

Product Code

UTC-0350 Splitting Tensile Test Device for $\varnothing 150 \times 300$ mm ($\varnothing 6 \times 12$ "") and $\varnothing 160 \times 320$ mm Cylindrical Specimens

UTC-0351 Distance Piece for UTC-0350 for $\varnothing 100 \times 200$ mm ($\varnothing 4 \times 8$ "") Cylindrical Specimens

UTC-0355 Splitting Tensile Test Device for 60-150 mm height x 220 mm length Concrete Block Pavers

UTC-0360 Splitting Tensile Test Device for 150x150 mm Concrete Cubes, EN

UTC-0361 Distance Piece for UTC-0360 for 100x100 Concrete Cubes, EN

UTC-0365 Wood Fibre Boards, 4x15x345 mm, Pack of 50

Standards

EN 1338, 12390-6; ASTM C496

The UTC Series Splitting Tensile Test Devices are accessories for compression machines for measuring the splitting tensile strengths of $\varnothing 150 \times 300$ mm ($\varnothing 6 \times 12$ "") and $\varnothing 160 \times 320$ mm cylindrical specimens, 150 mm cube concrete specimens and of 60-150 mm height x 220mm length concrete block pavers according to the requirements of the related standards.

UTC-0351 Distance piece for $\varnothing 100 \times 200$ mm ($\varnothing 4 \times 8$ "") cylindrical specimens and UTC-0361 distance piece for 100 mm cube concrete specimens should be ordered separately.

All the accessories can easily be fitted to the machine without the removal of the upper platen and spherical seat.



UTC-0350

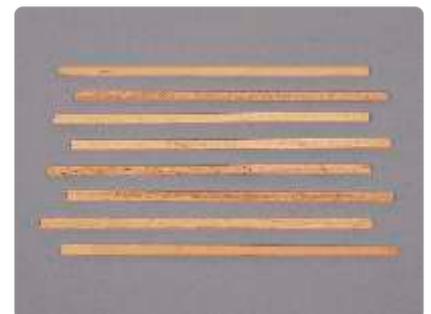


UTC-0355



UTC-0360

Product Code	UTC-0350	UTC-0355	UTC-0360
Specimens	Cylindrical $\varnothing 150 \times 300$ mm $\varnothing 100 \times 200$ mm (with UTC-0351) $\varnothing 160 \times 320$ mm	Concrete Block Pavers 60-100 mm height 220 mm length	Concrete Cubes 150 mm 100mm (with UTC-0361)
Related Standards	EN 12390-6; ASTM C496	EN 1338	EN 12390-6
Dimensions	340x150x330 mm	240x160x320 mm	180x150x320 mm
Weight (approx.)	25 kg	17,5 kg	15 kg



UTC-0365A

Product Code

- UTC-0950 Large Metal Curing Tank
- UTC-0952 Set of Removable Upper Racks for UTC-0950, (6 pieces)
- UTC-0953 Curing Tank Heater for UTC-0970 (6,5 cm connecting channel and 50 cm resistance length)
- UTC-0954 Curing Tank Heater for UTC-0950 and UTC-0965 (3 cm connecting channel and 50 cm resistance length)
- UTC-0955 Circulating Pump
- UTC-0960 Large Plastic Curing Tank
- UTC-0962 Wide Plastic Curing Tank
- UTC-0956 Curing Tank Heater for UTC-0960 and UTC-0962 (6,5 cm connecting channel and 70 cm resistance length)

Models for 220-240V 50-60 Hz, 1 ph.	UTC-0953	UTC-0954
Models for 110-120V 60 Hz, 1 ph.	UTC-0953-N	UTC-0954-N
Models for 220-240V 50-60 Hz, 1 ph.	UTC-0955	UTC-0956
Models for 110-120V 60 Hz, 1 ph.	UTC-0955-N	UTC-0956-N



UTC-0950



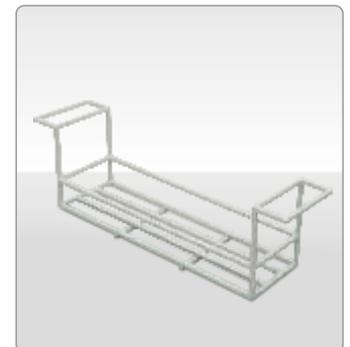
UTC-0960



UTC-0954



UTC-0955



UTC-0952

Standards

EN 12390-2; ASTM C31, C192, C511; AASHTO T23, T126

The UTC-0950 steel, UTC-0960 and UTC-0962 Plastic Curing Tanks are designed for curing concrete cubes and cylinders.

