

**B038**

## UNTRACKER - Single Wheel Tracking Apparatus

STANDARDS: EN 12697-22 / BS 598:110

This test, developed in laboratory, consists in evaluating the deformation (rut) depth of a bituminous mixture subjected to cycles of passes of a loaded rubber wheel under constant and controlled temperature conditions.

To perform the test, a wheel tracking apparatus is used to simulate the effect of traffic and to measure the deformation susceptibility of the bituminous sample.

Matest wheel tracker performs the test as per procedures A and B (6 or 2 tests), clearly specified by the EN Standard.

section B

### Technical specifications

- The machine fully satisfies both EN 12697-22 and BS 598:110 Specifications.
- Travel of the table: 230 +/- 5 mm
- Table cycle frequency: adjustable 15 to 40 cycles per minute.
- Hard rubber tyred wheel having outside diameter 200 mm
- Wheel load on the sample:  
700N +/- 10N (EN 12697-22)  
or 520N (BS 598:110)  
The load is applied on the sample through a lever.  
The effective load applied on the sample can be adjusted by micrometrical weights positioning.
- Continuous real time rut depth measurement (penetration of the wheel into the sample) through a linear transducer 40 mm travel by 0,01 mm accuracy.
- The test frame is made of robust aluminium alloy and it is contained in a climatic cabinet with adjustable temperature from 30 to 65°C, +/- 1.0°C  
The cabinet is equipped with two doors with insulated glass for inspection

- The sample table has dimensions: 400 x 390 mm and can accept rectangular slabs of several sizes:  
305 x 305 mm, 50 or 100 mm high  
305 x 400 mm, 50 or 100 mm high  
200 mm dia. core samples, 50 mm high  
The sample confinement frames are not included and have to be ordered separately (see accessories)

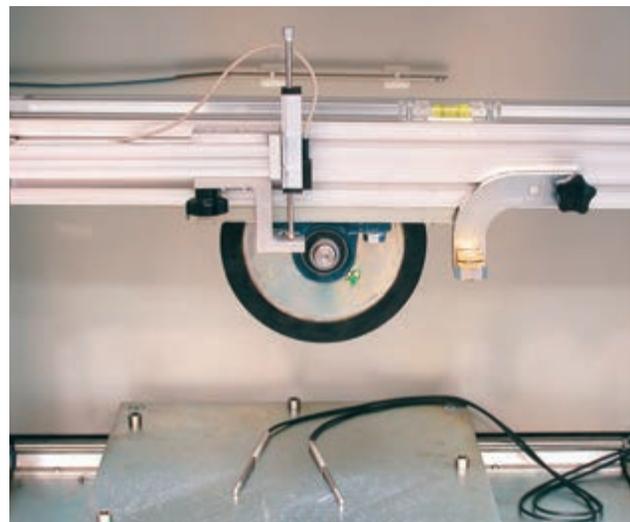
- Matest wheel tracker accepts also samples with dimensions up to 400 x 500 mm, 180 mm high (this mould can be compacted with Matest Roller Compactor)

- The machine is supplied complete with adaptors for a correct mould positioning and locking

- The wheel tracker is equipped with 3 temperature probes:  
1 probe, connected to the thermoregulator, for the control and adjustment of the cabinet temperature.  
2 probes for temperature measurement inside the specimen.



B038 with open doors



B038 detail



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**Hardware**

- Data acquisition and processing system fully managed by micro-processor.
- Multifunctions keyboard with encoder for easy and rapid setup
- Large graphic display 320x240 pixel.
- RS 232 port for connection to PC.

**Firmware**

The multilingual testing firmware allows:

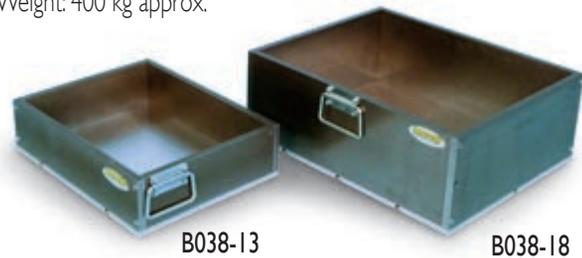
- Management and automatic control of machine and test.
- Setup of all test parameters.
- Test data acquisition and processing
- Real time display of: number of cycles, rut depth, temperatures. Real time cycle rate will also be displayed when using a serial connection to PC
- Calibration menu for setting and checking all test data.
- From the control board, it is possible to select parameters, set data acquisition and processing according to EN and BS test procedures, with:
  - Identification data of the sample (slab) under test.
  - Cycle frequency.
  - Number of passes to end the test.
  - Max rut depth to end the test.
  - Sampling frequency of the rut depth.
  - Testing temperature.
  - Sample (slab) thickness.



