



ADVANCED PAVEMENTS TESTING SYSTEMS

UTM 130

UTM 30

UTM 16P

Universal Testing Machines

Tried and tested by leading research institutes and government organizations for over 25 years



Superior Universal Testing Machines

IPC Global's range of Servo-Hydraulic and Servo-Pneumatic Universal Testing Machines (UTM) are flexible, accurate, reliable and affordable. IPC Global has the largest customer user-base of Servo-controlled UTM Systems in the asphalt and pavement materials testing industry, with over 350 Servo-hydraulic Testing Systems and over 250 Servo-pneumatic Testing Systems sold globally. Plus an ever growing list of Electromechanical Servoactuation (EmS) based universal testing systems.



New and Improved Technology

IPC Global's range of new and improved UTM Systems has received a powerful upgrade on our previous range.



Precision Engineered

Our systems are renowned for their ease of use, reliability and accuracy due their design, high quality materials, high stiffness and excellent alignment.



World Leading Control

Paired with IPC Global's world leading IMACS2 Digital Controller, you are guaranteed unparalleled real-time computer control.



Superior Data Acquisition

Benefit from leading-edge performance on the IMACS2 with flexible data acquisition expandable up to 20 channels.



Tried and Tested

IPC Global's UTM technology has been tried and tested by leading Research Institutes and Government Organizations around the world for over 25 years.



Complete Turnkey Solution

IPC Global offers a wide range of high quality test fixtures, transducers and environmental chambers to complement its range of UTM systems.

Servo-Controlled Universal Testing Machines

IPC Global's UTM Servo-Hydraulic and Servo-pneumatic Universal Testing Machines are precision engineered to accomplish your toughest research challenges.

Designed and built to IPC Global's highest standard for civil engineering laboratories, IPC Global UTM Systems deliver superior reliability and accuracy with proficient performance

of tension, compression and dynamic loading analysis on asphalt, unbound granular and other pavement materials.

Harnessing the precision of IPC Global's new IMACS2 digital controller and the powerful user-friendly, UTS or UTS Neutron software, you'll have absolute confidence in your materials analysis.

Over the last 25 years we have been working closely with Government Highway Authorities, Universities, Asphalt Producers, Road Construction Industry and Research Organizations to pioneer the world's best and most innovative range of Advanced Asphalt Testing Systems.

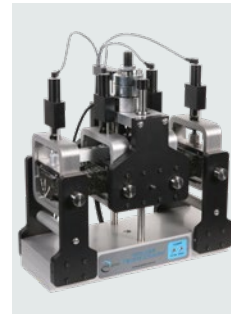
Widest Range of Accessories

IPC Global works closely with the Asphalt Research Community to develop new Test Standards and accessories.

You will have access to the widest range of testing accessories on the market for our UTM Systems. These range from platens, triaxial cells, fixtures, jigs, transducers to other customer specified items.



TSRST Kit



Four Point Bend Jig



Trapezoidal Two Point Bend Jig



Automatic Triaxial Cell



Dynamic Modulus E* Kit



Overlay Test Jig



Uniaxial Fatigue Kit



Universal Triaxial Cell



Permanent Deformation/
Dynamic Creep Jig



Indirect Tensile - Resilient
Modulus Jig



Indirect Tensile - Fatigue Kit



Indirect Tensile - Bi-axial Kit



Semi Circular Bend (SCB) Kit

UTM-130

130kN Universal Testing Machine

IPC Global's new and improved UTM-130 Servo-Hydraulic Universal Testing Machine has been precision engineered to accomplish your toughest research challenges.

Designed and built to IPC Global's highest standard for civil engineering laboratories, IPC Global's UTM-130 delivers superior reliability and accuracy with proficient performance of tension, compression and dynamic loading analysis on a wide range of materials.

IPC Global's UTM-130 is a flexible 130kN capacity dynamic Servo-hydraulic Universal Testing Machine, available with a wide range of transducers, jigs, fixtures, triaxial cells and accessories. The UTM-130 can conduct tests that comply with international standards for asphalt, unbound granular and other pavement materials.

Features:

- Rigid two column load frame
- Precision engineered for high stiffness and alignment
- Double acting high precision actuator
- High performance servo-valve allows for sinusoidal, loading frequencies up to 70Hz
- Hydraulic crosshead positioning and clamping for easier test set-up without the requirement for extension rods
- Fully customizable to suit a range of testing applications
- Independent environmental chamber eliminating the transfer of mechanical vibration to testing machine.



