Testing Equipment for Construction Materials

HUMBOLDT

H-1640
Pressure Aging Vessel

The Pressure Aging Vessel (PAV) is used to simulate in service oxidative aging of asphalt binder according to procedures developed by the Strategic Highway Research Program (SHRP). The H-1640 is fully compliant with the most recent ASTM and AASHTO standards for these tests. (Refer to ASTM designation D6521-05 and AASHTO method R28-06). The 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.

The H-1640 PAV takes the hassle out of running and documenting asphalt binder aging operations. Three easy, non-complicated steps produce accurate and reliable results. Just press the "heat" button, inset specimens when prompted and press the "Age" button and let the PAV do the rest. Custom status screens guide the user step-by-step through the entire process. Each display screen (preheat start-up, preheat ready, aging heat up, 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 in the programmable logic controller (PLC) that controls and monitors the process.

The H-1640 PAV features a compact, benchtop design with integral pressure vessel. Its rotating vessel lid with rounded support block provides easy opening and closing. A built-in timer accumulates and records out-of-range time (out-of-range time for the PAV is typically less than 10 minutes during a 20-hour test) Minimum and maximum temperature data is recorded and displayed at the end of each test.

Optional remote control operation and data access is also available, please contact Humboldt. 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 in the world.

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

H-1640
Pressure Aging Vessel

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:

H-1640.4F: 230VAC 50/60Hz (Standard)

H-1640: 115VAC 50/60Hz (Optional)

Compressed Air: A source of compressed air with a pressure of at least 325 psi (2.24 MPa) is required

Apprx. Shipping Weight: 425 lbs. (195kg)

Specifications subject to change without notice

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 in the programmable logic controller (PLC) that controls and monitors the process.

Testing Equipment for Construction Materials

HUMBOLDT

Humboldt Mfg. Co.
www.humboldtmfg.com
875 Tollgate Road
Elgin, Illinois 60123 U.S.A

U.S.A. Toll Free: 1.800.544.7220
Voice: 1.708.456.6300
Fax: 1.708.456.0137
email: hmc@humboldtmfg.com