accommodate limitless configurations. You can monitor the test from the computer or large LCD displays on the front for in test evaluation. The design features Modular internal parts for in house servicing and overall easy maintenance. Our tester is priced competitively to provide you with accurate testing at the best price.

www.WorldofTest.com/rheometer.htm



Moving Die Rheometers (MDR)/ Foam Pressure Rheometers - The Moving Die Rheometer measures the change in stiffness of a rubber sample. The sample is compressed between two heated platens and by an applied oscillating force. The degree of vulcanization determines the cure characteristic of the sample as it is heated and compressed. Our Moving Die Rheometer offers affordable testing and stunning results. We offer sealed die and un-sealed die type configurations to suite your application. The Servo driven system provides extremely steady oscillation frequencies as well as low noise to ensure test accuracy, convenience and increased lifespan of the machine. Operated with a remote computer via RS-232, we can analyze results taking data at 100,000 readings per second. The machine allows for selectable times and torques during setup or in testing to accommodate limitless configurations. You can monitor the test from the computer or large LCD displays on the front for in test evaluation. The design features Modular internal parts for in house servicing and overall easy maintenance.

www.WorldofTest.com/mdr.htm



Mooney Viscometer - The Mooney Viscometer measures the change in a rubber and plastic elastomer properties over time, from uncured to scorched state. The specimen is physically deformed by a rotating platen which will determine changing viscosity at preset temperatures. When the test is completed, the dies will automatically reset and allow for removal of the specimen. With the PID temperature controller you can assure that smooth and accurate data will be taken throughout the test. The servo-driven motors contribute to very accurate results; they are also quiet and require no maintenance. This tester is designed for easy maintenance; it is equipped with modular electrical boards, quick detachable upper and lower dies, calibration via computer and auto hardware detect features. The unit is safe as it is equipped with a transparent arc shield. With our Mooney viscometer you can ensure reliable results at an affordable price.

www.WorldofTest.com/viscometer.htm



Capillary Rheometers - The new LCR 7000 Capillary Rheometer offers many new features and will meet the demands of a 24-hour a day shop floor operation while maintaining the highest possible level of accuracy, repeatability and sensitivity. The LCR series capillary rheometers are versatile and easy to use yet they offer the most sophisticated materials characterization, data analysis, and reporting capabilities. The LCR 7000 can be used with a standard load cell and a barrel mounted pressure transducer (optional).

www.WorldofTest.com/capillary.htm

Flexometers . Flex Testers



Goodrich Flexometer - In Collaboration with Doli, Qualitest offers standard or fully automatic flexometers, commonly known as "Goodrich Flexometer" which have been manufactured since 1985.

The automatic Flexometer system features height measurement and cooling stations, an automatic temperature chamber including preheating station and a specimen silo for 20 specimens.

The Compression Flexometer is used as testing instrument in the rubber industry. Especially producers of fillers (carbon black etc.) and the tire industry use this type of Compression Flexometer. The test is based on the standards ASTM D 623 , DIN 53 533, part 3 or ISO 4666.

www.WorldofTest.com/flexometer.htm



Ultimate Flexometer - At the time the Goodrich Flexometer was defined, it was hard to imagine, that a load could be controlled electronically. The control was done via a balance and weights. The Ultimate Flexometer is a multiprocessor system, which distributes the controlling jobs among the actuators. Since all jobs and controls can be defined via software, manual actions like changing stroke, lay on weights, etc. aren't necessary. Each specimen (max. 56) in the specimen storage of the Ultimate Flexometer can be defined with completely different parameters to the prior one. Testing as well as specimen handling are fully automatic.

www.WorldofTest.com/ultimateflexometer.htm



Rotary Flexometer - Rotary Flexometers conforming to ISO 4666/2 1982 are fully digital systems with one motor for the axial deformation of the specimen. One motor is for the transverse deformation of the specimen. Both driving axes can measure load and position and can go in position and load control for each axis. This advantage enables the system to change all parameters with each specimen by software. A dead weight as used in standard goodrich-type flexometers is not needed. This enables the operator to go in load control for the axial axis and in position control for the transversal axis and vice versa. For higher volume testing we also offer fully automated rotary flexometers. The silos can bear 20 specimen each and four silos are available. The handling arm can pick and place the specimens and will move it after the test to a rest bin. The handling system is driven by the software.

www.WorldofTest.com/rotaryflexometer.htm



DeMattia Flex Fatigue Testers - Our advanced DeMattia Flexing Tester Conforms to ASTM D-430 method "B" and ASTM D-813 standards to measure the ability of soft rubber compounds, leather and similar materials to resist dynamic fatigue. This DeMattia Flexing apparatus is used to determine the crack growth of vulcanized rubber, leather, etc. when subjected to repeated bending strain or flexing and to measure the resistance to dynamic fatigue of vulcanized rubber and elastomers test specimen when subjected to repeated bending and extension.