UTM-130 with Environmental Chamber



UTM-130 with Indirect Tensile Jig

Ordering Information

- 79-PV70C05:** UTM-130 Servo-Hydraulic UTM
- 79-PV70E42:** Environmental Chamber (-25°C ~ +60°C)
- 79-PV70E32:** Environmental Chamber (-50°C ~ +100°C)

UTM-130 Specifications

| | |
|--------------------------------|--|
| Load Capacity | +/-130kN Static +/-100kN Dynamic |
| Frequency | Up to 70Hz |
| Load Cell | Low profile/pancake type, +/-130kN |
| Actuator Type | Double acting high precision tie rod actuator(optional labyrinth bearing actuator) |
| Stroke | +/-50mm |
| Displacement Transducer | 100mm (in-built) |
| Adjustable Cross-Head | Hydraulic |
| Crosshead Clamping | Hydraulic |
| Vertical Space | 1,015mm |
| Space Between Columns | 600mm |
| Frame Size (HxWxD) | 3,000x1,100x1,000mm |
| Weight | 775kg (approx.) |

Environmental Chamber

IPC Global's Environmental Chambers use a high quality mechanical refrigeration system and superior insulation technologies to enable users to analyze materials' properties at real-life working temperatures (up to -50°C to +100°C) for extended periods without the need for LN2.

High accuracy and total control over temperature ramps and dwells are achieved using the Programmable Digital Controller enabling users to easily perform complex tests e.g. TSRST and UTSST.



UTM-130 Environmental Chamber

Hydraulic Power Supply

Environmental Chamber Features

- Programmable Digital Controller — P.I.D. tuning, temperature ramps and dwells, auto-tuning, selectable sample time
- Extended range maximum cooling rate > -50°C/hour*
- Extended range programmable temperature gradient of -20°C/hour with ramp control
- Four access ports
- Stainless steel AISI 304, 18/10 heavy duty construction
- Triple Glazed, Argon filled, Lo E glass door
- Defrost system & interior lighting
- Fan forced ventilation
- Ergonomic design provides easy access to chamber
- Fully adjustable temperature probe for greater accuracy
- Independent chamber eliminates mechanical vibration to testing machine

* Dependant on thermal mass within Chamber

Hydraulic Power Supply (HPS)

IPC Global's Hydraulic Power Supply (HPS) has been designed based on variable displacement piston pump technology assuring improved performance, longer life, lower power consumption and noise reduction.

IPC Global's HPS features remote starting and control via virtual pendant, water/air cooling options and indication for low oil, over temperature and dirty filter. The system provides electronically adjustable oil pressure allowing for greater control and safety. Oil accumulators further improve control accuracy while the high performance filters ensure long-life system protection and reduced maintenance costs.

HPS Specifications

| | |
|-------------------|--|
| Flow Rate | 18 liters/min |
| High Pressure | 210 Bar |
| Low Pressure | 100 to 210 Bar |
| Remote Starting | Available |
| Cooling System | Water/oil heat exchanger, optional water chiller, optional air-cooling |
| Oil Tank Capacity | 220 liters (supplied filled with pre-filtered oil). |
| Mains Power | 7.5kW 3 phase, 400V 50Hz, or 220V 60Hz |
| Size | 1,220x730x1,260mm (HxWxD) |
| Weight | 630kg (with oil) |

UTM-130XL

Extra-Large 130kN Universal Testing Machine

IPC Global's UTM-130XL has been designed and engineered specifically to accommodate the Extra Large Four Point Bend Jig and Extra Large UTM-130 Environmental Chamber.

Based on our world renowned UTM-130, the UTM-130XL allows you to perform Four Point Bend tests on asphalt specimens up to 160x200mm (HxW) and a minimum length of 790mm, at non-ambient temperatures.

UTM-130XL delivers superior reliability and accuracy with proficient performance of tension, compression and dynamic loading analyzes on all types of material. This unique testing system can be used with our full range of test accessories.



UTM-30

30kN Universal Testing Machine

IPC Global’s new and improved UTM-30 Servo-Hydraulic Universal Testing Machine has been precision engineered to accomplish your toughest research challenges.

Designed and built to IPC Global’s highest standard for Civil Engineering laboratories, IPC Global’s UTM-30 delivers superior reliability and accuracy with proficient performance of tension, compression and dynamic loading analysis on a wide range of materials.

Flexible and adaptable 30kN capacity dynamic Servo-hydraulic Universal Testing Machine, it is available with many interchangeable transducers, jigs, fixtures, triaxial cells and accessories. It meets the requirements of the most important test standards and draft test standards for asphalt, unbound materials and soils.

