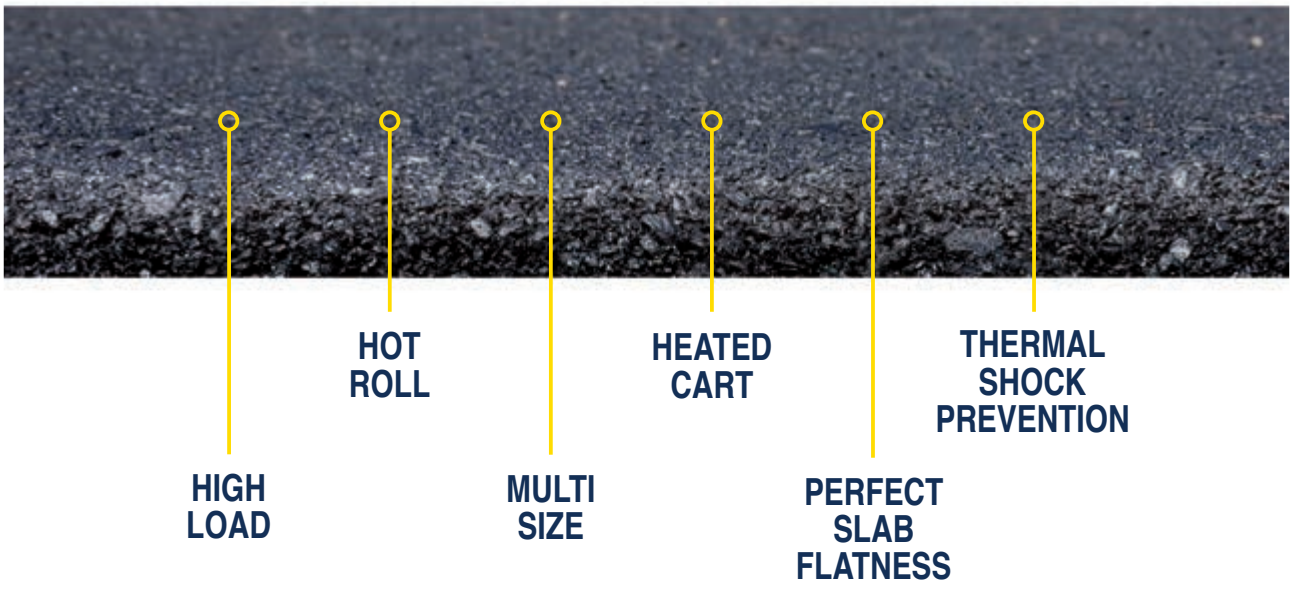
ARC

ASPHALT ROLLER COMPACTOR

meets and exceeds EN 12697-33

THE FIRST ELECTROMECHANICAL SYSTEM FOR THE BEST SPECIMEN DENSITY



B039

ARC - Asphalt Roller Compactor

TECHNICAL SPECIFICATIONS:

- Possibility to use **standard or heated segment rollers of different sizes** (see accessories): width up to 400 mm, length up to 500 mm and radius 490 mm, to obtain slabs of
  320x260 mm, thick up to 180 mm
  305x305x25 to 100 mm thick
  400x305x25 to 100 mm thick
  500x400 mm, thick up to 180mm
- Vertical force selectable up to max. 40 kN
- **Programmable density target compaction**
- Policarbonate safety guard as requested by CE Directive
- Possibility to **perform the two-phase procedure (Pre-compaction and Compaction)** as specified by TP Asphalt-StB 33 **or even just one of them** NEW
- The required n° of passes can be set before starting the test allowing an accurate test control by n° of passes NEW
- **Sliding carriage speed adjustable** between 3 m/min and 12 m/min NEW
- **Detailed output file** listing each pass and displaying duration, sample height, applied load and eventual roller and cart temperature NEW

B039
with open guard

...follows...

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ARC - Asphalt Roller Compactor, Electromechanical system High load, hot roll, multi size

STANDARD: **EN 12697-33**

NEW

Asphalt Roller Compactor is entirely developed and manufactured by Matest. The machine works with an **electromechanical system, and therefore it does not require any air source (compressor) or hydraulic pressure**.
It is used to produce representative sample slabs of several dimensions of bituminous mixtures laid and compacted on site.
The compaction is performed through a segmented roller with alternated operated rotation which simulates the on-site action of a street roller. The compaction cycle can be programmed in accordance to a certain load or deformation value.
The flexibility of the program grants the production of samples with uniform density and dimensions, fully meeting Standards specifications and research requirements; these samples are compatible for rut test with Matest Wheel Tracking apparatus B038 (see page 98).
The sample slabs can be also cored or cut off to obtain cylinders and beams for bending fatigue, indirect tensile, static and dynamic creep, stiffness, and 4-point tests.

