

IPC Global®

Universal Testing Machines

UTM-250; UTM-130; UTM-30; UTM-15P

**NEW &
IMPROVED**



The science
of testing
made easy®



IPC Global's 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 300 servo-hydraulic testing systems and over 200 servo-pneumatic testing systems sold globally.



New and Improved Technology

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



Precision Engineered

IPC Global is renowned for its easy to use, reliable and high quality materials testing technology



World Leading Control

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



Superior Data Acquisition

Benefit from leading-edge performance on the IMACS with flexible data acquisition expandable up to 32 channels



Tried and Tested

IPC Global's UTM technology has been tried and tested by leading research institutes and government organisations around the world for over 25 years



Complete Turnkey Solution

IPC Global offers a wide range of high quality test fixtures, transducers and environmental test 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 renowned IMACS digital controller and the powerful user-friendly, UTS

software, you'll have absolute confidence in your materials analysis.

IPC Global supplies a wide range of test fixtures, transducers and environmental chambers to complement its range of Universal Testing Systems, therefore creating a complete turnkey solution that streamlines your materials testing.

Over the last 25 years we have been working closely with Government Highway Authorities, Universities, Asphalt Producers, Road Construction Industry and Research Organisations to pioneer the world's best and most innovative range of advanced asphalt testing systems.

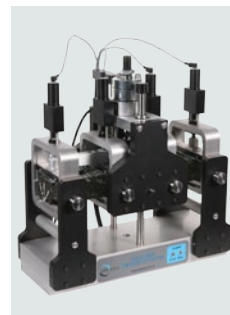
Full Set of Accessories Available

An extremely wide range of testing accessories is available for our UTM systems including platens, triaxial cells, fixtures, jigs, transducers and other customer specified items.

IPC Global has the largest range of asphalt testing jigs and accessories on the market. We work closely with the asphalt research community to develop new test standards and accessories.



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



UTM-130 with Environmental Chamber



UTM-130 with Indirect Tensile Jig

Ordering Information

1002-2165 - UTM-130 Servo-Hydraulic UTM
1150-5031 - Environmental Chamber (-25°C ~ +60°C)
1150-5040 - Environmental Chamber (-50°C ~ +100°C)

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 customisable to suit a range of testing applications
- Independent environmental chamber eliminating the transfer of mechanical vibration to testing machine

UTM-130 Specifications

Load Capacity	+/- 130kN Static +/- 100kN Dynamic
Frequency	Up to 70Hz
Load Cell	Low profile/pancake type, +/-130kN capacity
Actuator Type	Double acting high precision tie rod actuator, (optional labyrinth bearing actuator)
Stroke	+/-50mm
In-built Displacement	
Transducer	100mm
Adjustable Cross-Head	Hydraulic
Crosshead Clamping	Hydraulic
Vertical Space	1,000mm
Space Between	
Columns	600mm
Size (HxWxD)	3,000x1,000x1,000mm
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 analyse materials' properties at real-life working temperatures (between -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.



UTM-130 Environmental Chamber



Hydraulic Power Supply

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.

Environmental Chamber Features

- Programmable Digital Controller—PID 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

HPS Specifications

Flow Rate	18 litres/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 litres
Mains Power	7.5kW 3 phase, 400V 50Hz, or 220V 60Hz
Size (HxWxD)	1,200x1,200x650mm
Weight	250kg (without 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 analyses on all types of material.

This unique testing system can be used with our full range of test accessories.



UTM-30



UTM-30 with Environmental Chamber



UTM-30 with Dynamic Creep set up

Ordering Information

1002-1942 - UTM-30 Servo-Hydraulic UTM
1150-5000 - Environmental Chamber (-25°C ~ +60°C)
1150-5020 - Environmental Chamber (-50°C ~ +80°C)

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.