Features:

- Rigid two column load frame
- Precision engineered for high stiffness and alignment
- Double acting high precision actuator
- High performance servo-valve allows for sinusoidal loading frequencies up to 70Hz
- Motorized crosshead positioning for easier test set-up without the requirement for extension rods
- Hydraulic crosshead clamping
- Fully customizable to suit a large range of testing applications



UTM-30 with Environmental Chamber



UTM-30 with Dynamic Creep set up

Ordering Information

- 79-PV70B12:** UTM-30 Servo-Hydraulic UTM
- 79-PV70E12:** Environmental Chamber (-25°C ~ +70°C)
- 79-PV70B22:** Environmental Chamber (-50°C ~ +80°C)

UTM-30 Specifications

| | |
|---|--|
| Load Capacity | +/-30kN Static +/-30kN Dynamic* |
| Frequency | Up to 70Hz |
| Load Cell | Low profile/Pancake type, +/-30kN capacity |
| Actuator Type | Double acting high precision labyrinth bearing or tie-rod actuator |
| Stroke | +/-25mm |
| Displacement Transducer | 50mm (in-built) |
| Adjustable Cross-head | Motorized |
| Crosshead Clamping | Hydraulic |
| Vertical Space | 795mm |
| Space Between Columns | 450mm |
| Frame Size (HxWxD) | 1,900x680x600mm |
| Frame & Chamber Size (HxWxD) | 2,750x920x900mm |
| Weight | 195kg (approx...) |

* Frequency performance dependent on load and displacement requirements

Environmental Chamber

IPC Global's Environmental Chambers use a high quality mechanical refrigeration system and superior insulation technologies to enable users to analyze materials' properties at real-life working temperatures (between -50°C to +80°C) for extended periods without the need for LN₂.

High accuracy and total control over temperature ramps and dwells are achieved using the Programmable Digital Controller thus enabling users to easily perform complex tests e.g. Thermal Stress Restrained Specimen test (TSRST).

Environmental Chamber Features

Programmable Digital Controller—P.I.D. tuning, temperature ramps and dwells, auto-tuning, selectable sample time

Extended range maximum cooling rate > -50°C/hour*

Extended range programmable temperature gradient of -20°C/hour with ramp control

Two access ports

Stainless steel AISI 304, 18/10 heavy duty construction

Triple Glazed, Argon filled, Lo E glass door

Defrost system & interior lighting

Fan forced ventilation

Ergonomic design provides easier access to chamber

Fully adjustable temperature probe for positioning close to test specimen

**Dependant on thermal mass within chamber*



UTM-30 Environmental Chamber

Hydraulic Power Supply (HPS)

IPC Global's Hydraulic Power Supply (HPS) has been designed with integrated inverter technology, assuring energy saving and noise reduction.

IPC Global's HPS features return line filtration, remote starting and control via virtual pendant, water/air cooling options and indication for low oil, over temperature and dirty filter. The system provides electronically adjustable oil pressure allowing for greater control and safety. Oil accumulators further improve control accuracy while the high performance filters ensure long-life system protection and reduced maintenance costs.

HPS Specifications

| | |
|-------------------|--|
| Flow Rate | 5 liters/min |
| High Pressure | 210 Bar |
| Low Pressure | 50 to 210 Bar |
| Remote Starting | Available |
| Cooling System | Air-cooling |
| Oil Tank Capacity | 30 liters (supplied filled with pre-filtered oil). |
| Mains Power | 2.2kW single phase, 230V 50Hz or 208V 60Hz |
| Size | 1,000x470x765mm (HxWxD) |
| Weight | 175kg (with oil) |



Hydraulic Power Supply

UTM-16P

16kN Universal Testing Machine

The UTM-16P, 16kN Servo-Pneumatic testing machine, utilizes digital control of a pneumatic servo-valve to provide accurate loading waveshapes of up to 70Hz*. It can be operated in tension, compression and dynamic loading and is suited to testing a diverse range of materials such as asphalt, soil, unbound granular and other pavement materials.

The UTM-16P is available with an optional motorized crosshead for a quick and easy test set-up. Crosshead positioning is accurately adjusted using PC control from UTS software ensuring that the crosshead is locked safely, without backlashes for waveshape fidelity and high accuracy in tension-compression tests. Designed and built to IPC Global's highest standard for Civil Engineering laboratories, the UTM-16P delivers superior reliability and accuracy with proficient performance of tension, compression and dynamic loading analysis on all types of materials.

Features:

- Robust, high-strength and compact 2-Column load frame
- Precision engineered for high stiffness and alignment
- Digital Servo-Pneumatic control
- Fully adjustable crosshead positioning
- Optional motorized crosshead available: controlled via the PC, it ensures the crosshead is locked safely without backlashes for waveshape fidelity and high accuracy in tension-compression tests
- Fully customizable to suit a large range of testing applications.