B039

MAIN FEATURES:

- **Sturdy frame made of steel**
- Mould supporting table with alternating displacement system, for table displacement and vertical load pressure
- **Integrated touch screen control unit based on Windows operating system**. The control unit runs like a standard PC for the management and analysis of data, test results, graphs.

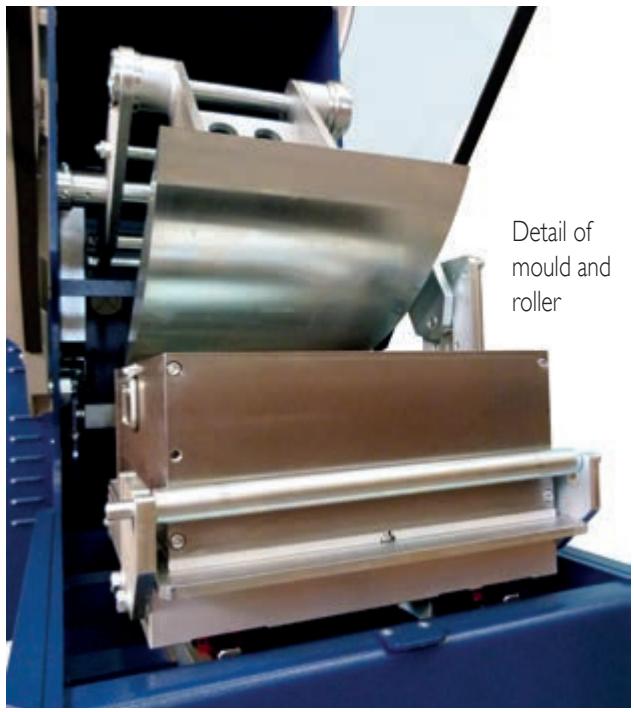
  The **touch-screen icon interface** allows an easy set up of the parameters and an immediate execution of the test.
- **Direct Internet and Intranet** (LAN) **connection for remote technical assistance**. This features allows operators to establish a remote communication and receive software updates or an immediate diagnostic analysis of the potential problem from Matest technicians. Hardware technical details: see pag. 24
- **Unlimited memory storage** with: 2 USB ports, 1 SD card slot.
- **Heating of the segment roller** (optional)
- Simple and quick roller and mould positioning
- **Perfect horizontal flatness of the slab surface**
- **Uniform density and dimensions of the slabs**
- Easy to maintain

Detail of the control panel

Three transducers are installed to manage the roller and table displacements and vertical load pressure.
The compaction cycle can be programmed up to a certain load or deformation value. When deformation value is programmed, the system automatically programs the suitable loads to obtain the selected final thickness.
The flexibility of the program grants the production of samples with uniform density and dimensions, fully meeting Standards Spec. and Research requirements.
A friendly and easy to use interface allows an immediate and fully automatic test execution, data acquisition and processing, test report and file.

The Roller Compactor is supplied **"without"** roller segment, slab mould, centering plate, that must be ordered separately (see accessories).

Power supply: 230V 50/60Hz 1ph 2100W (3100W with the heated segment roller)
Dimensions: 2200x1030 xh 1880 mm (2410mm with opened guard)
Weight: 1300 kg



Detail of mould and roller

ACCESSORIES:

"STANDARD" SEGMENT ROLLER, available dimensions:

B039-04 ROLLER for 320x260mm mould
B039-05 ROLLER for 500x400mm mould
B039-06 ROLLER for 400x305mm mould
B039-07 ROLLER for 305x305mm mould

MOULD to prepare asphalt slabs. Complete with handles. Available dimensions:

B038-09 MOULD for slabs 320x260x180mm
B038-10 MOULD for slabs 305x305x50mm
B038-11 MOULD for slabs 305x305x100mm
B038-12 MOULD for slabs 400x305x50mm (no handles)
B038-13 MOULD for slabs 400x305x100mm
B038-18 MOULD for slabs 500x400x180mm
B038-19 MOULD for slabs 400x305x120mm
B038-20 MOULD for slabs 320x260x50mm

B039-21 Centering Plate for 400x305mm mould
B039-22 Centering Plate for 305x305mm mould
B039-23 Centering Plate for 320x260mm mould

B039-15 ROLLING VIBRATING DEVICE, reproducing street-roller vibrations during asphalt laying off.

