



ADVANCED PAVEMENTS TESTING SYSTEMS

Electromechanical Multisize Slab Compactors



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Standards EN 12697-33 method 5.2 | ASTM D8079

The Slab compactors can compact asphalt slabs to a target density applying specific loads corresponding to those of pavements rollers used in the highway construction.

The slab produced can be used for:

- Wheel tracking test down to 38 mm thickness
- Cored to provide specimens for indirect tensile, static and dynamic creep tests
- Cut into beams for bending fatigue tests



The Slab compactors are proposed in two versions:

Advanced model

77-PV41C05

77-PV41C06

which also satisfies the compaction procedure of the brand new EN 12697-33 method 7.3, and includes other important features as specified afterwards.

Standard model

77-PV41A02

77-PV41A04



General description

(both models)

Electromechanical slab compactors feature a compacting system by roller segment head radius 535 mm.

The roller segment freely moves by simple friction for better compaction uniformity.

A brushless motor (Standard models), or stepper motor (advanced motors) moves vertically the roller segment under displacement control. The vertical load is applied orthogonally to the axis of the travel motion. The mold carriage moves back and forth by linear movement. The longitudinal (major) mold dimension correspond to the compaction direction so it is possible to obtain specimens of the proper length conforming to Standards. The lifting machine cover permit an easy access to the mold area. In the "rest" position, the mold is close to the operator for easy positioning while the roller segment is lifted and positioned at the back of the machine.

Multisize Advanced Model



main features

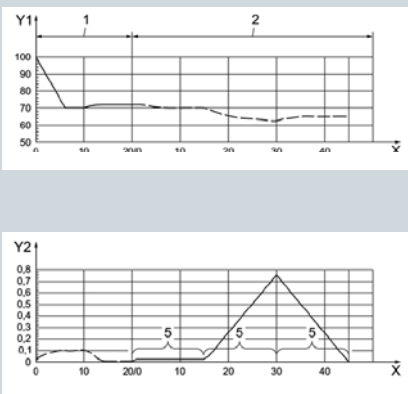
- > Completely electromechanically operated
- > Possibility to program user-defined procedures as free combination of load and displacement (or combined) controlled cycles
- > Conforming to EN 12697-33, 5.2 method and D8079
- > 21" All-in-one touchscreen PC controlled, PC and software included
- > Includes the compaction procedure defined in the brand new EN 12697-33 method 7.3, providing at the beginning a controlled displacement compaction which can grant a flat surface followed by a load compaction phase, which can replicate the real compaction on the road surface
- > Base and foot adjustable heating system available as an option
- > Mold dimensions: 500 x 400, 500 x 300, 400 x 300, 300 x 300 and 320 x 260mm, 195mm height
- > Compaction direction in the longest (major) mold dimension to obtain specimens of the proper length conforming to Standard
- > Vertical balanced of sliding cover for easy access and complete three side view
- > Maximum compaction load 30 kN
- > User defined controlled linear speed up to 300 mm/sec and adjustable pause at the mold inversion point
- > Ideal for producing test beams for 4-Point bending (EN 12697-24, EN 12697-26, AASHTO T321) and slabs down to 38mm
- > Vibrating roller option, adjustable from 10 to 50 Hz
- > PRO-COMPACT* closed loop control slabs
- > Customization of compacting cycle which can be saved and recalled from the data base

IMPORTANT NOTE

Performance of the energy controlled compaction procedure conforming to
EN 12697-33 Annex 7.3.2

The combined load/displacement compaction procedure provides at the beginning of the test a controlled displacement compaction, which can grant a flat surface of the compacted slab, followed by a load compaction phase, which can replicate the real compaction on the road surface.

Both versions allow the performance of the energy-controlled compaction procedure required by new EN 12697-33 Annex 7.3.2, composed by a fixed combination of displacement controlled cycles and load controlled cycles.



