

Advanced asphalt slab roller compactor

PAVELAB SYSTEMS Advanced electro-mechanical multi-size slab compactors, closed loop control system



- ▶ Completely electro-mechanically operated
- ▶ 21" All-in-one touchscreen PC controlled, PC and software included
- ▶ PRO-COMPACT closed loop control slabs
- ▶ Mould dimensions: 500 x 400 mm, 500 x 300 mm, 400 x 300 mm, 300 x 300 mm and 320 x 260 mm, 195 mm high
- ▶ Conforming to EN 12697-33, 5.3 method
- ▶ Base and foot adjustable heating system available as accessory
- ▶ Includes the compaction procedure defined in the brand new EN 12697-33 method 7.3
- ▶ Compaction direction in the longest (major) mould dimension to obtain specimens of the proper length conforming to Standar
- ▶ Possibility to define user defined procedures as free combination of load and displacement controlled cycles
- ▶ Customization of compacting cycle which can be saved and recalled from the data base
- ▶ Vertical balanced 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)
- ▶ Moulds easy to install and to remove
- ▶ Safety systems conforming to CE standards

Standards EN 12697-33

The advanced slab roller compactor MASTERCOMP can compact asphalt slabs to a target density applying specific loads corresponding to those of pavements rollers used in the highway construction.

The produced slabs can be used for:

- Wheel tracking tests, 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 machine can be used with moulds 500 x 400 mm, 500 x 300 mm, 400 x 300 mm, 300 x 300 mm and 320 x 260 mm, 195 mm high, by completing it with the suitable accessories. Maximum slab thickness varies with bitumen mixes composition.

The horizontal movement of the mould is applied by a brushless motor with user-defined controlled linear speed and adjustable pause at the mould inversion point. The longitudinal (major) mould dimension correspond to the compaction direction so it is possible to obtain specimens of the proper length conforming to Standards.

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CUSTOMER'S VALUE
 DRIVES THE INNOVATION

***PRO-COMPACT 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). 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.**

All versions feature a solid high stiffness steel frame, with ergonomic design and safety devices conforming to CE standards.

Featuring a compacting system by roller segment head radius 535 mm, the roller segment freely moves by simple friction for better compaction uniformity. A stepper motor moves vertically the roller segment under displacement and load control. The vertical load is applied orthogonally to the axis of the travel motion. The lifting machine cover permits an easy access to the mould area. In the "rest" position, the mould is closed to the operator while the roller segment is lifted and positioned at the back of the machine.

The machine features a customized electronic card control with 21" touchscreen PC.

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

Unique feature

As recommended by new EN 12697-33 chapter 7.3, the combined load/displacement compaction procedure provides at the beginning 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.

Machine control

- Vertical displacement of the roller segment by stepper motor, measured directly by linear transducer to verify in real time the specimen thickness to eliminate the errors due to the deformation of the machine structure
- Real time measurement and control with a closed loop logic of compaction load by two precision strain gauge load cells. The dual cell system permits to verify possible discrepancies of the compaction due to the wrong distribution of asphalt in the mould and any other unexpected malfunctions, with warning to the operator.
- The machine is fitted with sensors to confirm the mould in position and for the automatic setup of the horizontal travel.

MOULD DIMENSIONS: 500 x 400 mm, 500 x 300 mm, 400 x 300 mm, 300 x 300 mm and 320 x 260 mm, 185 mm high.

The longitudinal (major) mould dimensions correspond to the compaction direction, to obtain specimens of the proper length conforming to standards.

Technical specifications

Models	77-PV41C05 77-PV41C06
Machine control	By 21" touch screen PC (Included)
Operation	Electro-mechanical
Max. vertical force	30kN
Load measurement	by two load cells
Compacting device	Roller segment radius 535 mm
Back and forth horizontal travel	Adjustable by software: 300/320 mm 400 mm 500 mm
Trolley speed	Adjustable up to 300mm/s Adjustable pause at inversion point
Mould dimensions*	320x260x195** mm 300x300x195** mm 400x300x195** mm 500x300x195** mm 500x400x195** mm
Heated head	Yes (optional)
Heated base	Yes (optional)
Roller vibration	Yes, adjustable frequency from 10 to 50Hz (optional)
Power rating	3000 W
Electrical supply	380 V 50 Hz, 3 ph or 220 V 60 Hz, 3 ph
Overall dimensions (lxwxh)	1300x800x2040 mm
Weight approx	650 kg

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

** Model 77-PV40C05 / 77-PV40C06 suitable for 120mm high moulds is available

Upgrading options (to be specified at the time of order)

- Heating system control for sector heads fitted with heating system
- Base heating system, to maintain the mould and sample temperature
- Roller segment vibrator, to simulate the on-site vibratory rollers.
Adjustable frequency from 10 to 50 Hz

