



ADVANCED PAVEMENTS TESTING SYSTEMS

# Electromechanical Multisize Slab Compactors



## Electromechanical Multisize Slab Compactors

**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

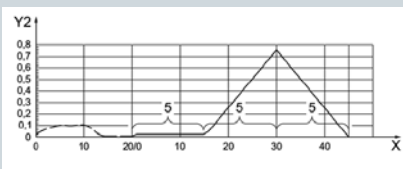
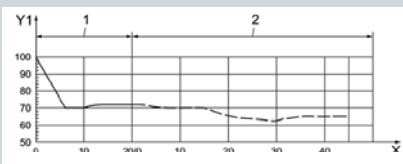
- > Completely electromechanically operated
- > Possibility to program user-defined procedures as free combination of load and displacement (or combined) controlled cycles
- > Conforming to EN 12697-33, 5.2 method and D8079
- > 21" All-in-one touchscreen PC controlled, PC and software included
- > Includes 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

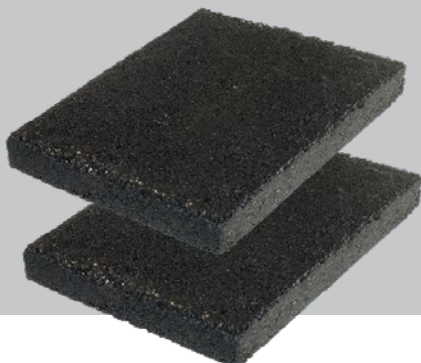
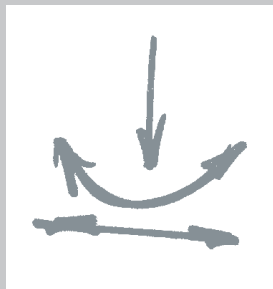


### main features

- > 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
<b>Machine control</b>	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
<b>Firmware /Software</b>	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
<b>Max. vertical force</b>	30 kN	30 kN
<b>Load measurement</b>	By two precision load cell	-
<b>Compacting device</b>	Roller segment, radius 535mm	Roller segment, radius 535mm
<b>Back and forth horizontal travel</b>	Adjustable: 300/320mm 400mm 500mm By software	Adjustable: 300/320mm 400mm 500mm By control panel
<b>Trolley speed</b>	Adjustable up to 300 mm/s Adjustable pause at inversion point	Adjustable up to 300 mm/s Adjustable pause at inversion point
<b>Mould dimensions*</b>	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
<b>Roller vibration</b>	Yes, adjustable frequency from 10 to 50 Hz (optional)	Yes, adjustable frequency from 10 to 50 Hz (optional)
<b>Heated foot</b>	Yes (optional)	Yes (optional)
<b>Heated base</b>	Yes (optional)	-
<b>Electrical supply</b>	380 V, 50 Hz, 3ph, or 220 V, 60 Hz, 3ph	230 V, 50–60 Hz, 1ph or 110 V, 60 Hz, 1ph
<b>Power rating</b>	3000 W	3000 W
<b>Overall dimensions (lxwxh)</b>	1300 x 800 x 2040mm	1300 x 800 x 2040mm
<b>Weight approx.</b>	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**

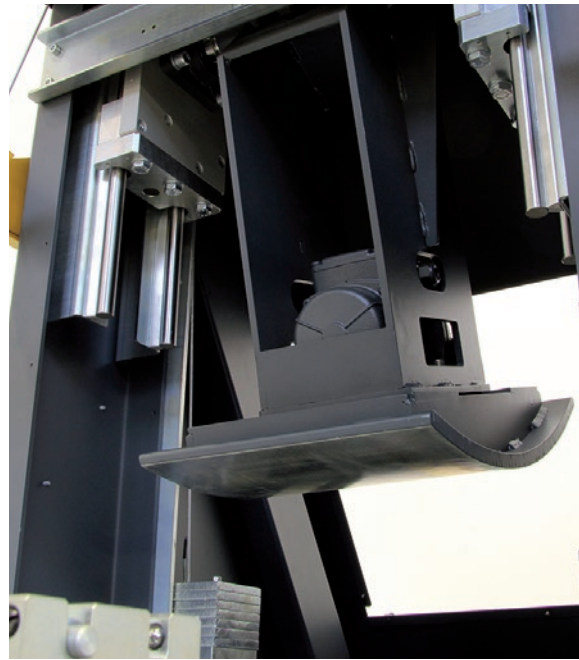
Advanced Multi-size electromechanical slab compactor. Same as above but 220 V, 60 Hz, 3 ph

