

## DATA SHEET

# Pressure Aging Vessel PAV



Pressure Ageing Vessel PAV 81-PV2600

## General description

The Pressure Aging Vessel (PAV) has been developed to simulate in-service aging of asphalt binder after 5 to 10 years. The binder is exposed to high pressure and temperature for 20 or 65 hours (selectable up to 99) to simulate the effect of long-term oxidative aging.

The aging of asphalt binders during service is affected by ambient temperature and by mixture-associated variables, such of component proportions in the mix, aggregate properties and many more. This conditioning process is intended to provide an evaluation of the relative resistance of asphalt binders to oxidative aging at selected elevate temperatures and pressures. It is normally performed after initial conditioning using a Rolling Thin Film Oven (RTFOT).

Residue from this conditioning practice may be used to estimate the physical and chemical properties of asphalt binders after several years of i-service aging in the field and to compare these properties to pre-conditioning test results of the same binder.

The **Pressure Aging Vessel PAV** can be used as part of your **Superpave performance based testing** program.

The apparatus consists of stainless steel (AISI 304 with ASME and CE certifications) pressure vessel with encased band heaters and internal pressure and temperature controls. Data logs of both temperature and pressure are saved on USB stick or transferred to PC at the end of the test.

The user-friendly software allows the operator to view the vessel temperature and pressure in real-time, both asset targets ad actual values, with a high rate of a refresh. It is also possible to view, in real time, the temperature and pressure graphs.

The instruments feature PID temperature control and highly efficient heaters that allow heating rate and temperature control exceeding the Standards' specifications.

Pre-heating of the instrument can be programmed (maximum 60° C for safety reasons) to allow the operator to find the PAV ready for the next test at any time. An acoustic alarm advises the operator when the test is finished.

The PAV requires a suitable compressed air tank with, 2.1Mpa minimum pressure.

This could be for example an air compressor or commercial bottled air, depending on reference standards.

## Main features

- Platinum RTD temperature internal measurement to +/- 0.1° C

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- Freely selectable test temperatures from 80° to 120°C, PID controlled to +/- 0.5°C
- Efficient heating system allowing the test temperature to be achieved in one hour, exceeding the Standards' specification
- Programmable pre-heating functions (limited to 60° C to avoid accidental burns during sample rack positioning) for time optimization
- Pressure monitored by transducer and controlled to 2.1 +/- 0.1 MPa
- User friendly software allows real time readout of vessel temperature and pressure
- 6" colour touch screen reclinable display
- Temperature and pressure calibrations performable by the user
- CE and ASME certified pressure vessel
- Electrically locked top cover, to avoid direct exposure of the pressure vessel during the test
- Forced ventilation cooling system allowing quick cooling of sample rack to avoid accidental burn
- Over temperature limit switch
- Over pressure relief valve

## Standards

- ASTM D6521
- EN 14769
- AASHTO R28

## Specifications

Working temperature range: 80 to 120° C

Temperature measurement: Platinum RDT with +/- 0.1 resolution

Testing time: up to 99 hours

Power: 1000 W

Dimensions, mm (L x w x h): 430 x 660 x 480

Weight (approx.): 90 kg



Pressure Ageing Vessel PAV and Vacuum Degassing Oven VDO

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Precision assembled supporting rack for PAV



Detail of inclinable touch screen display



Pressure transducers calibration menu

## Products

### 81-PV2600

Pressure Aging Vessel (PAV) conforming to ASTM D6521, AASHTO R28, EN 14769. 230 V, 50-60 Hz, 1 ph

### 81-PV2600/Z

Pressure Aging Vessel (PAV) conforming to ASTM D6521, AASHTO R28, EN 14769. 110V, 60 Hz, 1 ph.

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### Accessories and consumables

#### **81-PV2600/1**

Spare sample container (TFOT pan) for PAV

#### **81-PV2600/2**

Spare sample rack for PAV

#### **81-PV2610**

Vacuum Degassing Oven (VDO) - meets AASHTO R28, ASTM D6521 and EN 14769 test standards - 230V, 50-60Hz, 1Ph

#### **81-PV2610/Z**

Vacuum Degassing Oven (VDO) - meets AASHTO R28, ASTM D6521 and EN 14769 test standards - 110V, 60Hz, 1Ph