

## Marshall Test

### Marshall Compaction Mould

UTAS-0061/A - Marshall Compaction Mould ASTM 4"

UTAS-0062 - Marshall Compaction Mould ASTM 6"

The Marshall Compaction Moulds, which are made from galvanized steel, use automatic or manual compactors to create the Marshall specimens. The Compaction Moulds consist of a base plate, mould body and a collar. The Marshall Storage Plate is designed to store 6 pcs, 4" diameter Marshall specimens.

### Marshall /CBR / Proctor Specimen Extruder

UTGE-0080

The UTGE-0080 specimen extruder is used to extrude specimens from CBR, Marshall and standard & modified proctor moulds. The extruder has a capacity of 30 kN. The extruder comes complete with a manual, a hydraulic jack and 2x adaptors which are used to extrude specimens from 100mm and 150mm (inner diameter) Marshall, CBR and standard & modified proctor moulds.

### Automatic Marshall Impact Compactor

UTAS-0082/A

Automatic Marshall Impact Compactors have been created so the preparation of bituminous specimens for Marshall Stability tests can be completed using a stable and rigid machine. The UTAS-0082/A model Compactor is used for the compaction of 4" dia. specimens. The machine includes a heavy-duty design which is not affected by the constant jarring caused during the compaction process. The compactors have been created with a mould fixing mechanism, which also raises the hammer, which allows for the simple removal of the mould. This feature allows the user to easily raise the hammer and release the mould at the same time.

The control panel consists of a start/stop button and an emergency stop button. It has been placed in a convenient position for the user. The control panel also includes a direct reading counter which can be used to set the required number of blows. The user is able to easily supervise the number of blows on an LCD display.

If the number of blows has been pre-set, the machine will stop automatically once the set number of blows have occurred. The compactor can be factory installed in the UTAS-0083 soundproof safety CE security cabinet. The moulds have to be ordered separately.

## Technical Specifications

Marshall Compaction Mould		
	Dimensions	Weight (approx.)
UTAS-0061	Ø120x170 mm	3.5 kg
UTAS-0062	Ø175x210 mm	6 kg

Marshall/CBR/Proctor Specimen Extruder	
Ram Travel	130 mm
Screw Travel	90 mm
Dimensions	280x280x520 mm
Weight (approx.)	28 kg



## Marshall Test

### Marshall Stability Test Machine with Proving Ring

UTAS-0052

The UTAS-0052 50 kN capacity Marshall Stability Test Machine with proving ring is extremely useful when measuring the maximum load and flow values of bituminous mixtures. The apparatus is a bench mounted compression frame that has been manufactured with a sturdy and compact two column frame, with an upper cross beam that can be adjusted. Housed within the base unit the user can find motor and worm gear.

The lower platen is raised at a constant speed of 50.8mm/min by the mechanical jack. The speed conforms to the relevant standard. The vertical travel of the lower platen movement is limited by limit switches, which allows the user to control the machine safely. The machine has control buttons on the front panel which can control the rapid adjustment of the platen.

The UTAS-0052 Marshall Stability Machine is also suitable for testing 6" dia. specimens (152.4 mm) conforming to ASTM D5581.

The machine can be hand operated by a lateral hand wheel for calibration purposes; the hand wheel is supplied complete with the machine.

The UTAS-0052 Marshall Stability Test Machine is supplied complete with;

- Load Ring, 50 kN
- Digital Dial Gauge with Bracket, 25x0.01 mm
- Hand Wheel for Manual Control
- Breaking Head, 4"



### Manual Marshall Compaction Assembly 4"

UTAS-0070

Marshall specimens can be prepared manually using the Marshall Manual Assembly machine.

The Manual Marshall Compaction Assembly is supplied complete with;

- Wooden Compaction Pedestal
  - Steel Plate
  - Mould Holder
  - Hammer Guide
- Hammer



## Marshall Test

### BC 100 Unit TFT Graphic Display Data Acquisition and Control Unit

The BC100 Unit has been produced for the user to control the machine, as well as process the data measured by the load-cells, pressure transducers or displacement transducers on the machine.

