

Next generation Asphalt Mixture Performance tester AMPT Pro



MAIN FEATURES

- Significantly improved ECU performance and innovation
- Temperatures: 23 degrees Celsius at temperatures below +15 ° C
- The new Hydraulic Power Supply (HPS) uses inverter technology coupled with a high performance labyrinth bearing actuator to deliver 19 kN of force
- Easy-to-use and ergonomic testing system
- Interchangeable transducers and load cells with "plug and play" signal conditioners allowing for quick and easy transition of test set-ups
- Clarity in results with the Integrated Mutli Axis Control System (IMACS)
- All-in-One computer control with the latest All-in-One touchscreen PC technology
- Fully integrated and compact in design, a perfect solution for both static and mobile testing facilities
- Optional air compressor that comes integrated

GENERAL DESCRIPTION

IPC Global, the researcher's choice for advanced asphalt testing equipment has again set the benchmark for innovation and performance with the new AMPT PRO. Designed with the latest technologies and product developments, the AMPT PRO surpasses any other product on the market.

Fully complies with AASHTO TP9 and can perform the three asphalt tests of NCHRP Projects 9 -19 and 9-29 - Dynamic modulus, Flow number and Flow time with ease. In addition it can perform Uniaxial Fatigue / SVECD, Overlay test, Semi-Circular Bend, Indirect Tensile Dynamic Modulus, iRLPD and Small Diameter Dynamic Modulus and SVECD tests with the additional of optional hardware accessories.

The **Asphalt Mixture Performance Tester** can be used as part of your **Superpave performance based testing** program.

This original Asphalt Mixture Performance Tester (AMPT) is the culmination of two National Cooperative Highway Research Program (NCHRP) projects. IPC Global has been involved in IPC Global equipment, and has been successfully evaluated by NCHRP.

Standard outfit

AMPT Pro includes, as standard, the following testing Modules (compression platens) which, however, have been completed with the transducer kit accessory.

Dynamic Modulus E to AASHTO TP79 and NCHRP 9-29

A performance.related property, for asphalt mixture evaluation and characterising the stiffness of HMA. It is an important input parameter for AASHTO "Mechanistic-Empirical Pavement Design Guide".

- Creates master curves for structural design
- Assess modified binders and local materials
- Forensic analysis of pavement failure

Flow number to AASHTO TPXX and NCHRC 9-29

Flow number is related to the resistance of HMA to permanent deformation.

- Repeated load creep tests
- Evaluate rutting

- Accurate simulation of actual loading

Flow time to NCHRP 9-29

Flow time is a quick and simple measurement of the resistance of HMA to permanent deformation.

- Static creep tests
- Measure permanent deformation for rutting evaluation

TECHNICAL SPECIFICATIONS

- Load Capacity: Static: 19kN, Dynamic 17kN
- Frequency Range: 0.01 to 70Hz sinusoidal loading
- Actuator Stroke: 30mm (+/- 15mm stroke)
- Actuator Type: Labyrinth Bearing
- Specimen Size (dia xh): 100 x 150 mm nominally, 50 x 135 mm, 38 or 50 x 110 mm
- Temperature Range: -5 ° C to + 70 ° C *
- Cooling Rate: Typically cools to + 4 ° C in under 30 minutes (at an ambient temperature of + 23 ° C)
- Temperature Accuracy: +/- 0.2 ° C (at temperature probe placed close to the specimen)
- Cell Dimensions (dia xh): 270 x 390mm
- Confining Pressure: 0 to 225 kPa
- Noise Level: Less than 70db at 2m
- Computer Control: Integrated all-in-one PC touchscreen (optional)
- Air Compressor and Dryer: Low noise, integrated, automated operate-on-demand (optional)
- Easily interchangeable load cells test
- Supplied complete with high quality pre-filtered oil for longer life
- Dimensions (hwxwd): 1,359 x 1,350 x 739mm
- Weight: 275kg (including oil)

Transducers

- Load Cell: Low profile pancake type
- Built-in LVDT Actuator: 30mm Stroke
- Pressure: 0 to 225 kPa
- On-Specimen Displacement: 3 clips on +/- 0.5mm LVDTs Compatible with up to 4 (Various optional loose-core, strain gauge transducers available)
- Temperature Probe Range: from -25 up to +80° C
- Plug-and-Play: Up to 4 interchangeable on-specimen displacement transducers, plus easily interchangeable load cells

Services

- Power (without air compressor): 220V–240V, 50Hz, single phase, 17A 208V, 60Hz, single phase, 20A
- Power (with air compressor): 220V–240V, 50Hz, single phase, 22A 208V, 60Hz, single phase, 25A
- Air: Clean dry air at 450-800kPa; 2 L/sec (Optional integrated air compressor available)
- Hydraulic Oil: Pre-filled with high specification pre-filtered, ISO 46 Premium Mineral Oil