The temperature can be adjusted and can be kept constant by an electric resistance incorporating a digital thermo regulator which maintains the set temperature between ambient to 40 °C with ± 2 °C accuracy.

The UTC-0950 is manufactured from powder coated sheet steel.

Set of removable upper racks (6 pieces) to hold concrete cubes are available on request UTC-0960 and UTC-0962 plastic tanks are reinforced with a metal carcass.

Running temperature for UTC-0855 Circulating Pump is max. 300C.

Appropriate curing tank heater, circulating pump and UTC-0952 for UTC-0950 (in case of need) should be ordered separately.

		UTC-0950	UTC-0960	UTC-0962
Dimensions (WxLxH)	External	860x1560x615 mm	800x1800x950 mm	1100x2100x900 mm
	Internal	800x1500x550 mm (Clear Depth 520mm)	700x1700x850 mm (Clear Depth 820mm)	1000x2000x800 mm (Clear Depth 770mm)
Specimens	Cube 150 mm	Max. 135 pcs	Max. 220 pcs	Max. 390 pcs
Capacity	Cylindrical Ø150x300 mm	Max. 67 pcs	Max. 110 pcs	Max. 195 pcs
Weight (approx.)		92 kg	88 kg	130 kg

Product Code

UTCM-1100 Curing Cabinet 1000 L

Models for 220-240V 50-60 Hz, 1 ph	UTCM-1100
Models for 110-120V 60 Hz, 1 ph.	UTCM-1100-N

Standards

EN 196-1; ISO 679

The UTCM-1100 Curing Cabinet is used for curing of cement, concrete or other cement based mortar specimens. The curing cabinet provides $(20 \pm 1)^\circ\text{C}$ temperature and over 90% RH humidity. Internal chamber is made of stainless steel. The temperature is maintained by a heater and cooler unit which are supplied complete with cabinet.

The humidity and temperature can be controlled and monitored on the digital control unit.

The Cabinet has a LAN port for connection to a PC. Free of charged Utest Software (USOFT-1100) and a LAN cable supplied complete with the cabinet. Temperature and humidity data can be monitored and recorded in real time during the test by connection to a PC. With Utest Software, data can be converted to an excel report.

UTCM-1100 Curing Cabinet is also supplied complete with six displaceable shelves.



Internal Dimension	1140x680x1370 mm
External Dimension	1400x800x2100 mm
Weight (approx.)	200 kg
Power	1200 W

Automatic Soil Compactor

Product Code

- UTS-0650** Automatic Soil Compactor
- UTS-0652** ASTM/EN/BS Rammer for UTS-0650
- UTS-0654** ASTM Rammer Face, Ø2" (50.8 mm) for UTS-0650
- UTS-0656** EN/BS Rammer Face Ø 50 mm for UTS-0650

Models for 220-240V 50 Hz, 1 ph.	UTS-0650-T
Models for 110-120V 60 Hz, 1 ph.	UTS-0650-N
Models for 220-240V 60 Hz, 1 ph.	UTS-0650-K

Standards

ASTM D558, D559, D560, D698, D1557, D1883; EN 13286 2, 13286-47; BS 1377:4 AASHTO T99, T134, T135, T136, T180, T193; NLT 107/98, 108/91, 111/87



- Contact Us >
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UTS-0650 Automatic Soil Compactor is designed to compact specimens automatically and uniformly, assuring conformity with the above listed international standards.

