

Power Packs

PCTE offers an extensive range of power packs suited to different customer requirements including Manual Power Pack, Semi-Auto and fully Auto Power Pack and Servo Controlled Power Pack.

Manual Hydraulic Power Pack

UTC-4810

The Manual Power Pack is perfect for use on site, especially where there is no electricity available. The power pack can be used with a range of different UTEST compression

As long as the wheel on the pump is being turned, the loading of the Power Pack will remain constant. The loading is uniform and can be compared to the loading of an automatic machine. Up to 400 bars can be loaded, with little effort necessary from the operator.

Servo Controlled Auto Power Pack with Servo Valve for 4 Frames

UTC-4870

The main difference on UTC-4870 servo valves is used instead of proportional valve compare to the UTC-4860. As servo valve is used on UTC-4870 power pack.

Following specifications are better than UTC-4860:

- 5 litre/minute pump delivery 350 bar 3kW motor rate
- Loading/ unloading with $\pm 0.5\%$ accuracy
- Staying at constant load within 0.005% accuracy of the maximum load
- The control of the load starts from 0.3% of the maximum pressure of the system

All power packs can be connected to the computer via Ethernet port for advanced test cycles, data acquisition and reporting. Strain gauges or extensometers can be attached to the sample to accurately evaluate the modulus of elasticity, Poisson's Ratio and compressibility parameters. The control unit automatically stores all the calibration values of the transducers and also all the test parameters for the last test. All power packs incorporate a pressure safety valve for each frame separately and a cooling unit.



Power Packs

Semi-Automatic Motorized Power Pack

UTC-4820

The UTC-4820 is designed to supply the required oil to the load frames for loading. The pressure rate control valve within the system allows the power pack to do this. The power pack can load different frames with required pace rates. A rapid approach pump is supplied as standard. The machine will not overload as the power pack is equipped with a safety valve; the maximum pressure valve. Maximum working pressure of the system is 600 bars.

Dual Stage Pump

- Low Pressure Gear Pump
- High Pressure Durable Variable Output Pump

On the dual stage pump, a high delivery low pressure gear pump is used for rapid approach, while a low delivery high pressure durable variable output pump is used for test execution. The time period from when the piston starts moving until the upper platen touches the specimen is reduced due to the rapid approach property of the machine. This allows for a lot of time to be saved in a busy laboratory.

Motor

- Dual Pump is driven by an AC motor
- 220 V, 50- 60 Hz single phase and 550 W

Distribution Block

The direction of the oil flow supplied by the dual stage pump is controlled by a distribution block. The pump has a safety valve and pressure relief valve attached to the top.

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

Oil Tank

The tank (19 litre) includes enough oil to fill the mechanism which pushes the ram during the test. The indicator fitted to the tank displays the level of oil and the oil temperature. It is important that the oil used is Hydraylic motor oil number 37.

Safety Features

- Maximum pressure valves to avoid machine overloading
- Piston travel limit switch

Technical Specifications

Dimensions	300x420x850 mm
Weight (approx.)	70 kg
Power	550 W



Power Packs

Automatic Power Pack

UTC-4830

The Automatic Hydraulic Power Pack, dual stage, controlled by BC 100 is designed to supply the required oil to the load frames for loading. Even at full load, the power pack is silent and can load the specimen between 1 kN/sec. to 20 kN/sec, with an accuracy of $\pm 5\%$. A rapid approach pump is supplied as standard. A safety valve (maximum pressure valve) is used to avoid machine overloading.

The UTC-4840 Automatic Hydraulic Power Pack, dual stage, controlled by BC 100 has the same specifications with UTC-4830 except for high oil capacity. UTC-4840 is used on frames that has bigger pistons. Maximum working pressure of the system is 410 bar.

Dual Stage Pump

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

On the dual stage pump, a high delivery low pressure gear pump is used for rapid approach, while low delivery high pressure radial piston pump is used for test execution. The time period from when the piston starts moving until the upper platen touches the specimen is reduced due to the rapid approach property of the machine. This facility saves a great amount of time in a bust test lab.

Distribution Block

Distribution block is used to control the oil flow direction supplied by the dual stage pump and the following hydraulic components are fitted to it:

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

Oil Tank

The tank (20litre) includes enough oil to fill the mechanism which pushes the ram during the test. The indicator fitted to the tank displays the level of oil and the oil temperature. It is important that the oil used is Hydraylic motor oil number 37.

Motor

The motor which drives the dual pump is a 0.75 kW AC motor which is controlled by an Omron J7 motor inverter. The variation in the oil flow is executed with the variation of the rotation speed of the motor.