Multisize standard model

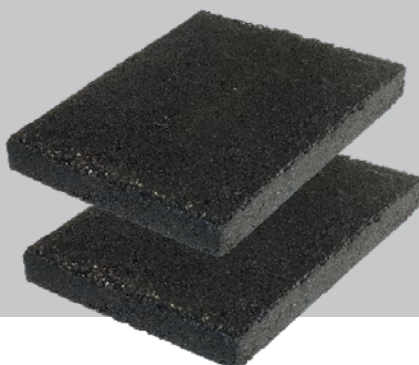
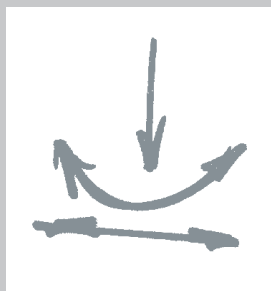


main features

- > Completely electromechanically operated
- > Conforming to EN 12697-33, 5.2 method and D8079
- > 8" touchscreen controller
- > Automatically compacts in displacement controlled mode up to target density/height or up to the (user selectable) load limit
- > Mould dimensions: 500 x 400, 500 x 300, 400 x 300, 300 x 300 and 320 x 260 mm, 195 mm height
- > Compaction direction in the longest (major) mould dimension to obtain specimens of the proper length conforming to Standard
- > Vertical balanced of sliding cover for easy access and complete three side view
- > Maximum compaction load 30 kN
- > User defined controlled linear speed up to 300 mm/sec and adjustable pause at the mould inversion point
- > Ideal for producing test beams for 4-Point bending (EN 12697-24, EN 12697-26, AASHTO T321) and slabs down to 38 mm
- > Adjustable heating control system of the sector heads available as option
- > Vibrating roller option, adjustable from 10 to 50 Hz
- > *PRO-COMPACT closed-loop control slab

*PRO-COMPACT closed-loop.

closed-loop is an innovative mechanical and electronic control that combines orthogonality of the load, pendulum motion of the head and sinusoidal non-friction forward-reverse carriage movement. This results in an optimally compacted sample that features **Planarity** **Regularity** and **hOmogeneity** (PRO).



Technical specifications

Models	Multisize Advanced model 77-PV41C05 / 77-PV41C06	Multisize Standard model 77-PV41A02 / 77-PV41A04
Machine control	Vertical load and/or displacement control of the roller segment by stepper motor, measured directly by linear transducer to verify in real time the specimen thickness for more accuracy - Real time measurement and control with a closed loop logic of compaction load by two precision strain gauge load cells. This system permits to verify possible discrepancies of the compaction due to the wrong distribution of asphalt in the mould and to any other unexpected malfunctions, with warning to the operator - Machine fitted with sensors to confirm the mould in position and for the automatic set-up of the horizontal travel	- Vertical displacement of the roller segment by brushless motor measured directly by encoder to verify in real time the specimen thickness - Machine fitted with sensors to confirm the mould in position and for the automatic set-up of the horizontal travel
Firmware /Software	Software -21"Touchscreen integrated PC -Fully programmable PC software operating in Windows® -Set up of customized compaction sequence as free combination of load/displacement controlled cycles -Selection, customization and storing of test parameters -Customization of the compacting sequence to be saved and recalled from the database -Graphic display of displacement / force vs. number of passes or load vs. displacement	Firmware Set up of compaction procedure with displacement control with load, density or thickness limit. - Selection, customization and storing of test parameters - Customization of the compacting procedure to be saved and recalled from the data base - Graphic display of roller vertical displacement vs. number of passes - Possibility to pre-set a load threshold to start compaction at the contact of the sector head with the specimen
Max. vertical force	30 kN	30 kN
Load measurement	By two precision load cell	-
Compacting device	Roller segment, radius 535mm	Roller segment, radius 535mm
Back and forth horizontal travel	Adjustable: 300/320mm 400mm 500mm By software	Adjustable: 300/320mm 400mm 500mm By control panel
Trolley speed	Adjustable up to 300 mm/s Adjustable pause at inversion point	Adjustable up to 300 mm/s Adjustable pause at inversion point
Mould dimensions*	320 x 260 x 195mm 300 x 300 x 195mm 400 x 300 x 195mm 500 x 300 x 195mm 500 x 400 x 195mm	320 x 260 x 195mm 300 x 300 x 195mm 400 x 300 x 195mm 500 x 300 x 195mm 500 x 400 x 195mm
Roller vibration	Yes, adjustable frequency from 10 to 50 Hz (optional)	Yes, adjustable frequency from 10 to 50 Hz (optional)
Heated foot	Yes (optional)	Yes (optional)
Heated base	Yes (optional)	-
Electrical supply	380 V, 50 Hz, 3ph, or 220 V, 60 Hz, 3ph	230 V, 50–60 Hz, 1ph or 110 V, 60 Hz, 1ph
Power rating	3000 W	3000 W
Overall dimensions (lxwxh)	1300 x 800 x 2040mm	1300 x 800 x 2040mm
Weight approx.	650 kg	650 kg

*To produce slabs down to 38mm thickness. Maximum slab thickness varies with bitumen mixes composition.