IPC Global's UTM-30 is a flexible and adaptable 30kN capacity dynamic servo-hydraulic universal testing machine 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
- Motorised crosshead positioning for easier test set-up without the requirement for extension rods
- Hydraulic crosshead clamping
- Fully customisable to suit a large range of testing applications

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
In-built Displacement Transducer	50mm
Adjustable cross-head	Motorised
Crosshead Clamping	Hydraulic
Vertical Space	800mm
Space Between Columns	450mm
Size (HxWxD)	1,800x660x560mm
Weight	285kg (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 analyse 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).



UTM-30 Environmental Chamber

Environmental Chamber Features

- Programmable Digital Controller—PID 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*

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.



Hydraulic Power Supply

HPS Specifications

Flow Rate	5 litres/min
High Pressure	210 Bar
Low Pressure	50 to 210 Bar
Remote Starting	Available
Cooling System	Air-cooling
Oil Tank Capacity	28 litres
Mains Power	2.2kW single phase, 230V 50Hz, or 208V 60Hz
Size (HxWxD)	800x600x500mm
Weight	105kg (without oil)

UTM-15P



UTM-15P with Motorised Crosshead

15kN UNIVERSAL TESTING MACHINE

A 15kN Servo-Pneumatic controlled testing machine. The UTM-15P utilises digital control of a pneumatic servo-valve to provide accurate loading waveshapes of up to 70Hz*.

UTM-15P 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 materials, fibres and plastics.

Available with an optional motorised crosshead for quick and easy test set up. Crosshead positioning is accurately adjusted using PC control from UTS software and ensures 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, UTM-15P 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 motorised crosshead available.
- The optional motorised crosshead is controlled via the PC and ensures the crosshead is locked safely without backlashes for waveshape fidelity and high accuracy in tension-compression tests.
- Fully customisable to suit a large range of testing applications.



UTM-15P with Indirect Tensile Jig (Manual Crosshead)

Ordering Information

- 1002-1936 - UTM-15P Servo-Pneumatic UTM
- 1002-1939 - UTM-15P Servo-Pneumatic UTM with motorised crosshead
- 0150-0020 - Side Mount Env. Chamber (-15°C ~ +60°C)
- 1150-5010 - Upright Env. Chamber (-25°C ~ +60°C)

UTM-15P Specifications

Load Capacity	Static: 15kN / Dynamic: 15kN
Frequency	Up to 70Hz*
Load Cell	+/-20kN capacity
In-built Displacement Transducer	30mm
Stroke	+/-15mm
Adjustable Cross-head	Manual / Motorised
Vertical Space	600mm
Space Between Columns	345mm
Size (HxWxD)	1,000x450x300mm
Weight	80kg (approx.)

Services

Air Supply	Clean dry air
Pressure	800-900kPa
Minimum Flow Rate	5 litre/sec
Mains Power	Powered from IMACS
Motorised Crosshead (Optional)	220-230V 50/60Hz, 1 phase

*Frequency performance dependent on load and displacement requirements

UTM-15P ENVIRONMENTAL CHAMBERS

IPC Global has two environmental chambers specifically designed for the UTM-15P. Both environmental chambers use a high quality mechanical refrigeration system for high accuracy and total control enabling users to analyse materials' properties at real-life working temperatures (between -25°C to +60°C) for extended periods.

IPC Global's Side mount servo-pneumatic environmental chamber can be placed on a bench top with space for enclosing an IMACS and reservoir and is available with optional shelves to condition specimens. 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 these environmental chambers please refer to the individual data sheets.



Upright servo-pneumatic systems environmental chamber



Side mount servo-pneumatic systems environmental chamber

Features

- Programmable Digital Controller with PID 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 only

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.



IMACS Control & Data Acquisition System

IPC Global's Integrated Multi-Axis Control System (IMACS) delivers leading-edge performance, unparalleled real-time computer control and flexible data acquisition†.

For servo-controlled testing machines, the IMACS provides excellent waveform fidelity from integrated channel acquisition and control functions at 5kHz simultaneously on all channels.

The IMACS has low data noise performance with 4x over-sampled data and selectable filtration. It provides exceptional data resolution and control with up to 20-bit effective auto-ranging data acquisition. The flash-based firmware allows field updates of all modules.