Technical Specifications

Dimensions	370x400x920 mm
Weight (approx.)	85 kg
Power	1000 W



Power Packs

Servo Controlled Auto Power Pack

UTC-4850/ UTC-4860

Automatic Power Packs with proportional valves can be used on any testing system ideal for R&D laboratories and universities for advanced tests with P.I.D. closed loop control. It can perform tests under load and displacement controls. The frequency of the P.I.D controller and data acquisition is 1000Hz.

UTC 4850 and 4860 automatic power packs are designed to supply the required oil to the load frames for loading, unloading or low cycle dynamic testing. The power packs have touch screen panel with a 240x320 LCD display. With this panel, the user can control all the operations of data acquisition and controls system.

The UTC-4850 can control up to 2 different frames and UTC-4860 can control up to 4 frames. For each frame there is one load cell (or pressure transducer) input and one displacement transducer input for control. There are an extra three analogue channels for other sensors such as load cells, strain gauges, etc. built in the system.

The operator can use the touch screen unit or the computer software to choose the test type. The power pack then uses this information to automatically control and supply the correct amount of oil to the frame.

The type of displacement transducer can be TTL or analogue (must be the same type for all frames). The maximum oil flow is 2 litres per minute, at a pressure of 350 bars. The UTC-4850 and UTC-4860 power packs can be used for loading or unloading with $\pm 1\%$ accuracy of set pace rate and staying at constant load with 0.01% accuracy of the maximum load. The control of the load starts from 1% of the maximum pressure of the system.



Main Features

- 3 analogue channels for load cells displacement transducers, strain gauges, etc. built in the system
- Free of charge PC software for test control and advanced report printout
- Can control 2 frames (UTC-4850) or 4 frames (UTC-4860, UTC-4870)
- Instrumentation amplifiers for sensor excitation and amplification
- Can execute load, displacement or strain controlled tests
- 240x320 touchscreen LCD panel
- Ethernet port for connecting to computer
- 65,000 resolution and 1,000 Hz control for each channel
- Pace rate control from 0.01 KN/s to 100 KN/s (depend on the specimen stiffness)
- Real time clock/date

Technical Specifications

Dimensions	1100x700x1030
Weight (approx.)	210 kg
Power	1500 W

Power Packs

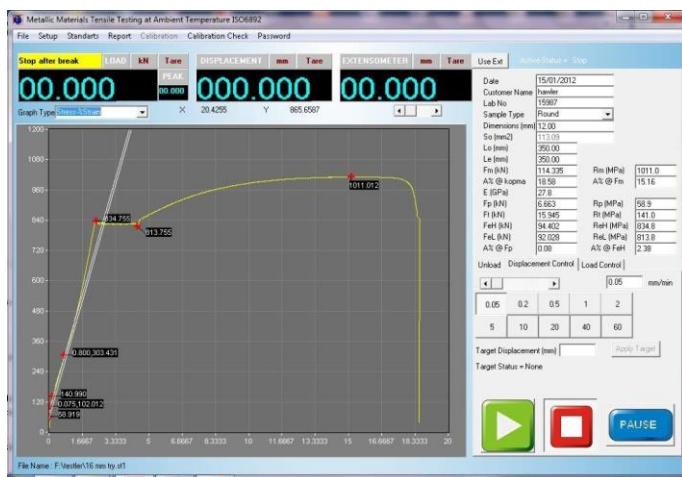
Data Acquisition & PC Software

Advanced Power pack can be controlled by a computer with the software (given free of charge by UTEST). This software provides data collection and management for compression, flexure and splitting tensile test throughout the test execution for advanced Servo controlled power pack.

The software is capable of running the machine in load control, displacement or strain control. The type of graph or test rate can be changed and user can set load or displacement values for making machine to wait till the next command. The gains of the closed loop control can also be set. It has an easy calibration check facility such as machine waits at 2,5,10% of its maximum capacity of easy check of calibration.

The advanced functions of data base management provide an easy navigation of all saved data. The test results certificate included 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. The results are exported to Microsoft Excel for advanced research purposes. The data can also be filtered for obtaining intuitive results while a summary report can be prepared.



Features

- Capability to save 24 test results of different specimens in one test folder
- Graphical data on the screen is refreshed simultaneously during test procedure
- Able to save frequently used texts in memory and recall them when necessary
- Capable to access and use previously done test data
- Able to edit test parameters of the testing equipment through software
- Graphical outputs and reports can be saved as a MS Excel worksheet
- Maximum Flexibility to edit report and graph template

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