

# Pressure Aging Vessel



**Innovative, Easy-to-Use System for  
Simulated Aging of Asphalt Binder**

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# Features

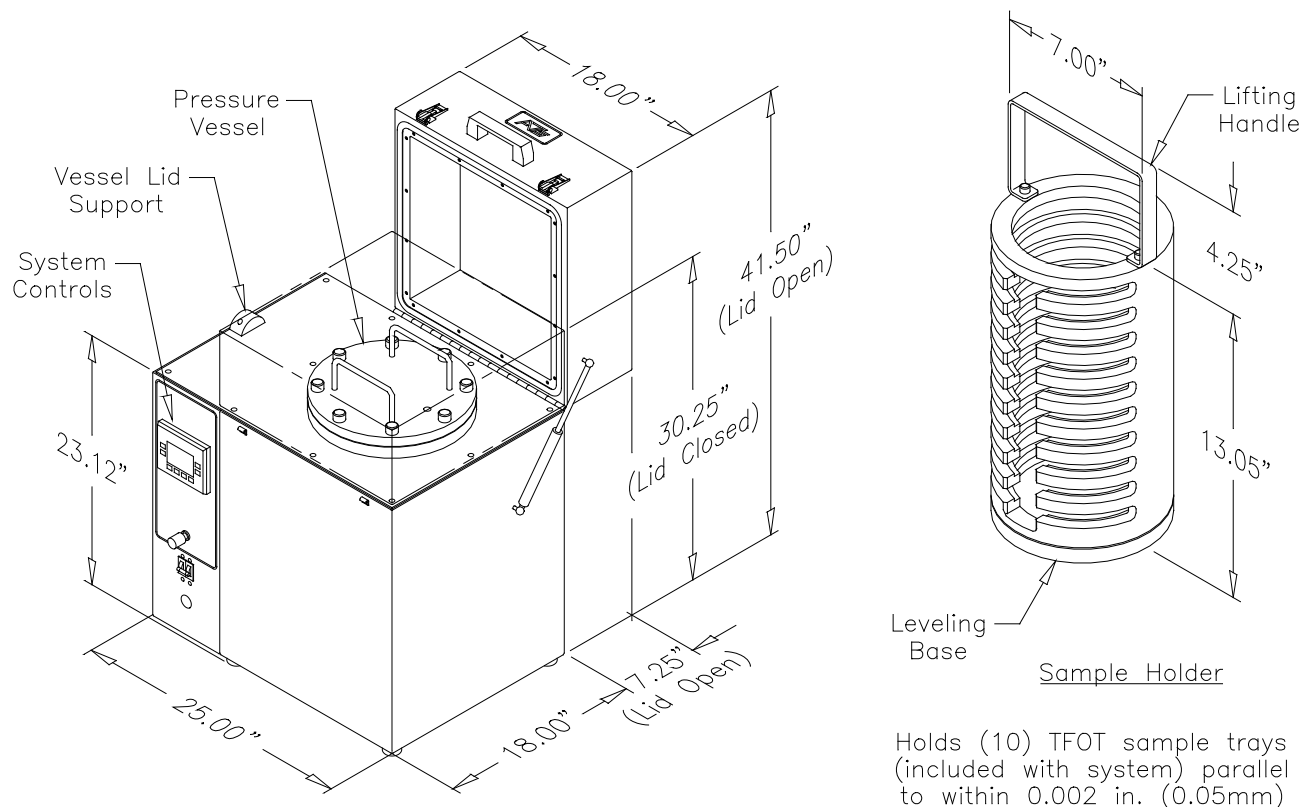
The recently improved Pressure Aging Vessel (PAV) from ATS has been designed to simulate in-service oxidative aging of asphalt binder according to procedures developed by the Strategic Highway Research Program (SHRP). The new PAV system is fully compliant with the most recent ASTM and AASHTO standards for these tests. (Refer to ASTM designation D6521-00 and AASHTO method R28-02).

A complete PAV system consists of an ASME-code stainless steel pressure vessel in a stainless steel cabinet with encased band heaters, a precision sample holder for simultaneous testing of ten specimens, a set of ten TFOT specimen trays, a pressure controller, temperature controller, pressure and temperature measurement devices, temperature recorder, and a specimen loading and unloading tool.