The principle of the design is to allow the hammer to drop the required height into the soil in the mould which rotates circularly to distribute the blows uniformly over the surface of the specimen in the mould. The drop height is adjustable to 300 mm, 12" (305 mm), 450 mm and 18" (457 mm). The rammer is circular faced and interchangeable to 50 mm or 2" (50.8 mm) diameter. Rammer weight is adjustable to 5,50 lbf (2.5 kg) or 10 lbf (4.54 kg) according to reference standard. When compacting 100 mm or 4" diameter specimens the unit operates on a single radius and when compacting 150 mm or 6" diameter specimens the unit operates on inner and outer radius to obtain even compaction.

The number of blows per layer can be set at the beginning of the compaction process by the digital counter according to the standard preferred by user. This automatic blow pattern ensures effective and equal compaction for each layer of soil by rotating the base table, so the mould, in equal steps and travelling the rammer across the mould. User defined blow number and in-out distribution is also available.

Compactor is equipped with programmable digital counter which allows the machine:

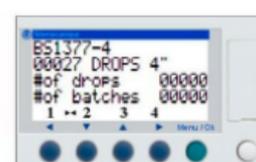
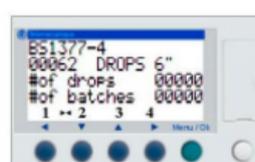
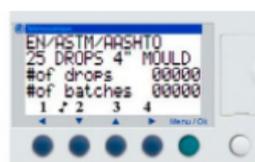
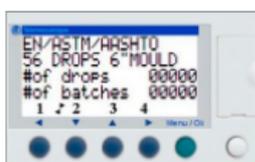
- To select reference standard (number of blows and mould size) by the operator at the beginning of the test.
- To set desired compaction cycle (number of blows and count of the number of inner and outer drops) by user.



Start, stop, emergency stop buttons and digital counter are on control panel which is connected to the main body by anti-vibrating connections



UTS-0652 with UTS-0654



The Standard Type (BS, EN, ASTM, AASHTO) Mould Size (4"or 6") and The Number of Drops can be selected easily.

Rammers

EN / BS	Circular faced, 50 mm dia. Adjustable to 2.5 kg or 4.54 kg weight
ASTM	Circular faces, Ø2" (50.8 mm) dia. Adjustable to 5,50 lbf (2.5 kg) or 10 lbf (4.54 kg) weight

Drop Height

BS	Adjustable to 300 mm or 450 mm
ASTM / AASHTO / EN	Adjustable to 12" (305 mm) or 18.00".(457. mm)

The Automatic Soil Compactor is supplied complete with;

- ASTM/EN/BS Rammer
- ASTM Rammer Face, Ø2" (50.8 mm)
- EN/BS Rammer Face, Ø 50 mm

Dimensions	650x550x1550 mm
Weight (approx.)	150 kg
Power	370 W

BEARING CAPACITY ON SITE

Product Code

- UTS-1101 100 kN Plate Loading Test Set with Digital Dial Gauges and LPI Digital Readout Unit
- UTS-1102 200 kN Plate Loading Test Set with Digital Dial Gauges and LPI Digital Readout Unit
- UTS-1105 500 kN (112400 lbf) Plate Loading Test Set with Digital Dial Gauges & LPI Digital Readout Unit
- UTS-1111 100 kN Plate Loading Test Set with Displacement Transducers and Data Logger
- UTS-1112 200 kN Plate Loading Test Set, with Displacement Transducers and Data Logger
- UTS-1115 500 kN (112400 lbf) Plate Loading Test Set, with Displacement Transducers and Data Logger
- UTS-1121 Hydraulic Jack with Load Transfer Arm, 100 kN capacity, for Plate Load Bearing Test Sets
- UTS-1122 Hydraulic Jack with Load Transfer Arm, 200 kN capacity, for Plate Load Bearing Test Sets
- UTS-1125 Hydraulic Jack with Load Transfer Arm, 500 kN (12400 lbf) capacity, for Plate Load Bearing Test Sets
- UTS-1133 Loading Plate, Ø152 mm (6"), for plate loading test
- UTS-1134 Loading Plate, Ø160 mm, for plate loading test
- UTS-1136 Loading Plate Ø 305 mm (12") for plate loading test
- UTS-1137 Loading Plate Ø 457 mm (18") for plate loading test
- UTS-1138 Loading Plate Ø 610 mm (24") for plate loading test
- UTS-1139 Loading Plate Ø 762 mm (30") for plate loading test
- UTS-1140 Loading Plate Set for Plate Loading Test. ASTM, Ø152 mm (6"), Ø305 mm (12"), Ø457 mm (18"), Ø610 mm (24") and Ø762 mm (30") plates
- UTGE-3800 Hydraulic Hand Pump, 700 bar