An alternative model is available, suitable for low-thickness slab, featuring moulds height 120 mm (see model 77-PV40C05 / 77-PV40C06)

Ordering information

77-PV41C05

PAVELAB, 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. Includes the PRO-COMPACT control feature. Controlled by all-in-one touchscreen 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

77-PV41C06

PAVELAB, 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. Includes the PRO-COMPACT control feature. Controlled by all-in-one touchscreen 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). 220 V, 60 Hz, 3 ph

77-PV40C05

PAVELAB, 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, 120 mm high. Includes the compaction procedure defined in the brand new EN 12697-33 7.3. Includes the PRO-COMPACT control feature. Controlled by all-in-one touchscreen 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

77-PV40C06

PAVELAB, 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, 120 mm high. Includes the compaction procedure defined in the brand new EN 12697-33 7.3. Includes the PRO-COMPACT control feature. Controlled by all-in-one touchscreen 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). 220 V, 60 Hz, 3 ph

Accessories

Interchangeable sector heads

77-PV42001

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

77-PV43001

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

77-PV44001

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

77-PV45001

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

77-PV46001

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

Interchangeable sector heads complete with heating system

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

77-PV42011

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

77-PV43011

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

77-PV44011

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

77-PV45011

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

77-PV46011

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

Moulds

77-PV42102

Steel mould 320x260x195 mm

77-PV43102

Steel mould 300x300x195 mm

77-PV44102

Steel mould 400x300x195 mm

77-PV45102

Steel mould 500x300x195 mm

77-PV46102

Steel mould 500x400x195 mm

77-PV42002

Steel mould 320x260x120 mm

77-PV43002

Steel mould 300x300x120 mm

77-PV44002

Steel mould 400x300x120 mm

77-PV45002

Steel mould 500x300x120 mm

77-PV46002

Steel mould 500x400x120 mm

Upgrading

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 (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-PV43022

Vibrating roller option. For 380 V, 50 Hz, 3 ph models

77-PV43024

Vibrating roller option. For 220 V, 60 Hz, 3 ph models



Loading slab on roller compactor



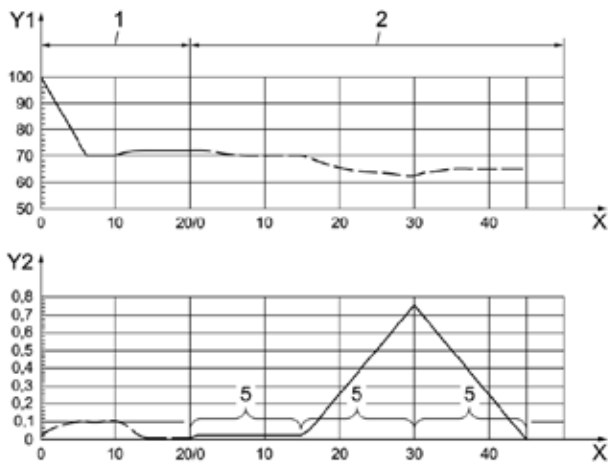
Detail of the control panel for controlling the temperature of sector head and base heating system



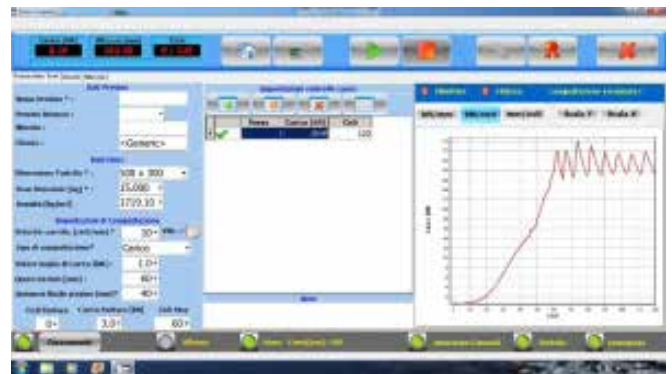
Monitor touch



Combined load/displacement Compaction



Energy controlled compaction procedure to EN 12697-33 method Annex A



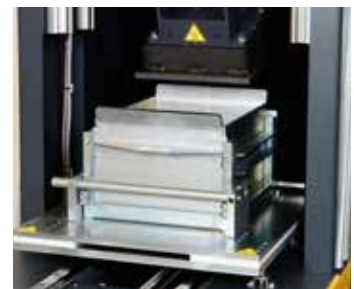
Compaction Test



Planarity, Regularity and homogeneity of the slabs produced by the roller compactor



PRO-COMPACT pendulum motion



Detail of optional base heating system, to maintain the temperature, 77-PV41C00/UP