Expandable, up to 8 control axes and 32 channel of acquisition, the IMACS allows for easy upgrades. With IPC Global's IMACS you will have total confidence in your testing results.



IMACS Features

- Low data noise performance with over-sampled data.
- Excellent waveform fidelity from the integrated acquisition and control functions.
- Flash based firmware allows field updates of all modules.
- Total confidence in measurements from analogue inputs that auto-calibrate on power-up.
- Acquisition and Control—Up to 8 axis of control and up to 32 channels of data-acquisition.
- Real-time digital computer control with 32-bit processing.
- Exceptional data resolution & control with up to 20-bit effective auto-ranging data acquisition.

† See White paper 'Ensure Reliable Results: The Case For Robust Control & Data Acquisition'.
Contact sales@ipcglobal.com.au for your copy.

IMACS Specifications

Configuration	<i>Fully integrated</i>
Real Time Digital Computer Control	<i>32-bit Processing</i>
Acquisition Speeds	<i>5kHz (simultaneous on all channels)</i>
Data Over-Sampling	<i>4x</i>
Data Resolution	<i>20-bit effective auto-ranging data acquisition</i>
Communication	<i>USB 2.0: 12Mb/s Ethernet: 10/100Mb/s</i>
Firmware Update	<i>Flash based</i>
Analogue Inputs	<i>Auto-calibrate on power up</i>
Control	<i>Up to 8 axis control</i>
Acquisition	<i>Up to 32 channels of data acquisition</i>
Size (HxWxD)	<i>270x350x460mm</i>
Weight	<i>11kg</i>
Mains Power	<i>220-240V 50Hz, or 110-120V 60Hz</i>

UTS World-class Software Application

IPC Global's powerful and professional UTS Software draws upon over 25 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. IPC Global works closely with the asphalt testing research community, collaboratively developing new and draft test standards. Customers can be assured that IPC Global will always have software available for the latest international test standards for asphalt testing.

Powerful professional Delphi software

Save time analysing your materials using UTS software's clear, precise, rich, user friendly tab-based interface with multiple real time graphical displays.

All test data saved in portable binary files

A powerful feature unique to UTS software. When the test is finished UTS saves in a binary file the data points, the all test setup parameters and the calibration parameters. This means that at any time in the future the test can be reviewed as if it has just been performed complete with all test control, PID, specimen settings and results.

Test templates

Test settings can be entered and saved by the Chief Engineer or Laboratory Manager for easy recall and testing by Technicians. No need to configure the machine each time you want to perform a specific test.

The ultimate in clean accurate data

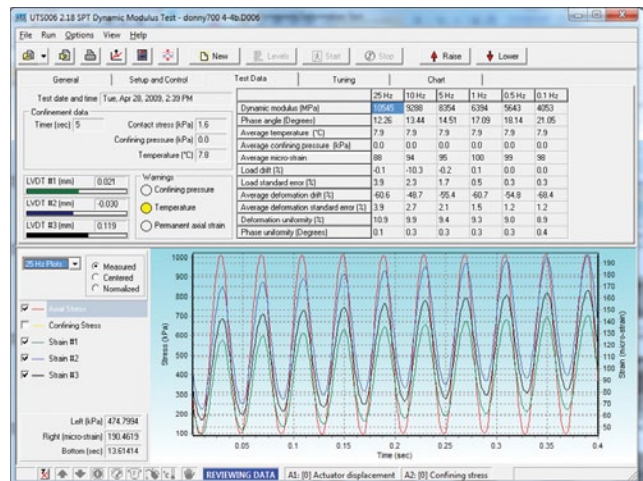
IMACS integrated control and data acquisition with 4x oversampling technology, auto-ranging and effective 20-bit data resolution gives unparalleled control and waveform fidelity.