Control & Data Acquisition—IMACS

- Configuration: Fully integrated
- Real Time Digital Computer Control: 32-bit Processing
- Acquisition Speeds: 5kHz (simultaneous on all channels)
- Data Over-Sampling: At least 4x
- Data Resolution: 20-bit auto-ranging data acquisition
- Communication: USB 2.0 at 12Mb/s, Ethernet at 10/100Mb/s
- Firmware Update: Flash based
- Analogue Inputs: Auto-calibrate on power up
- Analogue Outputs: 8 BNC connectors for raw data logging
- Control: 2 axis control (actuator and confining pressure)
- Acquisition: Up to 8 Channel data acquisition (actuator displacement, axial load, 3 to 4 on-specimen displacement transducers, confining pressure and temperature)

ORDERING INFO

79-PV71A12

AMPT Pro - Asphalt Mixture Performance Tester, complete with 19kN static / 17kN dynamic actuator with labyrinth bearing, automatic cell confinement with integrated temperature control, -5 to + 70 ° C range, 20kN load cell, 30mm actuator LVDT, 225 kPa pressure transducer, -25 ° + 80 ° C temperature transducer, Hydraulic Power Supply and IMACS. Includes Dynamic Modulus E *, Flow Number and Flow Time testing modules.

208-230V / 50-60Hz / 1Ph.

ACCESSORIES

Transducer and mounting kit for the above Testing Modules

79-PV71010

AMPT Pro On-Specimen LVDT Assembly - IPC guided Spring Core Black. Includes ILC Pod and LVDT Target Clamps x2

79-PV71011

AMPT Pro On-Specimen LVDT Assembly - IPC guided Spring Core Blue. Includes ILC Pod and LVDT Target Clamps x2

79-PV71012

AMPT Pro On-Specimen LVDT Assembly - IPC guided Spring Core Green. Includes ILC Pod and LVDT Target Clamps x2

79-PV70524

AMPT Pro Gauge Point Fixing Jig Assembly -NO gauge point Heads. Includes membrane stretcher

79-PV71031

AMPT Pro Gauge Point Fixing Jig - Setting Arm Hex Kit - set of 3

79-PV70507

AMPT consumable kit

Notes:

The above items are needed to complete the Test Modules supplied with the machine (Standard outfit). Loose -Core and Epsilon transducers are available as alternatives on request.

Machine accessories (Optional)

79-PV71000

AMPT Pro -All-in-One Touch Screen PC Assembly

79-PV70502

Proving Ring Assembly TP79 / T342 / TP62 / TP107 SVECD / AMPT. Includes 6 AMPT Proving Ring HEX gauge points and 6 Socket Head Cap Screw M2.5 x 16 SS gauge Screws

79-PV71001

AMPT Pro - Air Compressor assembly, Max air flow 137 l / min, 8 Bar cap , 5 liters tank, with air dryer with molecular sever. With port for gauge point fixing jig. 220 V, 50 HZ, 1 ph.

79-PV71002

AMPT Pro - Air Compressor assembly, Max air flow 137 l / min, 8 Bar cap , 5 liters tank, with air dryer with molecular sever. 220 V, 60 HZ, 1 ph.

79-PV70507

AMPT consumable kit

AMPT Pro Dynamic Modulus E * small diameter specimen kit (38 & 50 mm dia.)

79-PV71210

AMPT 38 mm Specimen Platen Kit (top 6 bottom platens set)

79-PV71211

AMPT 50 mm Specimen Platen Kit (top 6 bottom platens set)

79-PV71212

AMPT LVDT Gauge Point Fixing Jig 38 mm Specimen Upgrade Kit

79-PV71213

AMPT LVDT Gauge Point Fixing Jig 50 mm Specimen Upgrade Kit

AMPT Pro Uniaxial Fatigue small diameter specimen kit (50 mm dia.)

79-PV70617

Uniaxial Fatigue Glue Jig - 50 mm Specimen Retro-fit Kit

79-PV70618

AMPT 50 mm Specimen Platen

79- PV71213

AMPT LVDT Gauge Point Fixing Jig 50 mm Specimen Upgrade Kit

79-PV70619

AMPT SVECD - Top & Bottom Spacer Kit - for testing 50 mm diameter x 110 mm specimens

IMACS Digital Controller and Data Acquisition System

IPC Global is the leading IMACS digital controller and data acquisition system. It provides excellent waveform fidelity from integrated channel acquisition and control functions.

The IMACS utilizes flash-based firmware which allows updates of all modules onsite. Analogue inputs self-calibrated on power-up giving confidence in readings and low data.

With up to 8 expandable control axes and 32 data acquisition channels, you can have total confidence in your testing results. It has an exceptional data resolution and control with up to 20 bits of auto-ranging data acquisition and real-time digital computer control with 32 bit processing.

Three versions are available: for Servo-Hydraulic, Servo-Pneumatic and Servo-Electromechanical systems.

UTS Software

IPC Global's powerful and professional UTS Software draws upon over 30 years of advanced materials testing experience. IPC Global's test and control software is known for its simplicity in use, clarity of results and analytical power.

It was developed from the expert knowledge of the applications to the automated test. It is written in powerful, professional Delphi and features real-time graphs for monitoring the specimen under test; portable binary data files or sharing, reviewing and analysis; and "live" transducer levels display.

The purpose-built UTS applications have dialog boxes for automated test and easy-to-read graphic screenshots for test set up and reviewing. The test is totally programmable from the user.



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AMPT Pro control panel



AMPT Pro transducers