UTM-16P with Motorized Crosshead



UTM-16P with Indirect Tensile Jig (Manual Crosshead)

Ordering Information

- 79-PV70A02:** UTM-16P Servo-Pneumatic UTM
- 79-PV70A12:** UTM-16P Servo-Pneumatic UTM with motorized crosshead
- 79-PV70E02:** Upright Env. Chamber (-25°C ~ +60°C)

UTM-16P Specifications

| | |
|--------------------------------|----------------------------|
| Load Capacity | Static 16kN / Dynamic 16kN |
| Frequency | Up to 70Hz* |
| Load Cell | +/-20kN capacity |
| Displacement Transducer | 30mm (in-built) |
| Stroke | +/-15mm |
| Adjustable Cross-head | Manual / Motorized |
| Vertical Space | 650mm |
| Space Between Columns | 339mm |
| Frame Size (HxWxD) | 1,200x480x300mm |
| Weight | 95kg (approx.) |

Services

| | |
|---------------------------------------|----------------------------|
| Air Supply | Clean dry air |
| Pressure | 900kPa (required for 16kN) |
| Minimum Flow Rate | 5 litre/sec |
| Mains Power | Powered from IMACS2 |
| Motorized Crosshead (Optional) | 220-230V 50/60Hz, 1 phase |

* Frequency performance dependent on load and displacement requirements

UTM-16P Environmental Chamber

IPC Global has an environmental chamber specifically designed for the UTM-16P. The environmental chamber uses a high quality mechanical refrigeration system for high accuracy and total control enabling users to analyze materials' properties at real-life working temperatures (between -25°C to +60°C) for extended periods.

The Upright Servo-pneumatic Environmental Chamber is a more economical solution for small laboratory spaces that may require an Environmental Chamber with a smaller foot print.

For more information on this Environmental Chamber please refer to the individual Data Sheet.

Features

- Programmable Digital Controller with P.I.D. tuning
- Stainless steel heavy duty construction
- Argon filled, Lo E glass doors
- Interior lighting
- Fan forced ventilation
- Multiple access ports
- Defrost system



Upright servo-pneumatic Systems Environmental Chamber

UTM-250

250kN Universal Testing Machine

Available on request is IPC Global's UTM-250 Servo-Hydraulic Universal Testing Machine. Precision engineered for extremely high force loading with the ultimate precision to accomplish your toughest research challenges.

Designed and built to IPC Global's highest standard for Civil Engineering laboratories, IPC Global's UTM-250 delivers superior reliability and accuracy with proficient performance of tension, compression and dynamic loading analysis on high strength materials.

For more information contact IPC Global or your local distributor.



IMACS2

Ultimate Third Generation Integrated Control and Data Acquisition System (IMACS)

IPC Global's next generation IMACS2 is powered using the most advanced electronic technologies to provide the ultimate in testing machine control and powerful data-acquisition that is flexible yet easy to use.

Its exceptional specifications provide a level of control, waveform fidelity and purity of data that is second to none in our industry:

- **Sampling rates up to the industry maximum 200kHz** provide optimum test control for perfect wave-shape fidelity.
- **Industry leading 24 bit resolution**, essential to obtain the maximum benefit from the extremely high sample rates, ensures complete confidence in results, especially at high frequency tests.
- **5 to 25kHz control loop closure** gives exceptional waveshape fidelity minimizing test variability.
- **In-built color display**



IMACS2 integrated into our UTM Systems

IMACS2 Specifications

CONTROL AND DATA ACQUISITION

| | |
|------------------------------------|-------------------------|
| ADC Resolution | 24 bit |
| Sampling Rate (ks per sec) | 5kHz up to 200kHz |
| Oversampling | Up to x64 |
| DAC Resolution | 16 bit |
| Control Loop Frequency (kHz) | 5kHz – 25kHz |
| Max. Channels | 20 |
| Channels Per Axis | 4 |
| Number of Axis (standard + opt) | 2 + 3 |
| PC Communications | Gigabit Ethernet USB |
| External Communications Interfaces | RS485 / RS232 |

EXTERNAL INTERFACES

| |
|---|
| Gigabit Ethernet — UTS/UTS Neutron interface |
| 10/100Mb Ethernet — Internet access, Data share (e.g., Remote Diag, Upgrades) |
| RS232/RS485 — Serial extender and controller (e.g., climatic chambers) |
| CAN bus — Generic peripheral extender (e.g., Hydraulic board) |

