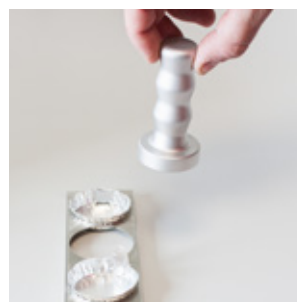
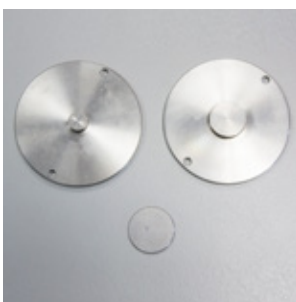
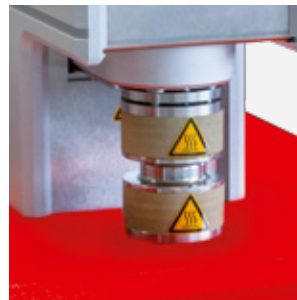
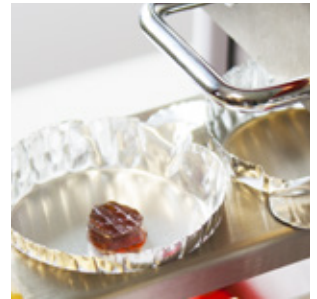
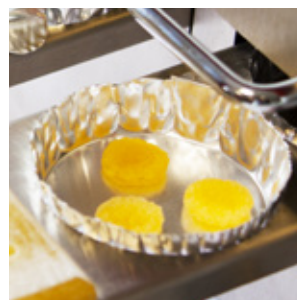


## *Plasticity*



...Innovative testing solutions  
made in Germany!



# MonTech RP 3000 Rapid Plastimeter for Polymers and Natural Rubber



## The MonTech Rapid Plastimeter

measures the plasticity or viscosity of polymers and unvulcanised rubbers. The test is simple, clean and quick. The instrument is typically used in conjunction with the MonTech ageing oven for plasticity testing to determine the Plasticity Retention Index (PRI) of raw natural rubbers.

The variable temperature range from 25°C to 200°C for easier to read with freely programmable conditioning and load times allow a convenient characterisation of the flow behavior of natural and synthetic rubbers at variable test conditions. For some applications this method offers a quick, low cost alternative to a Mooney Viscosity test.

The instrument is supplied in a complete set along with a table-top, mechanical volumetric specimen cutter for a reliable preparation of test specimens with a volume of 0.40 cm<sup>3</sup> according to international standards. The instrument is supplied with 10 mm diameter top platen installed period. Alternative top platens of 7.3 and 14 mm diameter are supplied as accessories. The platens are easily interchangeable.

### Plasticity Retention Index (PRI):

PRI is a measure of the resistance of raw natural rubber to oxidation.

The oxidation effect is assessed by measuring the plasticity before ageing (P<sub>0</sub>) and after ageing for 30 mins in the MonTech ageing oven for Plasticity testing at 140°C (P<sub>30</sub>)

$$PRI = \left( \frac{P_{30}}{P_0} \right) \times 100$$

### Working Principle

A modified parallel plate compression principle is used with automatically timed “conditioning” and “load” periods. A sample is compressed between two circular platens which are maintained at a temperature of typically 100°C.

The sample is conditioned for 15 seconds at a thickness of 1 mm. A compressive force of 100 N is then applied for 15 secs. The final thickness of the test piece expressed in units of 0.01 mm, is the plasticity number.

Besides this procedure described by the standards, the MonTech RP 3000 can operate at fully variable temperature and conditioning / load times.

During the loading period, the material flow and plasticity curve can be acquired by the optional MonPlast computer software.

### Test Procedure

The sample is prepared using the mechanical, double-working specimen cutter and it is then enclosed between two pieces of tissue paper, as defined by international standards, before being placed between the platens. The tissue paper prevents the material sticking to the platens or sliding between them.

The automatic test sequence is started when the start lever on the instrument is rotated. Conditioning and loading periods are then automatically controlled.

