

Sample Preparation

Automatic Grinding Machine

UTC-1040

Plane and parallel surfaces can be easily achieved due to the fast grinding of specimen ends that the Automatic Grinding Machine provides. Cylinder specimens from $\varnothing 38\text{mm}$ to $\varnothing 150\text{mm}$ can be ground with the suitable adaptors. Grinding Method can be used for all strength grades for reliable strength results.

Automatic Operation

A Programmable Logic Controller (PLC) manages the machine and all its automatic controls. The PLC is essentially the grinding machine's brain, as it controls all its functions.

The PLC has input/output connectors for all the sensors, electromagnetic valves and other controls to be plugged into. Logical operations are executed by a program in the machine's internal memory. The program can be easily modified by a programmer if necessary.



Application

- Control Box: Programmable Logic Controller
- Variable Speed Drive: The machine is equipped with three (3) variable speed drives which control the grinding machine's parameters, such as the grinding wheel oscillation speed and the table forward speed.
- Timer: The duration of the full cycle is controlled by the timer. The material hardness and cylinder diameter both determine how long the grinding time for each sample will be. The timer is set in seconds only.
- Emergency Button: When this emergency button is activated, all controls are inhibited and the machine cannot be restarted until the button is released.

Accessories

- Adaptor for 100 mm test cylinders
- Adaptor for 150 mm test cylinders
- Adaptor for 150mm test cube
- Diamond-grinding wheel included
- User Guide

Features

- Concrete strength grade of 80MPa or less, single end grinding achieves constant results.
- Concrete cylinders with double end grinding method gives constant compressive strength values for all strength grades.
- Grinds planeness and parallelism of test cylinder ends in accordance with ASTM standards C31, C39,C-192, and , EN 12390-3,12390-1, 12504-1.
- Ready to use for 150 mm x 300 mm test cylinders and for 100 mm x 200 mm test cylinders (includes adaptor).
- Automatic bi-directional radial displacement of the table.

Sample Preparation

Positioning of Cylinders

- There are parameters that need to be taken into consideration before you set any cylinder into a compression test. Time and resources can be wasted when using a non-acceptable cylinder as this will give you a non-accurate test result. A grinding machine can easily fix this kind of setback.
- The sample adaptor (included) is placed on top of the displacement table.
- It is important that the adaptor is positioned evenly with the main table not overhanging. Position up to three test cylinders (100 mm x 200 mm) on the adaptor, placing the samples so that the surface to be polished comes in contact with the grinding wheel. The vice must be tight before starting the machine. If only one test cylinder needs to be polished, it should be positioned in the center of the adaptor. If just two test cylinders need to be polished, they should be positioned at each end of the adaptor.

Procedure

Power Button: Activate the parameters

Speed selection: Select the table advancement speed for 100mm or 150mm cylinders

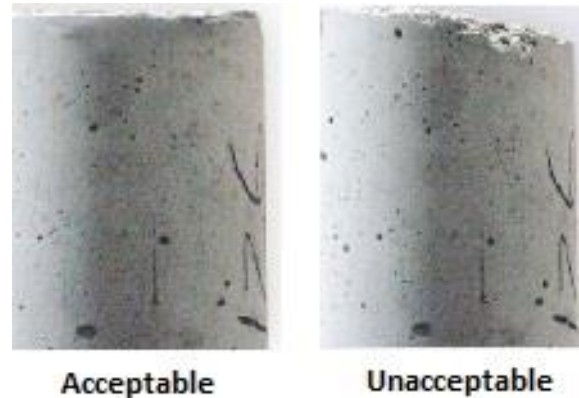
Timer: Set the cycle duration in seconds. We suggest 90 to 120 seconds per cycle, depending on hardness and diameter

Start:

- The table moves backward to its original position
- The grinding wheel motor starts.
- The grinding wheel oscillation movement begins.
- The water inlet valve opens.
- The table moves forward during the whole set period
- The green indicator light turns on.

End of Cycles:

- The timer has completed its cycle.
- The table is stationary.
- The grinding wheel continues to oscillate for 10-12 seconds
- The table moves backward to its original position
- During this backward movement, the water spray continues to clean the grinding wheel and the gutter.
- The oscillation movement stops, positioning the grinding wheel in the middle.
- Complete stop of the machine, the motors and the water inlet.
- Turn the test cylinders over and repeat the cycle.



Technical Specifications

Dimensions L x W x H (mm)	1065 x 670 x 1550
Weight (kg)	250
Grinding Time per end	90 to 120 sec
Power (W)	1850
Power supply	220V/10A/50Hz
PS Fuse OUT	3AG (Glass fuse)
L1 Fuse	20A class C
Diamond-grinding wheel life	5000 Samples
Warranty	1 year parts and labour

Sample Preparation

Concrete Sample Cutting Machine

UTC-1010,1020,1030

The UTC-1010,1020,1030 series of cutting machines has been specifically designed for the cutting of concrete, rock and natural stone cores and cylinders. Specimens are held in place by the block clamp. The system comes complete with 100mm dia V-clamp and water circulation pump. Blades are sold separately.



Melting Pot

UTC-1050

The melting pot is used for the preparation of capping compound. This is generally a Sulfur compound which is used to produce squared-off ends. The pot has a capacity of 3L and an Aluminium container in a well-lagged steel jacket. The pot is also supplied complete with a cover and a thermostatically controlled heating system. The heating system is capable of keeping a constant temperature of 200 deg C.



Capping Frame

UTC-1054

The Cylinder Capping Frame is used to ensure that the planned end surfaces are perpendicular to the axis of the cylinder. The frame comprises of a 75, 100, and 150mm dia base plate, making it useful for most samples including cylinders and cores.

Laboratory Core Trimmer and Cut-Off Machine

UTR-0300

The UTR-0300 takes irregular pieces of rock or core, and transforms them into perfectly machined shapes (cubes, prisms, etc.).

The machine includes a vice that holds the samples in place, and a second V shaped vice is then used to cut the cores to a maximum size of 75 mm diameter and 140 mm height. The samples can be turned upside down in the vice and this will produce longer cores. The machine includes a cooling water inlet.

UTR-0300 for 60 Hz with 220 V or 100 V can be supplied



Technical Specifications

Type	UTC-1010	UTC-1020	UTC-1030
Length (mm)	1100	1100	1300
Width (mm)	600	600	700
Height (mm)	750	750	950
Blade Dia.	350mm	450mm	600mm
Max Cutting Dia.	110mm	175mm	250mm
Cutting Length	700mm	600mm	650mm
Engine Power	3hp/220V	5.5hp/220V	5.5hp/220V
Weight	75kg	80kg	90kg
Engine for cutting with water	0.5hp/200V	0.5hp/200V	0.5hp/200V

UTC-1050

Dimensions	350 x 320 x 290mm
Capacity	3L
Power Consumption	600W
Weight	9kg

UTC-0300

Dimensions	730x1050x590 mm
Weight (approx.)	100 kg
Power	1100 W

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.

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