ISOLATED GENERAL-PURPOSE I/O & ESTOP

| |
|---------------------------|
| Opto-Isolated GPIO |
| Standard DB25 connector |
| 8 Input (PNP/NPN) |
| 8 Output (Open collector) |
| General IO Extender |
| ESTOP loop |
| External Emergency button |
| Hydraulic Fault detection |
| Instantaneous power cut |
| Safety feature |

PLUG & PLAY TRANSDUCERS

| |
|---|
| Automatic transducer recognition |
| Automatically uploads calibration files (prevent human error) |
| Compatible with existing IPC Global In-line signal conditioners (ILC) |
| Allows calibration editing (if necessary) |

UTS **NEUTRON**

Dynamic Materials Testing & Analysis Software

The UTS Neutron dynamic materials testing and analysis software builds on IPC Global's 30 years experience as leading manufacturer and trusted partner of advanced dynamic testing systems for asphalts and other pavement materials. We've listened to feedback about your needs and wishes and have developed the most advanced testing software that provides the ultimate in flexible yet easy materials testing software for all types of users.



ONE SOFTWARE

with customizable interfaces for all testing needs



THREE LICENCE LEVELS

to meet all user types: Standards testing, Test editor & Programmer



CONFIGURABLE ACCESS-RIGHTS

for any user type e.g. QC operator, Laboratory manager, Senior Engineer

User programmable

Total flexibility capable to do anything you'll need



Wizard

Follow the step-by-step path to quickly and simply make the changes you need



Multiple languages

Custom language configurator tool



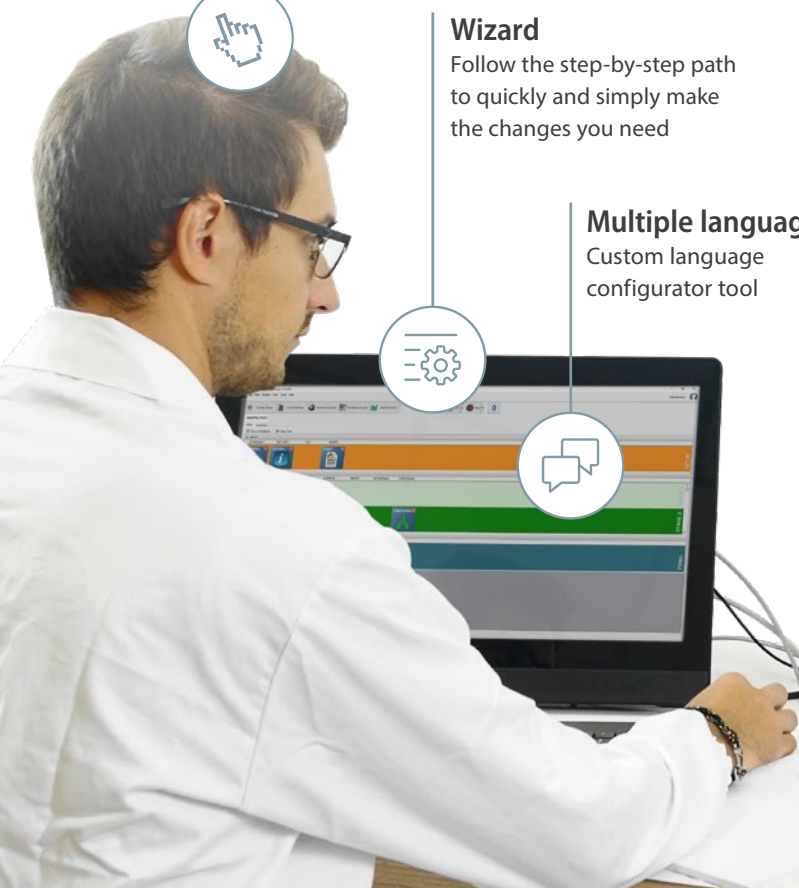
Worry free seamless migration

Compatible with IMACS and IMACS2 Users can import existing UTS data to generate new reports



Advanced reporting

Robust reporting and easy custom test creation



▶ IPC Global Customer Care

At IPC Global we are proud of our products.

We are dedicated to supplying high quality, accurate, affordable, easy-to-use systems for Advanced Testing of asphalt, binders and other pavement materials.

As a valued customer of IPC Global you will receive continuous, expert support and advice for your instrument. Furthermore, we offer full installation and training in the correct operation of your IPC Global equipment.

For support from our expert Customer Care Team, contact your local IPC Global-Controls office/distributor or email ipcglobalsupport@controls-group.com.

Visit our website for more information www.controls-group.com/ipcglobal.



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