The BC100 Unit is designed with a front panel consisting of an 800x480 pixel, 65535 colour-resistive touch screen display and function keys. All the operations that the BC100 Unit can complete are controlled by using this front panel. The unit has one analogue channel for the load cells and another analogue channel for the displacement transducers.

The BC100 Unit consists of an easy to use menu, with all menu options listed one after the other. The user is able to choose the menu option easily, or enter a numeric value to set the test parameters. The BC100 digital graphic display is able to draw real-time "Load vs. Time", "Load vs. Displacement" or "Stress vs. Time" graphs.

BC100 unit offers many addition unique features. You can save more than 10,000 test results in its internal memory. The BC100 unit also has support for various off-the-shelf USB printers, supporting both inkjet and laser printers. Thanks to its built-in internet protocol suite, every aspect of BC100 device can be controlled remotely from anywhere around the world.

#### Main Features

- Automatically calculates flow and stability values
- Can make test with displacement and limited load control
- Real time display of test graph.
- CPU card with 32-bit ARM RISC architecture
- Permanent storage capacity up to 10000 test results.
- 4 analogue channels, 2 channels are active for Marshall test
- Programmable digital gain adjustment for load-cell, pressure transducers, strain-gauge based sensors, potentiometric sensors, voltage and current transmitters
- 1/256000 points resolution per channel
- 10 data per second sample rate for each channel
- Ethernet connecting for computer interface
- 800x480 resolution 65535 colour TFT-LCD industrial touchscreen
- 4 main function keys
- Multi-language support
- 3 different unit system selection; kN, Ton and lb
- Real-time clock and date
- Test result visualization and memory management interface
- Remote connection through Ethernet
- USB flash disc for importing test results and for firmware
- USB printer support for inkjet and laser printers (ask for compatible models)
- Camera support for real-time video recording during test (ask for compatible models)
- Free of charge PC software for the test control and advanced report generation

## Marshall Test

### Data Acquisition & PC Software

Marshall Test Software is developed for both EN 12697-34 and ASTM D5581 Marshall Tests. The software includes control of machine, acquisition of load and displacement data, saving them and generating reports. The software accepts specimen diameter and height as an input parameter. It automatically calculates correction factor coming from the standards respect to specimen size. The stability value is calculated regarding to this factor. The software continuously updates load and displacement until the end of test. When the test is completed, the sharpest slope of the graph is calculated. The point that this line crosses displacement axis is commented as an offset. This offset is subtracted from the displacement value at peak point and called as flow. The report includes all these results for 9 samples. The user can see 9 of the results on the same screen for easy comparison. The software supports metric, SI and Imperial unit system.

- Foreign Language Support and Customizable User Interface Graphical data on the screen is refreshed simultaneously during test procedure
- Capable to Access and use previously done test data
- Able to edit test parameters of the testing equipment through Software
- Graphical outputs and reports can be saved as a MS Excel worksheet
- Maximum Flexibility to edit report and graph templates Foreign Language Support and Customizable User Interface



### Technical Specifications

Platen Speed	6-60 mm/min
Capacity	50 kN
Dimensions	550x700x1200 mm
Weight (approx.)	103 kg
Power	1100 W

### About PCTE

PCTE have over 30 years' experience in the measurement and testing of construction materials. PCTE can provide more than just the equipment, they can provide expert training. PCTE have a service centre in Sydney in which they can provide calibration, repairs and warranty repairs.

### Other Equipment

PCTE supply three main ranges: NDT, Lab and Geotech Instrumentation.

NDT includes: Rebound Hammers, Covermeters, Ultrasonics, GPR, Corrosion Testing, Coating Testing and Foundation Testing

Lab includes equipment for: Concrete, Cement, Aggregate, Soil, Asphalt and Metal

Geotech Instrumentation includes: Strain Gauges, Piezometers, Inclometers, Extensometers, Tiltmeters, Load Cells and Dataloggers