The reduction in thickness of the sample as well as the load that is applied to the sample is displayed digitally on the PC screen by the optional MonPlast software.

After testing, all results are shown on the PC screen and automatically stored in the database for recalling them later or creating batch reports.

## Features

The MonTech Plastimeter offers greatly enhanced operator access and is available in only one, full option version with all possible features included. One of the most important features is the powered zero and load calibration and automatic platen parallelism alignment totally eliminate the need for any manual setting of the instrument.

The RP 3000 Rapid Plastimeter can be calibrated in less than 20 seconds!

A strong aluminum and stainless steel frame, paired with direct linear drive technology ensures highest instrument rigidity and stability to guarantee the highest precision of test results.

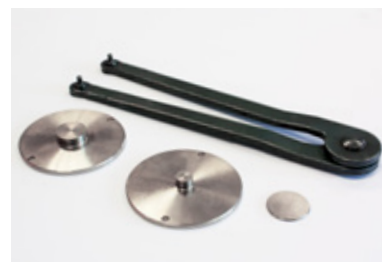
- Fully automatic and easy operation
- Single/Median mode of operation
- Fully automatic calibration
- Built in diagnostics with Service and Diagnostics screen
- Variable platen temperature 25°C - 200°C
- Variable conditioning and load times
- Digital, continues temperature display on the PC as well as temperature graph

With optional MonPlast Software:

- Full P0 and PRI evaluation possibility
- Single/Median mode of operation
- Display and calculation of Plasticity curve
- Various parameters can be entered and stored to each individual test:  
e.g. Batch number, Lot, Date, Time, Operator...
- By the help of the software a full traceability of aborted tests can be guaranteed
- All Parameters as well as results can later be printed out together with the load, Plasticity as well as Temperature graphs as a Batch Report.
- The language on the Plastimeter as well as the software can be changed online  
Standard languages are English, German and French
- Integrated calibration and service reminder

## Package including:

- Full P0 and PRI evaluation possibility
- 3 sets of Platens in different sizes
- Variable Temperature 25°C to 200°C
- Double-working sample cutter
- RS232 Interface
- Standard accessories package
- Optional: MonPlast computer Software  
with flow curve acquisition and  
automatic PRI calculation



## Technical specification

<b>Standards</b>	BS 903:Pt A59: section A59.1:1997 ISO 2007:1991
<b>Platen sizes</b>	10 mm, 7.3 and 14 mm diameter
<b>Platen temperature</b>	25°C - 200°C
<b>Test time</b>	Default: 15 secs conditioning, 15 secs load Variable from 0 to 99 seconds
<b>Compressive force</b>	100 N
<b>Calibration sample</b>	Included
<b>Total Weight of Plastimeter</b>	35 kg
<b>Data Interface</b>	RS 232
<b>MonPlast computer software</b>	optional
<b>Data printer</b>	optional



Double working sample cutter for fast and easy specimen preparation

# MonTech AO 3000

## Ageing oven for Plasticity Testing

### The MonTech ageing oven for plasticity testing

ages rubber in accordance with international testing standards. In conjunction with the MonTech Plastimeter, it allows the user to determine the Plasticity Retention Index (PRI) of raw natural rubbers.

Housed in a robust stainless steel case, the MonTech ageing oven for plasticity testing features an aluminum block with four chambers that carry the drawer units and sample dishes. Heater elements are wrapped around and inside the block and high quality insulation inside the case minimizes heat loss.

An adjustable air blower system, which provides pre-heated air to the chambers, is located on the rear panel for easy service access.

Test samples are placed on round foil dishes, which are located in recesses in the drawer units. When a drawer is pushed in, a timing sequence starts only for that chamber.

As the 30 minute ageing process ends, the light next to the drawer changes color to remind the operator to remove the sample. Also the ageing oven beeps to show that ageing is finished. If the ageing period is exceeded, the light changes to red indicating that the samples should be discarded.

A temperature of 140°C (required by the standard) is maintained by a PID Controller, which continuously displays the chamber temperature. The MonTech ageing oven for plasticity testing is protected by a warning system, which is initiated if the correct temperature is exceeded by more than 10°C.