Ordering information

77-PV41C05

Advanced Multi-size electromechanical slab compactor. For compaction of moulds 500x400 mm, 500x300 mm, 400x300 mm, 300 x 300 mm and 320 x 260 mm, 195 mm high. Includes the compaction procedure defined in the brand new EN 12697-33 7.3 and the PRO-COMPACT control feature. Controlled by all-in-one touch-screen integrated PC, load and deformation measurement, software controlled mould travel, performing user defined free combination of load/displacement controlled compaction sequences. Supplied without moulds and compaction sector heads (see accessories). 380V/50Hz/3ph+N

77-PV41C06

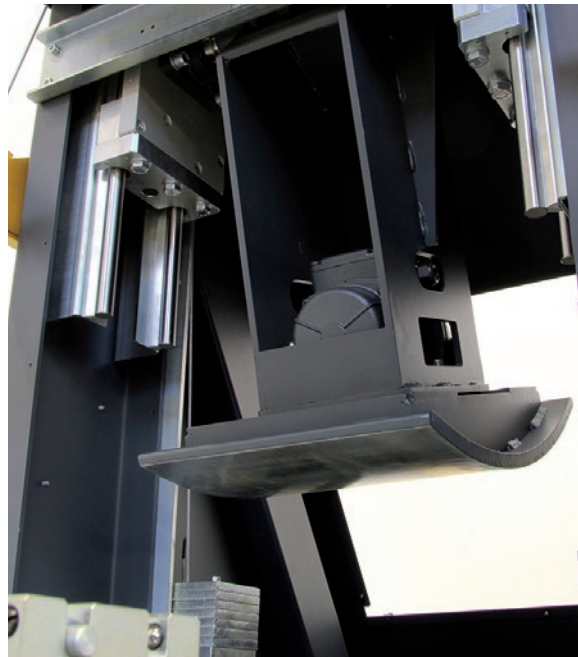
Advanced Multi-size electromechanical slab compactor. Same as above but 220 V, 60 Hz, 3 ph

77-PV41A02

Standard Multi-size electromechanical slab compactor. For compaction of moulds 500x400 mm, 500x300 mm, 400x300 mm, 300 x 300 mm and 320 x 260 mm, 195 mm high. Supplied without moulds and compaction sector heads (see accessories). 230 V, 50-60 Hz, 1 ph

77-PV41A04

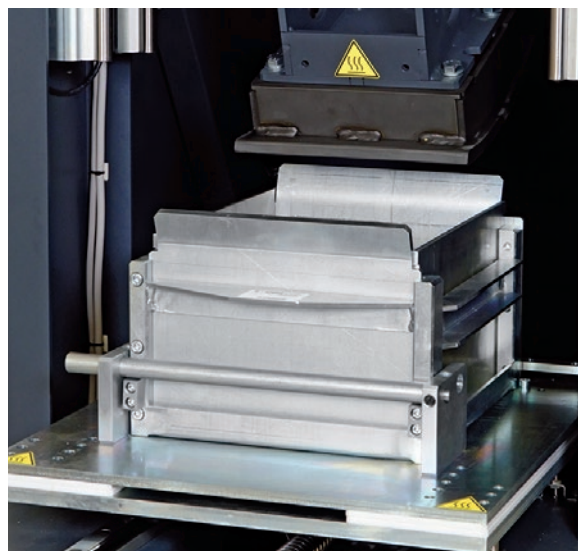
Standard Multi-size electromechanical slab compactor. Same as above but 110 V, 60 Hz, 1 ph



Detail of segment head incorporating vibration unit



Optimally compacted sample that features planary regularity and homogeneity (PRO)