**B038 detail**

The use of the B038 Wheel Tracker requires connection to a PC with Windows 98, 2000, XP minimum requirements.

- Power supply: 230V 50/60Hz 1 ph 2200W
- Power rating of the table: 500 W
- Dimensions: 1580 x 650 xh 1790 mm
- Weight: 400 kg approx.



B038 with closed doors

**ACCESSORIES:**

- \* **B038-09** MOULD with HANDLES size 320 x 260 x 180 mm
- \* **B038-10** MOULD with HANDLES size 305 x 305 x 50 mm
- \* **B038-11** MOULD with HANDLES size 305 x 305 x 100 mm
- \* **B038-12** MOULD no HANDLES size 400 x 305 x 50 mm
- \* **B038-13** MOULD with HANDLES size 400 x 305 x 100 mm
- B038-14** MOULD for core sample 200 mm diameter; 50 mm high
- \* **B038-18** MOULD with HANDLES size 500 x 400 x 180 mm
- \* **B038-19** MOULD with HANDLES size 400 x 305 x 120 mm
- \* **B038-20** MOULD with HANDLES size 320 x 260 x 50 mm
- H009-01** PC complete with LCD monitor 17", keyboard, mouse, cables, installation.

**Notes:**

- \* These moulds are suitable to be used also with Matest Roller Compactor.
- Insert plates to reduce the thickness of the mould are available on request.



**B038A**

## **SMARTTRACKER™**

MULTI WHEELS HAMBURG WHEEL TRACKER; TEST ENVIRONMENT: DRY+WET  
STANDARDS: EN 12697-22 / AASHTO T-324

The Hamburg wheel tracking device can be used to determine the resistance of Hot Mix Asphalt (HMA) to rutting and moisture sensitivity. Matest model "SmarTracker™" meets and exceeds EN and AASHTO.

It is intelligently designed with innovative features and the needs of the end users in mind.

The most versatile wheel tracker on the market has independent motors for each wheel which assure separate rutting analysis of each specimen.

**Now you can perform wet or dry test with both wheels or run one wheel under dry and one wheel under wet condition simultaneously during a single test.**

Determine the creep slope, stripping inflection point and stripping slope with this state of the art and user friendly machine.

MATEST SmarTracker™ has been developed by our R&D engineers and scientific in association with some of the most experienced and reputable industry experts in the USA and the world.

**NEW**

section B



B038A

### SMART FEATURES:

- Comply with **EN 12697-22** and **AASHTO T324**.
- **No lifting of heavy wheel assemblies.** Wheels retract automatically away from samples and park into rest position.
- **Sturdy machine**, designed for the rugged construction laboratory environment stainless steel sample tanks.
- **Two independent loaded wheel systems each capable of conducting wet or dry sample tests simultaneously.**
- **Sliding sample positioning mechanism** for easy mould handling and placement in the machine.
- Does not require lifting of heavy wheel components.
- **Fully Automatic machine.** Detects and stops the test when the target rut depth is reached.
- **Touch-screen control unit based on Windows operating system** for user friendly execution of the test, management of the data and visualization of the results.
- Each of the two wheel assemblies is equipped with displacement transducers for rut measurement.
- Mechanical recirculating water bath for temperature control within  $\pm 1$  °C.
- **Easy to load, unload, drain water and clean the unit after each test.**
- Small footprint to accommodate small construction labs.