A key advantage of this DeMattia tester is that the upper and lower grips both move in opposite directions, thus resulting in reducing the level of vibration and the noise found in traditional DeMattia flexing fatigue testers. As option a temperature chamber can be supplied with this advanced DeMattia flex fatigue tester.

www.WorldofTest.com/demattia.htm



Ross Flexing Tester - The Ross Rubber Flexing Machine is designed to determine "resistance of vulcanized or synthetic elastomers to cut growth. It conforms to ASTM Method D1052, as well as ISO-4643. This model can test 12 samples simultaneously.

www.WorldofTest.com/rossflex.htm

Specific Gravity Testers . Densimeters

www.WorldofTest.com/specificgravity.htm



Electronic Densimeter EW-300SG - A general-purpose new densimeter with high accuracy and additional advanced features for measuring specific gravity of rubber, plastics, metals, and much more. Simple & convenient operation by placing the sample on top of the container, and then in the water container.

Density Resolution: 0.01g/cm³



Electronic Densimeter MD-300S - A general-purpose new densimeter with high accuracy and additional advanced features for measuring solid and liquid specific gravity.

Density Resolution: 0.001g/cm³



Densimeter SD-200L - Top of the line Densimeter, for measuring solid and liquid specific gravity.

Capable of measuring solid specific gravity and volume, and its variations down to the fourth decimal place.

Density resolution: 0.0001g/cm³

Brittleness & Freezing Testers



Brittleness Temperature Tester - This test method covers the determination of the temperature at which rubber, plastics and elastomers exhibit brittle failure under specified impact conditions. Samples may be housed in a thermostatic bath, based on the reference standards ASTM D746, ISO 812, and GB/T 15256. The cooling medium can be either dry ice (solid CO₂) or alcohol. Working temperature from -70°C to +20°C. With this test method the test specimens are mounted onto cantilever grips and then immersed into the low temperature bath for 3 minutes (rubber), or 2.5 minutes (other). Then by striking the specimens with the tip of hammers you can detect at what temperatures the specimens will fracture.

www.WorldofTest.com/brittleness.htm

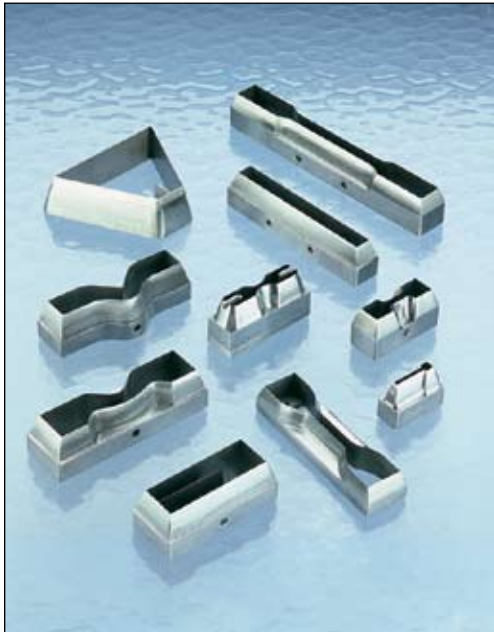


Freezing Testers - Our freezing testers available in vertical or horizontal configurations are used to test the bending/flexing durability of rubber, plastics, synthetic leather, shoes, etc., under cold temperatures as low as -30°C or -50°C depending on the selected model. The test chambers can be equipped with a variety of flexing/bending fixtures made of stainless steel. These models conform to ASTM D1790, and ASTM D1593 standards.

www.WorldofTest.com/freezingtester.htm

Specimen Dies . Clicker Presses

www.WorldofTest.com/dies-molds.htm



Specimen Dies -

Fully Certified ASTM, JIS, DIN and ISO dies.
www.WorldofTest.com/dies-molds.htm

Miscellaneous

ISO 34 A
 ISO 34 B
 ISO 37, Type 1 through 4
 BS 6746
 IEC 540
 ISO/DIS 3167
 .250 x 5.0
 .500 x 5.0
 1.000 x 6.0

JIS Standard

JIS K-6301 1
 JIS K-6301 2
 JIS K-6301 3
 JIS K-6301 4
 JIS K-7113 1
 JIS K-7113 2
 JIS K-6781
 JIS K-1702
 JIS K-6301 A
 JIS K-6301 B