Heating of Segment Roller and Sliding Cart

Possibility to heat and control temperature of the Segment Roller mounted on the Compactor and Sliding Carriage to keep the mould warm and avoid thermal shocks the might affect specimen's workability

The equipment is composed by:

B039-02
Control Unit

Mounted in the Roller Compactor, it foresees a thermoregulator circuit, complete with probe to measure and to adjust the temperature from room up to 180°C.
It is connected to the segment roller equipped with heating resistances.

"HEATED" SEGMENT ROLLER, complete with heating resistances. Available dimensions:

B039-04R ROLLER for 320x260mm mould NEW
B039-05R ROLLER for 500x400mm mould NEW
B039-06R ROLLER for 400x305mm mould NEW
B039-07R ROLLER for 305x305mm mould NEW

B039-03
Sliding Cart Heating Option

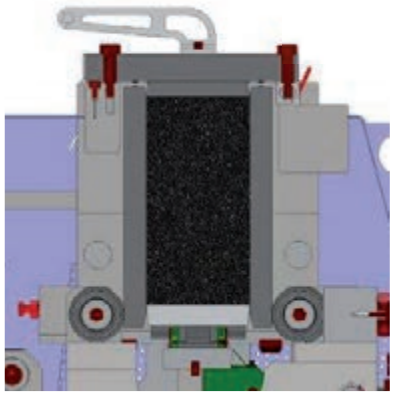
Thermoregulated circuit with temperature probe to set and control cart temperature and keep mould hot

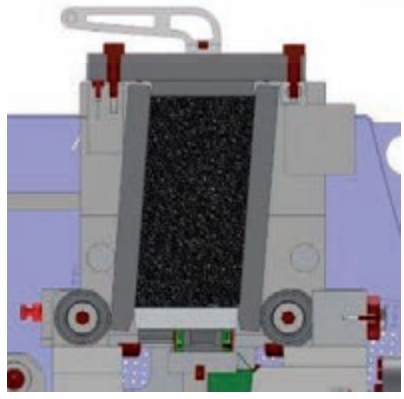
B039A

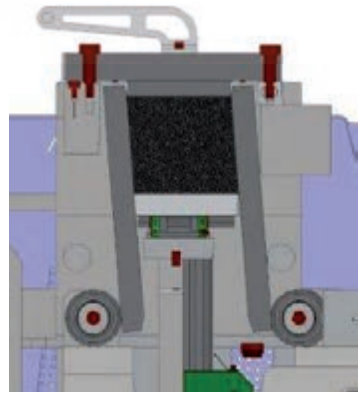
ASC - Asphalt Shear box Compactor

Asphalt technologists are acutely aware of the importance of a representative specimen during any laboratory performance testing.
The precise shearing motion of the ASC replicates the conditions of field compaction in order to reproduce the field properties of asphalt, quickly and easily under the controlled conditions of a laboratory.
The ASC compacts large asphalt prisms that can be sawn to produce four to six beams or slabs for laboratory wheel tracking; or the prism can be cored to produce three to four 100mm diameter cylinders, all having essentially identical properties.
The electronic control unit with touch screen color display operates like a standard Windows based PC for the management and analysis of the data, test results and graphs.
The user friendly touch-screen icon interface allows for easy set up parameter entry, enables immediate (fully automatic test execution) data acquisition/processing, test report, and data file generation.
A LAN connection to Intranet/Internet enables remote communication to receive immediate diagnostic analysis and technical support from Matest technicians, and/or software updates.

B039A







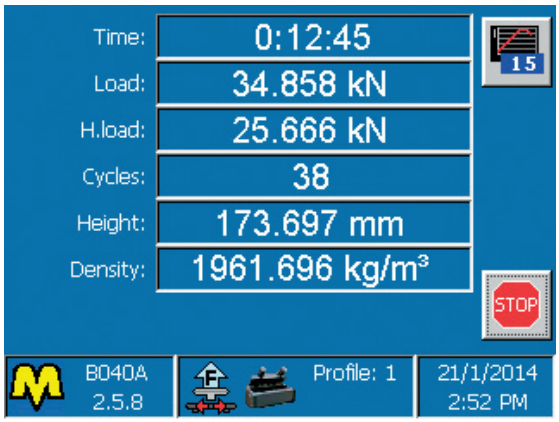
During the compaction process a lateral displacement is applied to the specimen along with a vertical load, which results in a shearing action that makes the compaction similar to the the on-field one.

