

### Product Code

UTCM-6331	250 kN Automatic Cement Compression Testing Machine 220-240 V 50-60 Hz
UTCM-6331/110	250 kN Automatic Cement Compression Testing Machine 110 V 60 Hz
UTCM-6431	15/250 kN Automatic Cement Flexure/Compression Testing Machine 220-240 V 50-60 Hz
UTCM-6431/110	15/250 kN Automatic Cement Flexure/Compression Testing Machine 110 V 60 Hz
UTCM-0116	Upper Loading Platen with Ball Seating Assembly $\varnothing$ :165 mm and Lower Loading Platen, $\varnothing$ :165 mm
UTCM-0120/A	Flexure Jig Assembly to test 40x40x160 mm mortar prisms, ASTM
UTCM-0120/E	Flexure Jig Assembly to test 40x40x160 mm mortar prisms, EN
UTCM-0121/A	Compression Jig Assembly to test 50 mm (2") mortar cubes, ASTM
UTCM-0121/E	Compression Jig Assembly to test portions of 40x40x160 mm mortar prisms, EN
UTCM-0122	Compression Jig Assembly BS, to test 70,7 mm mortar cubes

### Standards

EN 196-1, 459-2, 1015-11, 13454-2; ASTM C109, C348, C349; BS 3892-1, 4551-1

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 are the results of continuous applications and research studies to upgrade the machines with the latest technologies and conform 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.

Compression and flexure jigs, distance pieces, and also removable transparent front-rear safety doors (should be factory installed) should be ordered separately.



UTCM - 6331



UTCM-6431 with Transparent Front-Rear Safety Doors

The UTEST automatic cement compression and flexure testing machines allow less experienced operators to perform the tests. Once the machine has been switched 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.

**AUTOMATIC CEMENT COMPRESSION & FLEXURAL MACHINES**

**Power Pack**

UTC-4830 Automatic Hydraulic Power Pack, dual stage, controlled by BC 100 is designed to supply the required oil to the load frames for loading. Very silent power pack can load the specimen between 50 N/sec to 2.4 kN/sec with an accuracy of  $\pm 5\%$ . A Rapid approach pump is supplied as standard. Safety valve (maximum pressure valve) is used to avoid machine overloading.



**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;

- a - Solenoid valve
- b - Safety valve (maximum pressure valve)
- c - Transducer
- d - Low pressure gear pump
- e - High pressure radial piston pump

**Dual Stage Pump**

The dual stage pump is formed by two groups:

1. Low pressure gear pump
2. High pressure radial piston pump.

On the dual stage pump, a high delivery, low pressure gear pump is used for rapid approach, while a low delivery, high pressure radial piston pump is used for test execution. The Rapid approach facility shortens the time interval from piston start until the upper platen touches to the specimen. This excellent feature helps to save a lot of time when a large number of specimens are going to be tested.



**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.

Dimensions	360x380x900 mm
Weight (approx.)	80 kg
Power	750 W

## 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.

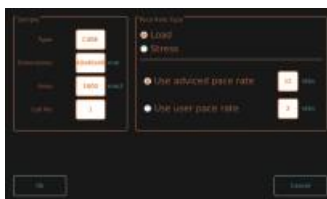
All the operations of BC100 are controlled from the front panel consisting of a 800x480 pixel 65535 color resistive touch screen display and function keys 2 analogue channels are provided for load-cells or pressure transducers.

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.

## 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



### Technical Specifications

Model	UTCM-6331		UTCM-6431	
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Test Type	Compression	Flexure	Flexure	Compression
Capacity	250 kN	15 kN	15 kN	250 kN
Class 1 Measuring Range	2.5 to 250 kN	0.5 to 15 kN	0.5 to 15 kN	2.5 to 250 kN
The roughness value for texture of loading and auxiliary platens	$\leq 3.2 \mu\text{m}$	$\leq 3.2 \mu\text{m}$	$\leq 3.2 \mu\text{m}$	$\leq 3.2 \mu\text{m}$
Lower Platen Dimensions	165 mm	165 mm	165 mm	165 mm
Upper Platen Dimensions	165 mm	165 mm	165 mm	165 mm
Maximum Vertical Clearance Between Platens	263 mm	263 mm	263 mm	263 mm
Piston Diameter	160 mm	80 mm	80 mm	160 mm
Maximum Piston Movement	50 mm	50 mm	50 mm	50 mm
Horizontal Clearance	300 mm	200 mm	200 mm	300 mm
Power	750 W	750 W		750 W
Oil Capacity	20 L	20 L		20 L
Maximum Working Pressure	125 bar	30 bar	30 bar	125 bar
Rapid Approach Rate	50 mm/min	80 mm/min	80 mm/min	50 mm/min
Dimensions (WxLxH)	830x500x1650 mm	1050x500x1650 mm		1050x500x1650 mm
Weight	265 kg	410 kg		410 kg

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.

### Safety Features

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

**Data Acquisition & PC Software**

The Automatic Cement Compression Flexural Machine can be controlled (Start, Stop commands) by a computer with the software (given free of charge by UTEST). This software provides data acquisition and management for compression, flexure and splitting tensile test throughout the test execution. The advanced functions for data base management provide an easy navigation of all saved data. The test results certificate includes all descriptive information. Therefore, test parameters can be set and details about the test carried out such as client details, test type, specimen type, user info and other information required can be entered and printed out as well as test report and graph.

Following tests can be done with the UTEST software.

- **Foreign Language Support and Customizable User Interface**  
All contents of experimental data and additional information can be organized by user. Software can be performed in x different languages.

- **Capability to Save 24 test results of different specimens in one test folder**

Test results, graphics and properties of 24 different specimens can be saved in one folder. Old test folders can be reviewed and be edited easily. Advanced Graphic User Interface Software.

- **Graphical data on the screen is refreshed simultaneously during test procedure**  
Load values can be monitored in high resolution graphics at every 100 milliseconds. User can highlight all 24 different specimen curves or preferred ones in different colors on the graphics. Zooming in-out and dragging can be done easily by mouse. Peak values of curves can be marked on the graphics and user can get load value of any point on the graph via high resolution.

- **Able to save frequently used texts in memory and recall them when necessary**  
Frequently used information like name and location of the laboratory, type and dimensions of mostly used specimens are held in memory and can be written automatically by right clicking on information boxes and selecting frequently used text in menu.

- **Capable to Access and use previously done test data**  
User can access any data of previously completed tests and use in his/ her new report since most of the tests have same structure and properties.

- **Able to edit test parameters of the testing equipment through Software**  
All test parameters supported by testing equipment can be changed remotely via software. All test parameters specified by user are downloaded to the device before initialing the test procedure. By this way predefined device parameters will not cause errors in test results.

- **Graphical outputs and reports can be saved as a MS Excel worksheet**  
Test result parameters and graphics are transferred to MS Excel worksheet properly to give user a chance to edit any data and graph easily.

- **Maximum Flexibility to edit report and graph templates**  
User can design his/her custom report template and graphic scheme in MS Excel. In software part, user will define which data will be screened in which cell on the worksheet. Therefore, he/she will be able to monitor test results in his/her specific design.

EN 196-1	Compressive Strength of Hydraulic-Cement Mortars
ASTM C 109	Compressive Strength of Hydraulic Cement Mortars
ASTM C 349	Compressive Strength of Hydraulic Cement Mortars
EN 196-1	Flexural Strength of Hydraulic-Cement Mortars
ASTM C 348	Flexural Strength
EN 459-2	Compressive Strength of Building Lime
EN 1015-11	Mortar for Masonary