**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). 230V, 50-60 Hz, 1 ph

**77-PV41A04**

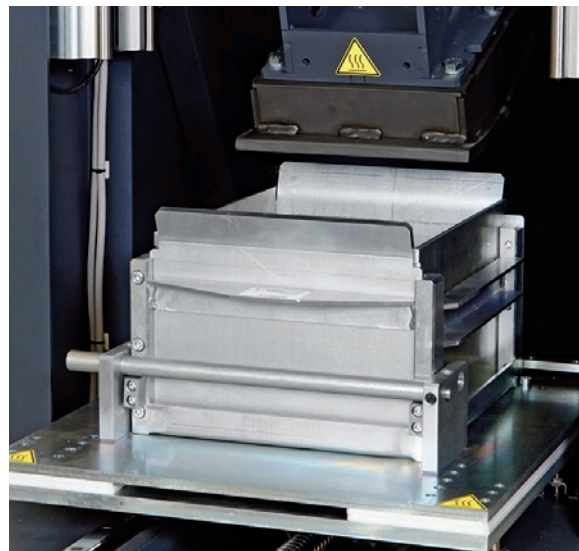
Standard Multi-size electromechanical slab compactor. Same as above but 110V, 60 Hz, 1 ph



Detail of segment head incorporating vibration unit



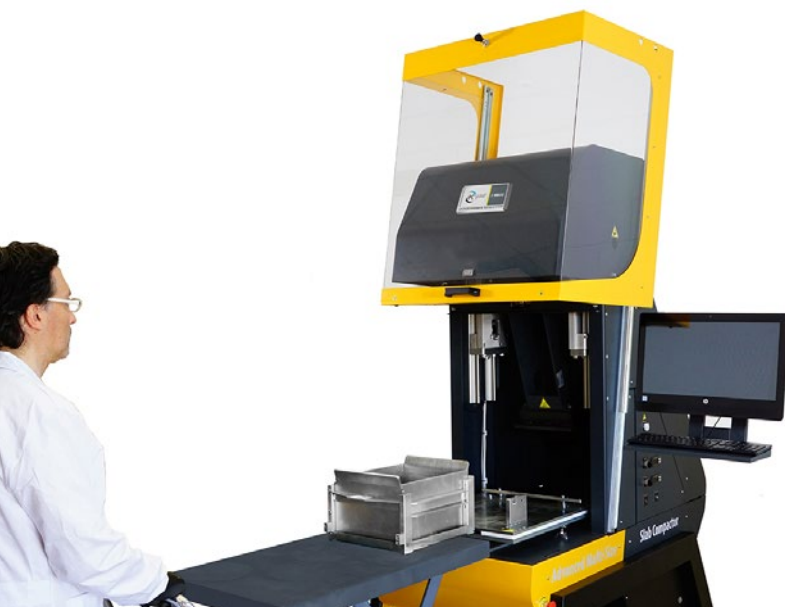
Optimally compacted sample that features planary regularity and homogeneity (PRO)



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.

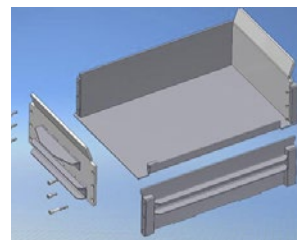
**Vibrating roller option,** adjustable from 10 to 50 Hz (to be specified at the time of order)

**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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