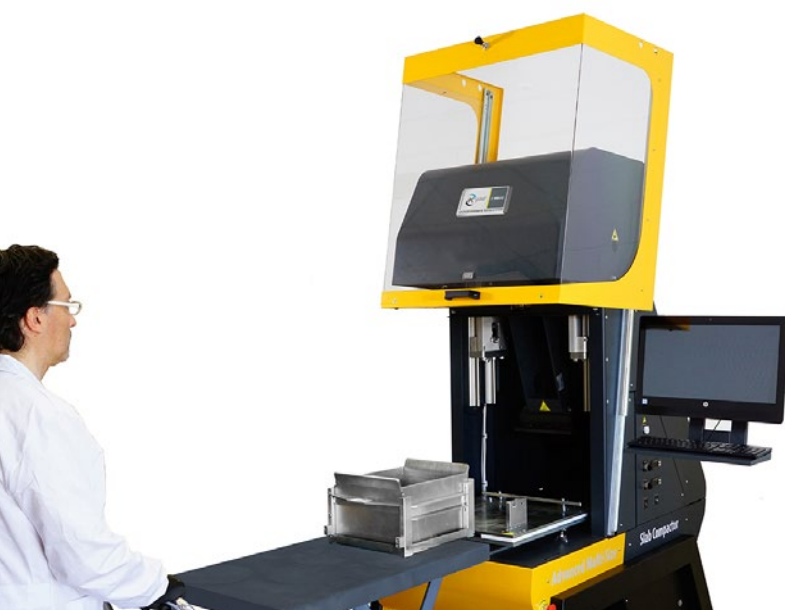


Detail of segment head and mould



500 x 400 mm slab and lead rolled ball screw system

Detail of the vertical sliding cover for easy access and three sides view



Accessories (for all models)

Interchangeable sector heads

77-PV42001

Interchangeable sector head to produce slabs 320mm long x 260mm wide

77-PV43001

Interchangeable sector head to produce slabs 300mm long x 300mm wide

77-PV44001

Interchangeable sector head to produce slabs 400 mm long x 300 mm wide

77-PV45001

Interchangeable sector head to produce slabs 500mm long x 300mm wide

77-PV46001

Interchangeable sector head to produce slabs 500mm long x 400mm wide

Interchangeable sector heads complete with heating system

To be completed with 77-PV43012 Temperature control system (see Upgrading options)

77-PV42011

Interchangeable sector head to produce slabs 320mm long x 260mm wide. Complete with heating system.

77-PV43011

Interchangeable sector head to produce slabs 300mm long x 300mm wide. Complete with heating system.

77-PV44011

Interchangeable sector head to produce slabs 400mm long x 300mm wide. Complete with heating system.

77-PV45011

Interchangeable sector head to produce slabs 500mm long x 300mm wide. Complete with heating system.

77-PV46011

Interchangeable sector head to produce slabs 500mm long x 400mm wide. Complete with heating system.

Moulds

77-PV42102

Steel mould 320 x 260mm, 195mm high, to be filled at 155mm max.

77-PV43102

Steel mould 300x300 mm, 195mm high, to be filled at 155mm max.

77-PV44102

Steel mould 400x300 mm, 195mm high, to be filled at 155mm max.

77-PV45102

Steel mould 500 x 300mm, 195mm high, to be filled at 155mm max.

77-PV46102

Steel mould 500 x 400mm, 195mm high, to be filled at 155mm max.

Upgrading options

Heating control system

of sector heads fitted with heating system (to be specified at the time of order)

77-PV43012

Compaction sector heating system. Adjustable up to 140°C.

Heated base option, only suitable for the Advanced models. (to be specified at the time of order).

77-PV41C00/UP

Heating system incorporated in mould base support, to maintain test temperature. Adjustable up to 120°C.

Vibrating roller option,

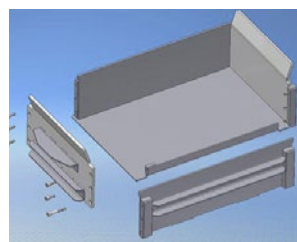
adjustable from 10 to 50 Hz (to be specified at the time of order)

77-PV43042

Vibrating roller option.



Detail of interchangeable sector head
The sector head can be easily removed and replaced to produce slabs of the alternative dimensions.



Moulds. Schematic assembly layout.
Two sides only are removable, to guarantee the correct geometry.



Heating system incorporated in mould base support



77-PV42102 to 77-PV46102



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