

## Compression/Tension Testing Machines

### Manual Cement Compression and Flexure Testing Machines

UTCM-6310/UTCM-6410

The UTCM-6310 and UTCM-6410 single and double testing chamber Manual compression and flexure testing machines are designed to perform reliable strength and flexure tests on mortar specimens. As the machines are manual, they are well-suited for on-site applications when there is no power supply available. The UTEST manual testing series have been designed in a simple and precise manner so that they are easy to use for anyone, even if they have little experience with the machines. The machines are a low cost alternative for performing outstanding compression and flexure tests. The UTCM-6310 and UTCM-6410 include a rigid two column, single or double chamber frame, a manual power pack and a data acquisition LPI. Accessories such as compression and flexure jigs and distance pieces should be ordered separately.

### Manual Power Pack

The UTC-4810 Hand Operated (Manual) Power Pack can be used with range of UTEST Compression machines and flexural frames to use on site and/or where electricity is not available.

The loading is continuous and uniform (as long as the operator turns the wheel on the pump) as the pump includes a radial piston pump. The machine can be loaded with up to 300 bars.

### LPI

The LPI Battery Operated Digital Readout Unit has been designed to use with load cells or pressure transducers on different material test applications.

The unit operates with DC voltage source of -1,5 to 1,5 volts.

- Real time numeric display of load and load rate
- 1 channel with two different calibration table (can be used for 2 sensors)
- Peak hold property
- Multi-point calibration
- Can operate with 2 x AA batteries
- Easy preload zeroing
- Serial port for PC or printer
- 8 keys keyboard



## Compression/Tension Testing Machines

### Semi-Automatic (Motorized) Cement Compression and Flexure Testing Machines

UTCM-6321/UTCM-6421

The UTEST Semi-Automatic (Motorized) range of single testing chamber and double testing chamber compression and flexure testing machines have been designed for reliable and consistent testing of mortar samples. These compression and flexure testers conform with current standards EN 196-1, 459-2, 1015-11, 13454-2; ASTM C 109, C348, C349 and BS 3892-1, 4551-1 in terms of its technical properties taking into account client requirements by using suitable accessories. These machines also meet the requirements of CE norms for safety and health of the operator. The UTCM-6321 and UTCM-6421 machines be operated easily and safely by people who have little experience in performing the tests. The UTEST Semi-Automatic cement compression and flexure testing machines consist of a very rigid two column single or double chamber frame, hydraulic powerpack and data acquisition system LPI. Accessories such as compression and flexure jigs and distance pieces should be ordered separately.

#### Power Pack

The UTC-4820 Motorized (Semi-Automatic) Power Pack is controlled by a pressure rate control valve and is used to supply the required oil to the load frames for loading. The power pack can load different frames with required pace rates. A rapid approach pump is supplied as standard. To ensure the machine doesn't overload, the power pack includes a safety valve (maximum pressure valve).

#### Dual Stage Pump

- Low pressure gear pump
- High pressure durable variable output pump

On the dual stage pump, high delivery low pressure gear pump is used for rapid approach, while low delivery high pressure durable variable output pump is used for test execution. Rapid approach property of the machine shortens the time interval from the piston starts moving until the upper platen touches to the specimen and helps to save a great amount of time in case of numerous specimens are going to be tested.

#### Motor

- Dual pump is driven by an AC motor
- 220 V (110 V), 50-60 Hz single phase and 0.55 kW



UTCM-6321



UTCM-6421

### Distribution Block

The dual stage pump has the safety valve and pressure relief valve attached to it, and a distribution block is used to control the oil flow direction supplied by it.

- Safety valve (maximum pressure valve)
- Pressure relief valve

### Oil Tank

The tank (20 L capacity) includes enough oil to fill the mechanism which pushes the ram during the test. The indicator on the tank displays the level of oil and the oil temperature. Hydraulic motor oil number 46 must be used in the tank.

### LPI

- Real time numeric display of load and load rate
- 1 channel with two different calibration table (can be used for 2 sensors)
- Peak hold property
- Multi-point calibration
- Serial port for PC or printer
- Can operate with 2 x AA batteries
- Easy preload zeroing
- 7 keys keyboard

## Compression/Tension Testing Machines

### Automatic Cement Compression and Flexure Testing Machines

UTCM-6331

The UTEST Automatic range of single testing chamber and double testing chamber compression and flexure testing machines have been designed for reliable and consistent testing of mortar samples. These compression and flexure testers conform to the current standards EN 196-1, 459-2, 1015-11, 13454- 2; ASTM C 109, C348, C349 and BS 3892-1, 4551-1 in terms of its technical properties taking into account client requirements by using suitable accessories. These machines also meet the requirements of CE norms for safety and health of the operator. Accessories such as compression and flexure jigs and distance pieces should be ordered separately.

The UTEST Automatic Cement Compression and Flexure Testing machines have been designed so that inexperienced users can operate them and perform the tests easily and safely. Once the machine has been turned on and the specimen is positioned and centered by the help of centering apparatus, the only required operations are:

- Setting test parameters, including pace rate (only required when the specimen type is changed.)
- Choosing the compression or flexure frame by using the changeover valve.
- Pressing the START button on the control unit.
- The machine automatically starts the rapid approach; switches the test speed after 1% of the load capacity of the machine and stops once the specimen failure.
- Automatically saves the test parameters and test results.