MAIN FEATURES:

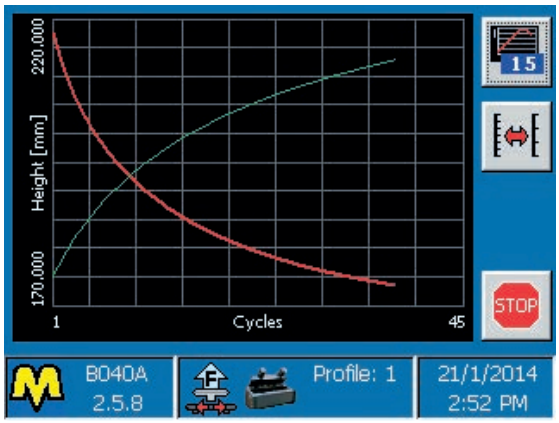
- Extremely sturdy fabricated frame combined with precision machined components
- Servo hydraulic vertical ram with integral hydraulic power supply
- Precision electro-mechanical shearing motion
- Integral specimen extruder
- Electronic control unit with touch screen color display (no need for PC)
- Unlimited memory storage with: 2 USB ports, 1 SD card slot , RS232/485 serial port
- The compaction cycle can be programmed by specifying vertical stress/load and test termination conditions; Number of cycles, Specimen height and/or density
- ASC can be equipped with a load cell for shear stress measurement, upon request

TECHNICAL SPECIFICATION:

Vertical force:	Up to 100kN
Shearing force:	Up to 50kN
Shear angle:	4° ± 0.1°
Shearing cycle rate:	3 ± 0.1 gyrations per minute
Mould width:	150mm ± 0.1mm
Mould length:	450mm ± 0.1mm
Mould surface finish (inside):	Smoother than 0.4µm rms
Mould surface hardness:	More than 48 Rockwell C
Mould capacity:	Approx. 20 litres
Loading platen width:	149mm ± 0.2mm
Loading platen length:	449mm ± 0.2mm
Loading platen smoothness:	Smoother than 0.4µm rms
Loading platen surface hardness:	More than 48 Rockwell C
Number of cycles:	Up to 100
Vertical stress:	0.1 to 1.5MPa ± 0.01MPa
Compaction height:	145mm to 185mm ± 0.1mm
Power supply:	230V 1ph 50/60Hz
Dimensions:	788x1360x(H)1314mm
Weight:	1200 kg



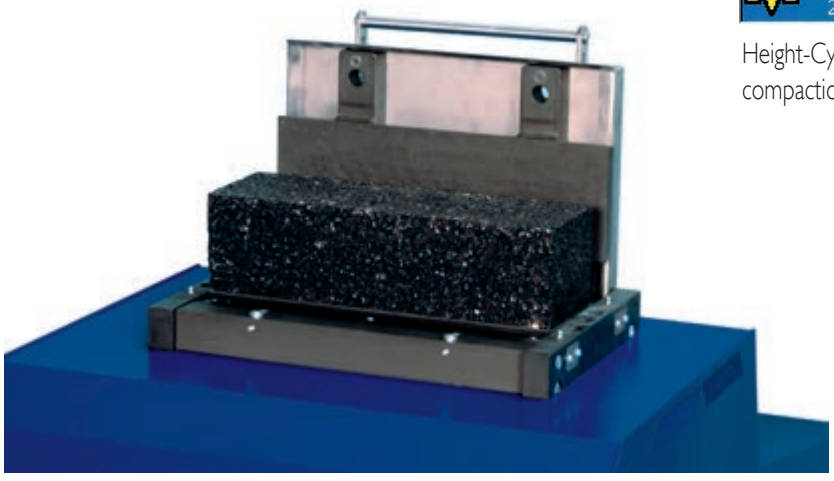
Test parameters during compaction



Height-Cycles and Density-Cycles curves during compaction

ACCESSORIES:

B039A-01 Loading Chute
B039A-02 Tray (2 off)
B039A-03 Spreading comb
B039A-04 Leveling blade



Specimen is extruded after the machine has completed the specified number of cycles, or when the required specimen height has been reached.
An automatic extruder allows an easy extraction of the compacted specimen.