DIN Standard

DIN 53504 S1
 DIN 53504 S2
 DIN 53504 S3
 DIN 53504 S3A

Accessories

Mallet Handles
 Shanks
 Adaptors

Sharpening, Calibration & Certification

ASTM Standard

ASTM D-412 A Tensile Sample Cutting Die
 ASTM D-412 B Tensile Sample Cutting Die
 ASTM D-412 C Tensile Sample Cutting Die
 ASTM D-412 D Tensile Sample Cutting Die
 ASTM D-412 F Tensile Sample Cutting Die
 ASTM D-638 Type I Tensile Die
 ASTM D-638 Type II Tensile Die
 ASTM D-638 Type III Tensile Die
 ASTM D-638 Type IV Tensile Die
 ASTM D-638 Type V Tensile Die
 ASTM D-1822-S
 ASTM D-1822-L
 ASTM D-1708 Microtensile Die
 ASTM D-624 B Tear Sample Cutting Die
 ASTM D-624 C Tear Sample Cutting Die
 ASTM D-624 T Tear Sample Cutting Die
 ASTM D-1004
 ASTM D-1922
 ASTM D-746
 ASTM D-746 T50
 ASTM D-1938
 ASTM D-2209 Leather Tensile
 ASTM D-2212 Leather Slit Tear
 Other ASTM Dies Available Upon Request



Specimen Molds - Our molds are made of P20 tool steel that is hardened, ground and polished, then chrome-plated with the option of teflon coating. Typical molds have one to four cavities. Various sizes are available. The mold's inside surface is perpendicular to the cutting edge and polished. This insures that test specimens are cut to uniform thickness. All of the molds meet most national and international standards such as ASTM, DIN and ISO.



Manual Test Sample Clicker Press - These units operate well in stand-alone cutting situations, and also compliment a Hydraulic press for smaller operations.

With the single lever rotation and compressing action, it's speed of operation is quite surprising and you can be up and cutting for a fraction of the cost of a hydraulic press.



Auto-Pneumatic Clicker Press - This low-cost and high quality Pneumatic clicker press only requires air with min. 5 bar pressure to operate and is widely used in the rubber and plastics industry for accurately cutting rubber, leather, and plastics specimens. The Auto-Pneumatic clicker press is available in 3 or 5 ton capacities which can be used to cut rubber samples with thickness up to 10 or 15mm. A compact, cost effective and high quality sample cutting press for any testing laboratory.



Model SE-Series Laboratory Sized Swing Arm Clicker Press - The reasonably-priced model SE-8 Hydraulic Mini-Clicker die cuts exact (dumbbells, etc.) samples from split layered materials. The SE-8 automatically adjusts the stroke to the proper cutting height. Eight ton cutting pressure (Optionally up to 25 Ton) allows easy operation. This useful laboratory tool requires a minimum of floor space and is highly recommended for medium to high specimen cutting needs.

- Cutting Surface: 12" x 24"
- Cutting Arm: 10" x 14"
- Floor Space: 24" x 25"
- Tonnage: 8 Tons (Optionally 20, 22, and 25 Tons available)

Gehman . TR . Stress Relaxation Testers . Aging Ovens



Gehman Tester ET 02 - Gehman Tester, ET 02 for determination of the relative stiffness characteristics of vulcanized or thermoplastic rubbers, also called the Gehman procedure. The test is done according to ISO 1432, ASTM D1053t, or technical equivalent standards.

The Gehman Tester, has 6 test stations, is computerized and performs the test automatically.

The computer controls both the temperature rise and measure the torsion angle of the samples. The results are displayed in a graph and RM2, RM10 and RM100 values are calculated. The result can be presented as a table.

As an extra option, and automatic cooling system with liquid Nitrogen can be supplied.

www.WorldofTest.com/gehman.htm



TRTester ET 01 - TRTester, ET 01, for determination of low temperature characteristics by the temperature retraction procedure according to ISO 2921 and ASTM D-1329.

TR Tester, has 6 test stations, is computerized and performs the test automatically after the cooling media has been cooled down and the samples have been mounted. An automatic release of the samples, after the pre cooling period is included.

The computer controls both the temperature rise and measures the length change of the samples. The results are displayed in graph and TR10, TR30, TR50 and TR70 values are calculated. The result can also be presented as a table with length change versus temperature.

The TR-values and the table values can be exported to other software such as spreadsheets.

As an extra option, an automatic cooling system with liquid Nitrogen can be supplied.

www.WorldofTest.com/trtester.htm



Stress Relaxation Tester EB 02 - Relaxation system for continuous measurement in either compression or tension. Meets the requirements in ISO 3384 and ISO 6914.

The relaxation rigs are used in combination with the cell oven EB 01 or EB 07 when testing at elevated temperatures.

The room temperature box is used when testing at room temperature to avoid variation in the load curve caused by temperature variation in the laboratory.

The relaxation rigs are placed in a cell oven for testing at elevated temperatures.

The cell oven EB 01 can accommodate four rigs at one temperature. In the cell oven EB 07, three rigs can be placed at three different temperatures.