### Features

- Temperature controlled to  $140 \pm 0.2^\circ\text{C}$
- Four chambers with independent timers
- Stability check and overheat protection
- Digital temperature display





### A0 3000 - Sample loading made easy



1 - Remove drawer from the oven



2 - Place aluminum dish



3 - Install aluminum dish



4 - Remove installation tool



5 - Load samples



6 - Put drawer back in the oven to start the 30 minute ageing sequence

### Technical specification

<b>Standards</b>	BS 903 Pt. A59, ASTM D3194
<b>Temperature Recovery</b>	1 minute at 140°C after sample insertion
<b>Operating Temperature</b>	140 ± 0.2°C (adjustable from ambient to +200°C)
<b>Max Samples per Oven</b>	48
<b>Max Samples per Tray</b>	12
<b>Dishes Per Tray</b>	4
<b>Heating Chambers</b>	4
<b>Air exchange rate</b>	adjustable 0 to 120 times / hour
<b>Chamber Dimensions</b>	50 mm x 12 x 280
<b>Max Power</b>	2.8 kW
<b>Weight</b>	27 kg



Drawers loaded with samples

### Package including:

- Temperature controller (PID)
- 4 trays with 4 dishes each
- Electronic system with 4 independent timers, beeper and monitoring system
- Standard accessories package

# MonTech Worldwide Support, Maintenance and Calibration

## Global customer support

Customer orientation is our top priority. That is why we are active on your behalf worldwide with one aim: to provide first-class service and support throughout the entire life-cycle of your instrument.

MonTech's customer support services include consulting, demonstration, pre-testing, successful and trouble-free commissioning, preliminary acceptance and installation, initial calibration, instruction on hardware and software, safety briefings, application seminars, workshops and of course, a continuous on-site hotline and remote support. We also supply testing film, consumables, spare parts and instrument upgrades or repairs.

Whenever our customers need help of any kind, we are at their service! Therefore, we are available 24 hours a day, 365 days a year worldwide.

## Single source ISO 17025 calibration services

MonTech's on-site calibration service provides ISO 9001 certified and ISO 17025 accredited field calibrations to any brand, type or model of rubber testing machinery or lab equipment. These on-site service visits and calibrations are designed to be fast and reliable with minimum down time.

MonTech employs a global team of the most qualified field service engineers, strategically positioned for cost-effective service wherever calibration services or assistance may be needed.

Our KWP preventive calibration, maintenance and service program can be tailored to the customer's environments and specific demands for test data traceability with the highest instrument precision. On-site service intervals can be scheduled to minimize the risk of any unplanned downtime.



## Service, maintenance, calibration

MonTech provides fully traceable calibration services using the latest equipment and methodology by highly skilled field service engineers keeping your instrument in a perfect shape. All work and calibration procedures are fully in compliance with ISO, ASTM, DIN and other applicable standards, proven by our ISO 9001 certification and ISO 17025 accreditation. This allows us to offer a huge scope of mechanical, dimensional, thermal and many other calibrations wherever your laboratories might be located.

Our services ensure that your testing instrumentation is reliably providing you with consistent and accurate data, instrument-to-instrument correlations and site-to-site crosschecks.

Preventive maintenance is essential to guaranteeing instrument performance in tough environments, producing accurate and reliable data and minimizing the risk of instrument breakdowns or unplanned downtime.