The UTEST automatic cement compression and flexure testing machines consist of very rigid two column single or double chamber frames, automatic hydraulic power pack with data acquisition and control system BC 100.



### Power Pack

UTC-4830 Automatic Hydraulic Power Pack, dual stage which is controlled by BC 100 is designed to supply the required oil to the load frames for loading. The power pack is extremely silent, and can load the specimen between 50N/sec to 2.4kN/sec with an accuracy of  $\pm 5\%$ . A rapid approach pump is supplied as standard. To ensure the machine does not overload, a safety valve is used.

### Motor

The motor which drives the dual pump is an AC motor, 380 V, 50-60 Hz, 3 phase, 1 hp and 0.75 kW and it is controlled by Omron J7 motor inverter. The variation in the oil flow is executed with the variation of the rotation speed of the motor.

### Distribution Block

A distribution block is used to control the oil flow direction supplied by the dual stage pump, the following parts are fitted to the distribution block:

- Solenoid valve
- Safety valve (maximum pressure valve)
- Transducer
- Low pressure gear pump
- High pressure radial piston pump

### Dual Stage Pump

The dual stage pump is formed by two groups;

- Low pressure gear pump
- High pressure radial piston pump.

### Oil Tank

The tank includes enough oil to fill the mechanism which pushes the ram during the test. The level and oil temperature can be seen on the indicator fitted to the tank. It has 20 L capacity. Hydraulic motor oil, number 46, must be used.

## Compression/Tension Testing Machines

### BC 100 Unit

BC100 TFT unit is designed to control the machine and processing of data from load-cells and pressure transducers which are fitted to the machine.

All the operations of BC100 are controlled from the front panel consisting of a 800x480 pixel 65535 color resistive touch screen display and function keys 2 analogue channels are provided for load-cells or pressure transducers.

BC100 TFT unit has easy to use menu options. It displays all menu option listings simultaneously, allowing the operator to access the required option in a seamless manner to activate the option or enter a numeric value to set the test parameters. The BC100 digital graphic display is able to draw real-time "Load vs. Time", or "Stress vs. Time" graphics.

BC100 TFT unit offers many addition unique features. You can save more than 10000 test results in its internal memory. BC100 unit has support for various off-the-shelf USB printers, supporting both inkjet and laser printers. Thanks to its built-in internet protocol suite, every aspect of BC100 device can be controlled remotely from anywhere around the world.

Maximum horizontal clearance for placing sample is limited with the border of the platens. Sample must be placed such that its ends will not overlap the ends of platens and it must be centered perfectly. The suitable vertical clearance for specimen can be adjusted with distance pieces.



### Main Features

- Pace rate control from 50 N/sec to 2,4 kN/sec depending on piston size
- Can control 2 frames
- Can make test with load control.
- Real time display of test graph.
- CPU card with 32-bit ARM RISC architecture
- Permanent storage capacity up to 10000 test results
- 2 analog channels for different frame load cells
- Programmable digital gain adjustment for load-cell
- 1 / 256000 points resolution per channel
- 10 data per second sample rate for each channel
- Ethernet connecting for computer interface
- 800x480 resolution 65535 color TFT-LCD industrial touchscreen
- 4 main function keys
- Multi-language support
- 3 different unit system selection; kN, Ton and lb
- Real-time clock and date
- Test result visualization and memory management interface
- Remote connection through ethernet
- USB flash disc for importing test results and for firmware
- USB printer support for inkjet and laser printers (ask for compatible models)
- Camera support for real-time video recording during test (ask for compatible models)
- Free of charge PC software for the test control and advanced report generation

### Safety Features

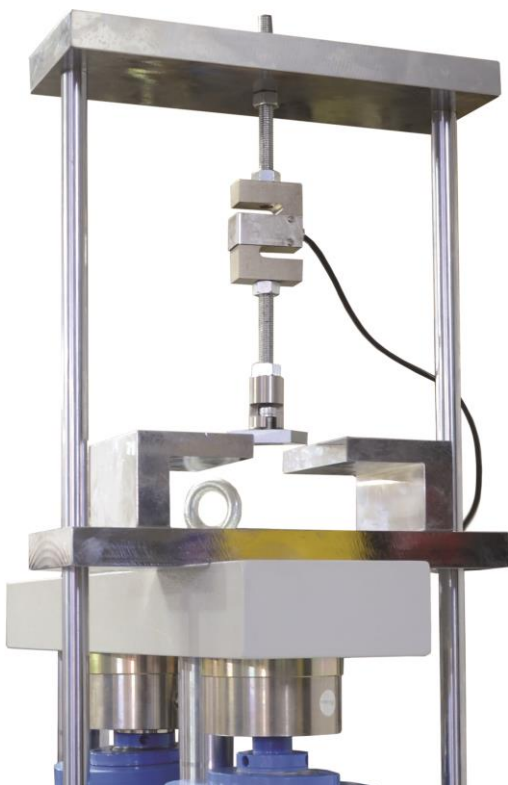
- Maximum pressure valves to avoid machine overloading
- Piston travel limit switch
- Emergency stop button
- Software controlled maximum load value

## Compression/Tension Testing Machines

### Tensile Adhesion Strength Test Apparatus

UTCM-0123

UTCM-0123 Tensile Adhesion Strength Test can be fitted to the UTEST Cement Compression or Compression / Tension testing machines. This apparatus is supplied complete with 5 kN load cell and should be installed at our factory.