Draught Hood, to eliminate variations in force measurement due to temperature and air effects.

www.WorldofTest.com/stressrelaxation.htm



Block Ovens / Aging Ovens - Multiple temperature cell ageing oven for precision aging of rubbers and plastics under controlled conditions. Our cell ovens are available with three or more cells which can be used with individual temperatures. These ovens conform to ASTM D471 and ASTM D865 as well as ISO 188, and ISO 3383 standards with a variety of different configurations. Some of the models are designed to give very low temperature variations in time and space, low air speed and controlled air exchange rate.

www.WorldofTest.com/blockoven.htm

Miscellaneous Testers



Portable Inclineable Articulated Strut Slip Tester (PIAST) - This test method covers the operational procedures for using a portable inclineable articulated strut slip tester (PIAST) for determining the slip resistance of footwear sole, heel, or related materials (test feet) against planar walkway surfaces or walkway surrogates (test surfaces) in either the laboratory or the field under dry, wet, or contaminated conditions. This unit meets ASTM F1677 test method.
www.WorldofTest.com/sliptester.htm



Compression Set Test Fixture - Compression Set Testing according to ASTM D395 test method, measures the ability of rubber to return to its original thickness after prolonged compressive stresses at a given temperature and deflection. As a rubber material is compressed over time, it loses its ability to return to its original thickness. This loss of resiliency (memory) may reduce the capability of an elastomeric gasket, seal or cushioning pad to perform over a long period of time. The resulting permanent set that a gasket may take over time may cause a leak; or in the case of a shock isolation pad, the ability to protect an accidentally dropped unit may be compromised.
www.WorldofTest.com/compressionset.htm



Tire Plunger Tester - Our advanced range of Tire Plunger Testers is available in different configurations for various tests such as, plunger test, bead unseating, vertical stiffness, lateral stiffness, footprint analysis, dimension measurement, envelope stiffness, bevel stiffness, torsion, and inflation pressure tests. This extensive range of plunger testers are widely used in the tire industry and meet the corresponding ASTM and other international standard test methods.
www.WorldofTest.com/tireplungertester.htm



Salt Spray Tester - The Salt Spray (Fog) Tester is used to create and maintain the salt spray (fog) test environment, and test the anti-erosion quality of the materials surfaces. Our salt spray testers available in two capacities meet ASTM B117, and ISO-9227 standard test methods.
www.WorldofTest.com/saltspraytester.htm



Thickness Gauges - Qualitest offers a wide range of thickness gauges starting from portable units up to advanced high resolution off-line thickness gauge systems for plastics films, paper, rubber and other materials.
www.WorldofTest.com/thickness.htm



Williams Parallel Plate Plastometer - Conforming to ASTM D-926 Williams test method measures plasticity and recovery of uncompounded, compounded, and reclaimed stock of unvulcanized rubber and rubber-like materials. Complete unit with heatproof dial indicator reading in .01mm increments. Plasticity is determined by taking a sample of known size, preheating it to a predefined test temperature for a precise time, and then subjecting it to a compressive force of 5,000g. The resultant thickness is the plasticity.
www.WorldofTest.com/plastometer.htm



Resistivity Tester EE 01 - For determination of volume resistivity on conductive and semi-conductive rubber materials, according to ISO 1853. The instrument has an integrated differential volt-meter, built into the head of the electrodes and a very sensitive ammeter, together with a very high input resistance for the voltmeter.
www.WorldofTest.com/resistivity.htm



Fogging Tester EB 03 - For determination of windscreen fogging according to ISO, DIN, ASTM and other automotive standards. The equipment has a compact design with the heating bath and cooling bath integrated in one casing. For cooling the water bath, the instrument is normally connected to tap water of max 18 °C. If the tap water is too warm, a model EB 03C can be supplied with a built in cooling system with Peltier elements.
www.WorldofTest.com/foggingtester.htm

Qualitest also offers an extensive range of testing solutions for plastics, foam, paper & cardboard, textiles, cement & concrete, and metals.

Our plastics testing technologies include:

- Universal Tensile/Compression Testing Machines
- Izod/Charpy Impact Testers
- Sample Notchers
- Melt Flow Indexers
- Durometers
- Drop Dart & Gardner Impact Testers
- Specimen Molds
- Sample Preparation Machines
- Capillary Rheometers
- Laboratory Mixing Extruders
- Laboratory Mixing Molders
- Limiting Oxygen Index Chambers
- HDT/MICAT Heat Deflection Testers
- Gloss Meters
- Light booths
- Coefficient of Friction (COF) Testers
- Hot Tack Heat Seal Testers
- Elmendorf Tear Strength Testers
- Opacity Meters
- Film Thickness Gauges
- Gradient Tester for Minimum Film Forming Measurement
- Gas & Water Vapor Permeability Testers

Qualitest Locations:

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 Buffalo, New York
 California

Canada: Markham, Ontario

UAE: Dubai

Asia: Hong Kong

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www.WorldofTest.com