Standards

ASTM D1195, D1196; BS 1377:9

Plate load test sets can be used to determine the ultimate bearing capacity of subgrade soils and compacted pavement components. Plate load tests provide data for use in the evaluation and design of rigid and flexible-type airport and highway pavements.



UTS-1102

The test is performed by pressing a steel bearing plate into the layer to be measured by the help of a hydraulic jack and measuring the resulting deformation taking place on the layer. This deformation value can also be used to obtain modulus of subgrade reaction which can be correlated to resilient modulus as proposed by "1993 AASHTO Guide for Design of Pavement Structures"

Utest provides two grup for plate load testing sets: Models, UTS-1101, UTS-1102 and UTS-1105 with capacities, 100, 200 and 500 kN comprise three 25 x 0.01 mm digital dial gauges and a LPI Digital Readout Unit. Models UTS-1111, UTS-1112 and UTS-1115 comprise three 25 x 0.001 mm linear potentiometric displacement transducers and a data logger. All models are supplied complete with the load plates stated below and 1.5 m long flexible hose with quick release coupling and UTGE-3800 hydraulic hand pump.

UTS-1101 Plate Loading Test Set consists of a 100 kN capacity hydraulic jack with load transfer arm, 3pcs. 25 x 0.01 mm digital dial gauges with dial supports, hydraulic hand pump with pressure transducer and digital readout unit, 1,5 m flexible hose with quick release coupling, 2.5 m long datum bar with base support, Ø160 mm and 305mm loading plates and a wooden carrying case.

UTS-1102 Plate Loading Test Set consists of a 200 kN capacity



UTS-1112

hydraulic jack with load transfer arm, 3pcs. 25 x 0.01 mm digital dial gauges with dial supports, hydraulic hand pump with pressure transducer and digital readout unit, 1,5 m flexible hose with quick release coupling, 2.5 m long datum bar with base support, Ø160 mm and 305mm loading plates and a wooden carrying case.

UTS-1105 Plate Loading Test Set, ASTM, consists of a 500 kN (112400 lbf) capacity hydraulic jack with load transfer arm, 3pcs. 25 x 0.01 mm digital dial gauges with dial supports, hydraulic hand pump with pressure transducer and digital readout unit, 1,5 m (4,9 ft) flexible hose with quick release coupling, 5.5 m (18 ft) long datum bar with base support Ø152 mm (6"), Ø305 mm (12"), Ø457 mm(18") and Ø762 mm (30") loading plates and a wooden carrying case.



Detail of UTS-1102



Detail of UTS-1112

UTS-1111 Plate Loading Test Set consists of a 100 kN capacity hydraulic jack with load transfer arm, 3pcs. 25 x 0.001 mm linear potentiometric displacement transducers and their supports, hydraulic hand pump with pressure transducer, 4 channel static unilogger for data acquisition, 1,5 m flexible hose with quick release coupling, 2.5 m long datum bar with base support, Ø160 mm and Ø305 mm loading plates, converter DC 12 V to DC 24 V, a wooden carrying case and UTEST software.

UTS-1112 Plate Loading Test Set consists of a 200 kN capacity hydraulic jack with load transfer arm, 3pcs. 25 mm x 0.001 mm linear potentiometric displacement transducers and their supports, hydraulic hand pump with pressure transducer, 4 channel static unilogger for data acquisition,, 1,5 m flexible hose with quick release coupling, 2.5 m long datum bar with base support, Ø160 and Ø305 mm loading plates, converter DC 12V to DC 24V, a wooden carrying case and UTEST software.