### About PCTE

PCTE have over 30 years' experience in the measurement and testing of construction materials. PCTE can provide more than just the equipment, they can provide expert training. PCTE have a service centre in Sydney in which they can provide calibration, repairs and warranty repairs.

### Other Equipment

PCTE supply three main ranges: NDT, Lab and Geotech Instrumentation.

NDT includes: Rebound Hammers, Covermeters, Ultrasonics, GPR, Corrosion Testing, Coating Testing and Foundation Testing

Lab includes equipment for: Concrete, Cement, Aggregate, Soil, Asphalt and Metal

Geotech Instrumentation includes: Strain Gauges, Piezometers, Inclometers, Extensometers, Tiltmeters, Load Cells and Dataloggers

## Compression/Tension Testing Machines

### Technical Specifications

<b>Manual Cement Compression and Flexure Testing Machines</b>			
<b>Model</b>	<b>UTCM-6310</b>	<b>UTCM-6410</b>	
<b>Test Type</b>	Compression	Flexure	Compression
<b>Capacity</b>	250 kN	15 kN	250 kN
<b>Class 1 Measuring Range</b>	2.5 to 250 kN	0.5 to 15 kN	2.5 to 250 kN
<b>The roughness value for texture of loading and auxiliary platens</b>	≤3.2 μm	≤3.2 μm	≤3.2 μm
<b>Lower Platen Dimensions</b>	165 mm	165 mm	165 mm
<b>Upper Platen Dimensions</b>	165 mm	165 mm	165 mm
<b>Maximum Vertical Clearance Between Platens</b>	263 mm	263 mm	263 mm
<b>Piston Diameter</b>	160 mm	80 mm	160 mm
<b>Maximum Piston Movement</b>	50 mm	50 mm	50 mm
<b>Horizontal Clearance</b>	300 mm	200 mm	300 mm
<b>Oil Capacity</b>	13 L	13 L	
<b>Maximum Working Pressure</b>	125 bar	30 bar	125 bar
<b>Rapid Approach Rate</b>	50 mm	80 mm	50 mm
<b>Dimensions (WxLxH)</b>	760x500x1650 mm	980x500x1650 mm	
<b>Weight</b>	230 kg	375 kg	

<b>Semi-Automatic (Motorized) Cement Compression and Flexure Testing Machines</b>			
<b>Model</b>	<b>UTCM-6321</b>	<b>UTCM-6421</b>	
<b>Test Type</b>	Compression	Flexure	Compression
<b>Capacity</b>	250 kN	15 kN	250 kN
<b>Class 1 Measuring Range</b>	2.5 to 250 kN	0.5 to 15 kN	2.5 to 250 kN
<b>The roughness value for texture of loading and auxiliary platens</b>	≤ 3.2 μm	≤ 3.2 μm	≤ 3.2 μm
<b>Lower Platen Dimensions</b>	165 mm	165 mm	165 mm
<b>Upper Platen Dimensions</b>	165 mm	165 mm	165 mm
<b>Maximum Vertical Clearance Between Platens</b>	263 mm	263 mm	263 mm
<b>Piston Diameter</b>	160 mm	80 mm	160 mm
<b>Maximum Piston Movement</b>	50 mm	50 mm	50 mm
<b>Horizontal Clearance</b>	300 mm	200 mm	300 mm
<b>Power</b>	550 W	550 W	
<b>Oil Capacity</b>	20L	20L	
<b>Maximum Working Pressure</b>	125 bar	30 bar	125 bar
<b>Rapid Approach Rate</b>	50 mm	80 mm	50 mm
<b>Dimensions (WxLxH)</b>	760x500x1650 mm	980x500x1650 mm	
<b>Weight</b>	250 kg	kg	

## Compression/Tension Testing Machines

### Technical Specifications (cont.)

Automatic Cement Compression and Flexure Testing Machines	
Model	UTCM-6331
Test Type	Compression
Capacity	250 kN
Class 1 Measuring Range	2.5 to 250 kN
The roughness value for texture of loading and auxiliary platens	≤3.2 μm
Lower Platen Dimensions	165 mm
Upper Platen Dimensions	165 mm
Maximum Vertical Clearance Between Platens	263 mm
Piston Diameter	160 mm
Maximum Piston Movement	50 mm
Horizontal Clearance	300 mm
Power	750 W
Oil Capacity	20 L
Maximum Working Pressure	125 bar
Rapid Approach Rate	50 mm/min
Dimensions (WxLxH)	830x500x1650 mm
Weight	265 kg