Purpose-written test applications

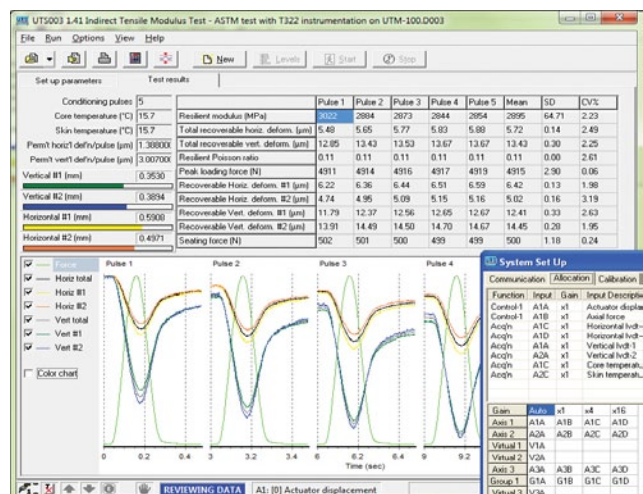
Benefit from more than 25 years of IPC Global's expert software application development. With UTS test applications written around international standards you can concentrate on analysing your materials; not on programming your testing machine.

User programmable tests

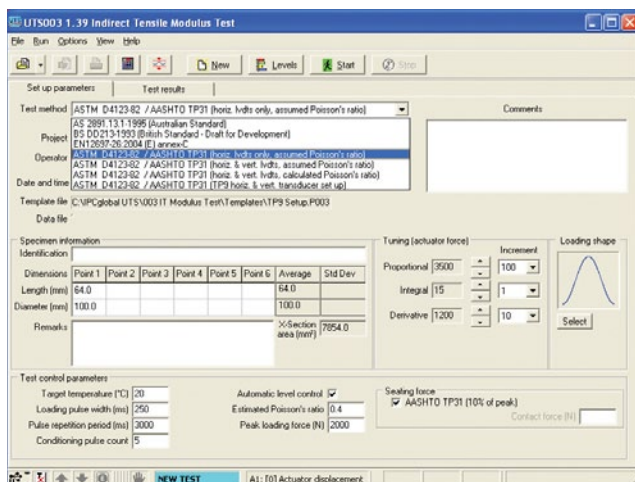
When you are developing a new test method or want to run a novel test UTS User-programmable test allows you to take full control and determine all the test, control and analysis parameters.



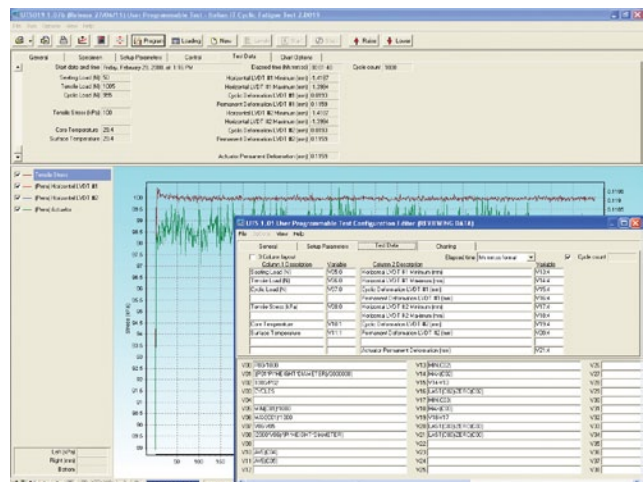
Powerful professional software



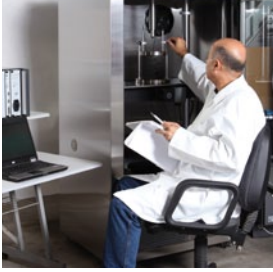
The ultimate in clean accurate data



Purpose-written test applications



User programmable tests



Above: UTM-30

IPC Global Customer Care

At IPC Global we are proud of our products.

We're dedicated to supplying high quality, accurate, affordable, easy-to-use systems for advanced testing of asphalt, soil, unbound granular and other construction materials.

As a valued customer of IPC Global you will receive continuous, expert support and advice for your instrument. Furthermore, we ensure new users are trained in the correct operation of your IPC Global equipment.

For support from our expert customer care team, contact your local IPC Global distributor or IPC Global directly on +61 3 9800 2200 or email techsupport@ipcglobal.com.au.

Visit our website for more information:
www.ipcglobal.com.au

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