

Rebound Resilience Tester



**INNOVATIONS IN
RUBBER TESTING**

MonTech RB 3000 Rebound Resilience Tester

Automatic Schob pendulum impact elasticity tester for elastomers and foams

The RB 3000 automatic Rebound Resilience tester

allows the determination of the resilience properties of rubber and elastomeric materials according to DIN 53512, ISO 4662, ASTM D 1054 and ASTM D 7121. Rebound resilience is defined as the relation between the returned and the impact energy between the hammer with its fin, the specimen and the instrument. The samples used for testing are typically rubber and elastomeric materials as buttons or strips in a hardness range of 25 to 95 Shore A / IRHD N.

MonTechs RB 3000 resilience tester features a rigid design with all main components integrated into the machine frame - the electronics with 5" touchscreen display, data interfaces as well as the entire mechanical system which is precisely manufactured from high strength and aluminum. The pendulum mechanism features a 15mm diameter hammer fin and is connected via the pendulum arm to a virtually frictionless air bearing system connected to a high resolution non-contact encoder system guaranteeing highest precision in pendulum angle measurement.

A fully integrated spindle with adjustment gauge and clamping allows a quick and easy setup of the test specimen thickness so that testing can start right away.

The RB 3000 is equipped with a motorized pendulum release and return allowing a fully automated test sequence without any user interference.

Once the operator presses the start button on the multi-language touch-control panel, the instrument executes the selected test sequence automatically - including up to three pre-hits and three test hits according to standards. Once the test sequence is completed the test results are automatically displayed on the built in 5" touchscreen as well as also the median is calculated.

The RB 3000 Rebound Resilience tester has been designed keeping safety, comfort but also ease of use in mind:

- Simplified touchscreen operation, menu guided with various comfort functions such as different test modes, parking and service functions
- The test sequence can only be started once a sample has been placed on the anvil in order to protect hammer and anvil against any kind of damage
- Automatic detection of incorrect placed specimens
- Fully automated test sequence with motorized pendulum release and return eliminating almost any operator influence
- Integrated calibration routines allow the user to measure, calibrate and compensate the pendulum friction and release angle
- Interchangeable hammers, fins and anvil plates for various applications and sample types
- Easy setup with levelling feet and integrated spirit level and completely maintenance free mechanical system
- With the optional temperature control units a temperature tolerance can be set, allowing a test only to be started once the set temperature is reached



Increase the testing capabilities and productivity of the instrument by adding some of the various options available:

- Test results are only as reliable as the samples and their preparation: MonTech curing moulds and lab presses allow highly accurate sample preparation
- The RB 3000 is ready to connect through the integrated USB and RS232 Interface to the MonLink PC software adding full data acquisition and SPC capability
- One of the three available temperature control systems will allow testing at elevated or even sub-ambient temperatures
- Automated sample handling systems can highly increase throughput and efficiency and allow operator to focus on other activities

Technical specification

Measurement method	Pendulum rebound resilience measurement (Schob type)
Test modes	Single, Median of 3 tests (with 3 or 4 conditioning hits)
International standards	DIN 53512, ISO 4662, ASTM D 1054, ASTM D 7121, JIS JIS K 6255, DIN 13014 (Foam)
Operation	Fully automated with automatic pendulum lift and release
User interface	Integrated 5" color - Touchscreen
Sample dimensions	Cured rubber buttons or sheets with 0 to 30 mm thickness 28 to 65 mm in diameter or 50 x 50 mm in size
Anvil distance	0 to 60 mm (steplessly adjustable)
Release angle	90°
Resolution / Accuracy	0.001° arc / 0.1% Rebound Resilience
Hammer fin	hemispherical, 15 mm in diameter
Impact velocity Impact energy	1.98m/s 426.5 kJ/m ³
Pendulum capacity Pendulum length Pendulum mass	0.5 Joule 200 mm 255 g
Output languages	English, French, German, Spanish, Russian (others on request)
Output interfaces	Serial (RS232) and USB 2.0
Data acquisition	MonLink software (optional) for test configuration management, data acquisition and statistical evaluation
Dimensions (H x W x D)	370 mm x 580 mm x 180 mm
Weight	approx. 50 kg net
Electrical	90-250 V, 1 Amp, 47-63 Hz, Single phase
Options	<ul style="list-style-type: none"> - Reference rubber samples - Specimen curing moulds in various configurations - Pendulum for foam tests: Hammer with 0.196J / dia.=30mm - Pendulum for foam tests: Ball with 0.2J / Cyl. dia.=40mm - Heating system, ambient to +100°C - Heating / cooling system, -20°C to +100°C - Advanced heating / cooling system, -40°C to +100°C - Vacuum sample holder system - Multi sample automation



Anvil plate with integrated sample sensor and sample height adjustment



Hammer 0.5 Joule with 15mm fin



Sample holder

A second version of the RB 3000 rebound tester has been configured specifically for foam testing according to DIN 13014 (Polyether foam hospital mattresses) featuring two different types of interchangeable pendulum inserts with either a ball radius configuration of R=40mm and a 40mm cylinder diameter or alternatively a hemispherical hammer fin of 30mm diameter.

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