System features include:

- Compact benchtop design with integral pressure vessel
- Rotating vessel lid with rounded support block for easier opening and closing
- Built-in timer to accumulate out-of-range time (*out-of-range time for the ATS PAV is typically less than 10 minutes during a 20-hour test*)
- Minimum and maximum temperature data are available at the end of every test
- Optional battery backup system prevents test interruption or data loss due to power failure or line voltage fluctuations
- Optional remote operation and data access (*see page 4 of this bulletin*) makes the ATS PAV one of the most useful and versatile systems in today's market

## Pressure Aging Vessel



Holds (10) TFOT sample trays (included with system) parallel to within 0.002 in. (0.05mm)

# Specifications

## GENERAL

Construction	Benchtop unit with integral vessel/oven design
Specimen Capacity	10 (TFOT sample trays included)
Vertical Loading w/ Fixture	Parallel within 0.002 in. (0.05mm)
Front Panel Display	4-line, 20-character backlit LCD display
	4 function keys, 4 cursor keys, enter/return key
Battery Backup System (Optional)	4 hours minimum backup at full load
	60-day advance notification of end of useful battery life

## TEST PARAMETERS

Operating Pressure	2.10 ±0.05 MPa (304 psi)
Temperature Range	90°C to 110°C (194°F to 230°F)
Temperature Control	Platinum RTD; microprocessor-based
Temperature Control Resolution	±0.1°C
Test Temperature Uniformity	±0.5°C
Time to Setpoint	3 hours from ambient
Return to Setpoint	120 min. after preheating and loading of specimens
Over-Temperature Protection	Internal high-limit alarm (135°C/275°F)
	Thermal shut-down switch (170°C/338°F)

## PRESSURE VESSEL

Specifications	Per ASME code section VIII, division 1; 1992 A 93
Maximum Pressure	325 psi (2.24 MPa) at 120°C (250°F)
Pressure Safety Release	325 psi (2.24 MPa)
Air Inlet	1/4 in. male NPT

## REQUIREMENTS

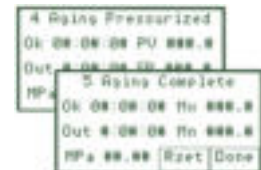
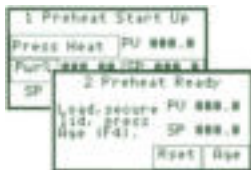
Power Requirements	230VAC 50/60Hz Standard
	115VAC 50/60Hz Optional
Compressed Air Requirements	A source of compressed air with a pressure of at least 325 psi (2.24 MPa) is required
Approximate Shipping Weight	425 lbs. (195kg)

## Accurate, Reliable, and Easy to Use

*No complicated procedures, just three easy steps:*

- (1) Press the "Heat" button
- (2) Insert specimens when prompted
- (3) Press the "Age" button

***The PAV does the rest!***



The improved PAV takes the hassle out of running and documenting asphalt binder aging operations.

Custom status screens guide the user step by step through the entire process. Each display screen (preheat start-up, preheat ready, aging heatup, aging pressurized, and aging complete) is simple and direct, with detailed process and status information. The final output screen, when the test is complete, shows the current vessel pressure as well as minimum and maximum temperatures achieved during the test procedure. Process data (temperature and pressure) is continually stored at regular intervals

# Features

## New! Remote PAV Control Options

With what is possibly the most useful innovation in the asphalt testing industry in years, the new PAV from ATS has been redesigned to include optional remote control operation and data access. This new control setup has many exciting prospects, including improved productivity and tighter process control, with the ability to control testing and to access data from a single remote location. With the appropriate hardware, a single user is able to initiate or cancel a test, monitor test progress, and view test results on any number of PAVs located anywhere

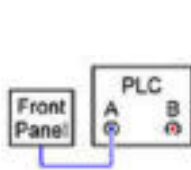


Figure 1: The new PAV in its simplest configuration, a single unit with no remote connections. The new PAV uses a PLC with two serial communications ports, one dedicated to the front panel display and the second available for other devices. The PAV can be used as a stand-alone machine, or, with the appropriate hardware, it can be connected to a Windows™-based PC for computer-controlled operation.

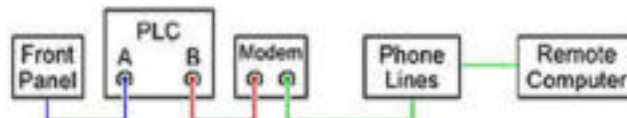


Figure 2: With the addition of a serial-to-phone modem, the new PAV can interface with a remote computer running the ATS PAV software anywhere in the world.

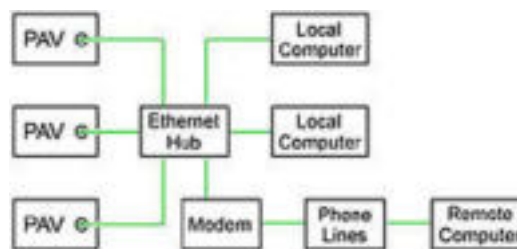


Figure 3: Alternatively, a serial-to-Ethernet adapter can be incorporated, allowing multiple units to be connected and operated together. In this way, any number of PAVs can be monitored by any number of local computers. And, with the addition of an Ethernet-to-phone modem, remote operation of the entire system is also made possible.

Additional possibilities include monitoring and operation of multiple PAV installations at different locations, remote maintenance of databases of tests and test data, automatic data retrieval from any facility or single PAV unit, the ability to remote-start the preheating process so that testing is ready to begin whenever you are, and the possibility of checking in on a test in progress to help you plan your next step in advance. The versatility of this new setup is nearly limitless. Contact an ATS sales engineer today to start planning your new PAV system.



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