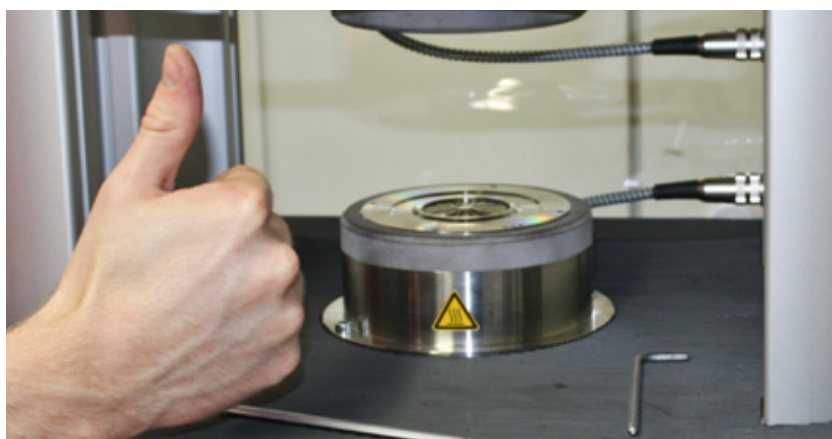
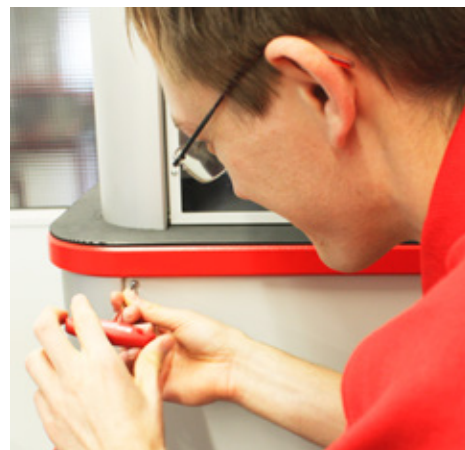
Deutsche  
Akkreditierungsstelle  
D-PL-11292-01-00  
ISO 17025:2005



**Quality Management**

We are certified

Regular voluntary monitoring  
according to ISO 9001:2008



### Remote and emergency support

Our remote and hotline provides help and support whenever it might be needed.

Whether you might have questions on specific instrument applications, test setups, test executions, results, calibrations, correlations or diagnostics and troubleshooting, our superb team of technical and application specialists is only a quick phone call away.

Dedicated MonTech remote assistance software allows us to connect directly with the instrument in your lab, helping you with full instrument diagnostics, data transfer and immediate software and firmware updates.

Our qualified team of software specialists is available for any kind of IT assistance that might be needed for your laboratory operations including software coaching, configuration, re-installation, upgrades, data export and database setup.

### Training and application support

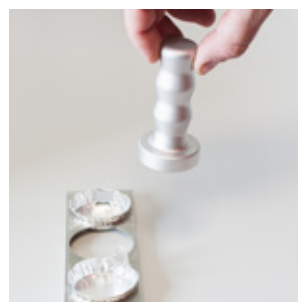
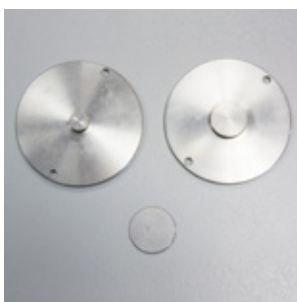
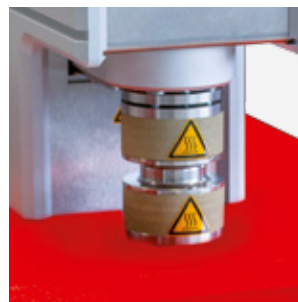
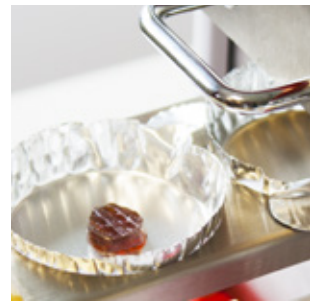
MonTech's unique range of training covers everything from basic rubber rheology and testing courses, software classes for data management and Laboratory Information Management System trainings, advanced polymer and rubber rheology seminars in different operator levels to high-end scientist courses.

MonTech helps you to ensure that you get the most benefits out of any investment in MonTech instruments or software, making these products a truly safe investment that you can rely on.

Training courses are offered at any MonTech facility or on-site in the customers laboratory with a tailored focus on their specific environment and challenges, including QA as well as R&D, consulting services for recipe development, raw materials, production and machinery including compounding and downstream processes. With these services we assist our customers to quickly increase efficiency and quality at reduced costs for an overall improved customer satisfaction and business performance requiring less internal resources.



### *Plasticity*



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