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**MATEST**

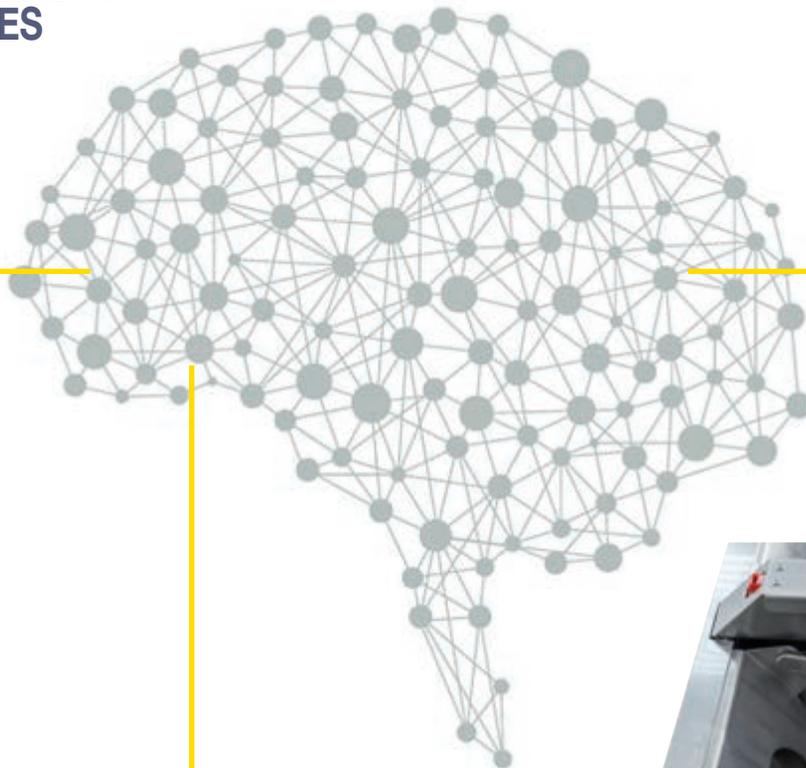
# SmarTracker™

ITS INTELLIGENT DESIGN IS JUST THE BEGINNING

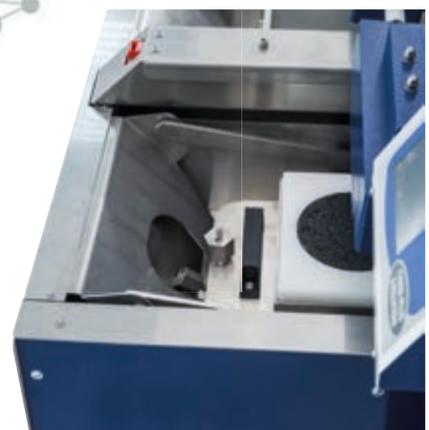


**SIMULTANEOUS  
TESTING OF  
WET AND DRY  
SAMPLES**

**WHEELS  
INNOVATIVE  
ROLL OFF  
MECHANISM**



**UNIQUE SYSTEM  
TO LOAD-UNLOAD  
THE MOULD**



section **B**



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**MATEST**

...follows...

material testing equipment

## B038A

**The SMARTRACKER™ combines smart features with the solid construction needed for the rugged laboratory environment.**

### TOP FEATURES:

- Meets and exceeds AASHTO and EN Standards
- Simultaneous testing of wet and dry samples
- Independent motors for each wheel assure separate rutting analysis of each specimen
- High performance components
- Rugged machine with ample use of stainless steel

### SAFETY FEATURES:

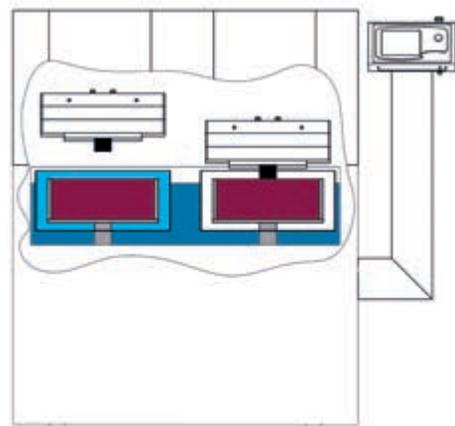
- No added stress to operators back from lifting heavy wheel assemblies
- Sample holders slide into position and eliminate demanding lifting and placement of samples into the unit
- Hood keeps technicians away from moving parts and provides better temperature control while the test is being conducted

### TESTING SOFTWARE

The user-friendly software is integrated into the on-board digital control unit based on Windows operating system. The software is fully customizable by the operator according to EN and AASHTO Standards, and the personal needs. Automatic calculation of stripping inflection point (AASHTO). Test execution and all parameters, such as water/air temperature, specimen temperature, rut depth... can be monitored in real time. The software also allows exporting test data to an Excel compatible format.



B038A open



Smarttracker while performing a dry test (right tank) + wet test (left tank) at the same time.



Real time results plot of the Rut Depth along with the no. of passes.



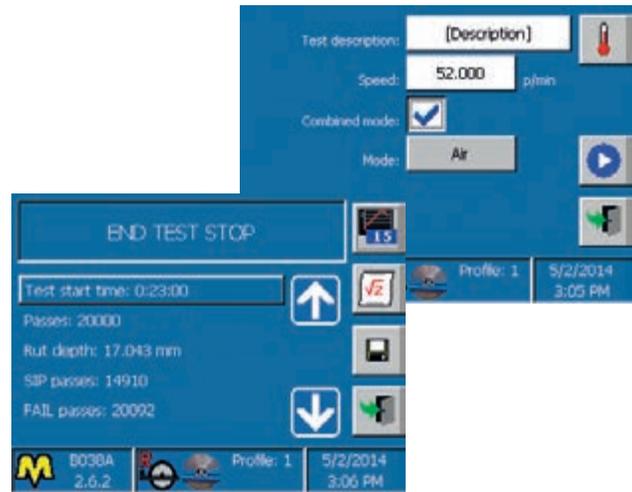
**TECHNICAL DETAILS:**

- Wheel load: 705 N
- Wheel speed: from 20 to 30 cycles/minute.
- Temperature control:  
EN 12697-22: 2500 W heaters for air temperature control, ventilation for temperature uniformity, probe for air temperature, all controlled by the electronic system.  
AASHTO T324: 4000 W heaters, recirculating pump, automatic feed and controls level.
- Temperature control range: from ambient up to 75° ± 1° C
- Table travel: 230 mm
- Rut depth transducers range: 25 mm ± 0,1 mm accuracy.
- Slab thickness: adjustable from 38 to 120 mm

Power supply: 220V 50 Hz - 110V 60 Hz

Dimensions: 1400x1300x1300 mm

Weight: 450 kg



**B038A-01**

Rubber wheel for EN 12697-22

**B038A-02**

Steel wheel for AASHTOT324

**NEEDED ACCESSORIES:**

**EN 12697-22**

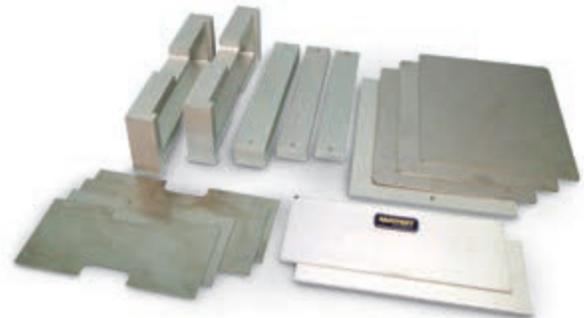
- **B038A-01** Rubber wheel 203x50 mm
- **B038A-11** EN Mould 400x305xH120 mm
- **B038A-12** Set of vertical adaptors for EN mould to allow the positioning of specimens lower than 120 mm (up to a minimum specimen thickness of 20 mm)
- **B038A-13** Set of horizontal adaptors for EN mould to allow the positioning of specimens 260x230 mm and 305x305mm

**AASHTO T324**

- **B038A-02** Steel wheel 203x47 mm
- **B038A-10** AASHTO Mould (2 cylinders dia. 150x60 mm)
- **B038A-03** Tool for AASHTO positioning

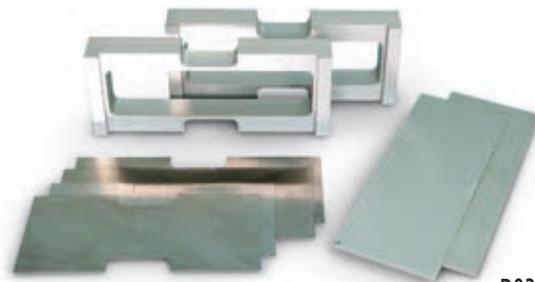


**B038A-10** AASHTO mould



**B038A-13**

Horizontal adaptors for EN moulds



**B038A-12**

Vertical adaptors for EN moulds



**B038A-11** EN mould

**OPTIONAL ACCESSORIES:**

- **B038A-04** Electrovalve group for hot water
- **B038A-05** Air heating system for air conditioning test EN 12697-22
- **B038A-06** Probe for specimen's temperature determination
- **B038A-14** Verification KIT for the calibration of the wheel load