UTS-1115 Plate Loading Test Set, ASTM, consists of a 500 kN (112400 lbf) capacity hydraulic jack with load transfer arm, 3pcs. 25 x 0.001 mm linear potentiometric displacement transducers and their supports, hydraulic hand pump with pressure transducer, 4 channel static unilogger for data acquisition, 1,5 m (4,9 ft) flexible hose with quick release coupling, 5.5 m (18 ft) long datum bar with base support, Ø152mm(6"), Ø305 mm(12"), Ø457 mm(18"), Ø610 mm(24") and Ø762mm(30") loading plates, converter DC 12V to DC 24V, a wooden carrying case and UTEST software.

USOFT-1111 Utest Software for Plate Loading Test is used with UTS-1111, UTS-1112 and UTS-1115 Plate loading test sets.

Product Code	Dimensions (mm)	Weight (approx.) (kg)
UTS-1133	30x152x152	4.2
UTS-1134	30x160x160	4.7
UTS-1136	30x305x305	17.5
UTS-1137	30x457x457	39
UTS-1138	30x610x610	69
UTS-1139	30x762x762	105
UTS-1140	150x762x762	235

Plate Load Test Set	Capacity	Automatic Data Logging and PC Software Support	Load Plates Included
UTS-1101	100 kN	----	Ø160 mm (UTS-1134)
UTS-1111		✓	Ø305 mm (UTS-1136)
UTS-1102	200 kN	----	Ø160 mm (UTS-1134)
UTS-1112		✓	Ø305 mm (UTS-1136)
UTS-1105	500 kN (112400 lbf)	----	Ø152 mm/6" (UTS-1133)
UTS-1115		✓	Ø305 mm/12" (UTS-1136)
		✓	Ø457 mm/18" (UTS-1137)
		✓	Ø610 mm/24" (UTS-1138)
✓	Ø762 mm/30" (UTS-1139)		

Product Code

UTS-1250 Light Weight Deflectometer

Standards

ASTM E2835-11

The Light Weight Deflectometer makes it possible to quickly determine, in an uncomplicated manner, the soil bearing capacity and compaction quality of soils, non-cohesive sub-bases, and pavement improvements. The dynamic plate load tester is described in the Engineering Code for Soil and Rock in Road Construction.

In this way testing inbuilt soil layers can be carried out very quickly and without requiring a vehicle, which means it is also suitable for sites that are difficult to access. The machine is used in many areas - in road construction, railway engineering and earthworks for quality protection in canal construction and utility trenches, and in the examination of roadbeds and foundation fillings.

Due to the easy handling and the immediately available measurement results. The Light Weight Deflectometer is especially suitable for in house self-monitoring.

The deflectometer is a very reliable device with a ergonomic design and special structure. It can be transported and operated easily by only one person. The transportation lock on the drop weight ensures safety.

The load plate is equipped with practical handgrips, and the bubble level helps with the exact alignment of the loading mechanism. Despite this precision, the Light Weight Deflectometer (LWD) is very robust and long-lived: it is made using only the very best of materials. Naturally, the measurement device is splash proof and can be used in all weather conditions.



Product Code

- UTS-0990A Balloon Density Apparatus 1600 ml ASTM
 UTS-0993NF Balloon Density Apparatus 3000 ml NF
 UTS-0996NF Balloon Density Apparatus 6000 ml, NF
 UTS-1000NF Balloon Density Apparatus 10000 ml, NF

Standards

ASTM D2167; NF P94-061-2: AASHTO T205

Balloon Density Apparatus are used for the on-site determination of the density of well bonded soil according to the ASTM and French standards respectively.

UTS-0990A consists of a graduated cylinder of 1596 ml capacity housed inside an aluminium guard, a reversible rubber aspirator pump, a density plate 9 inches square, and 12 rubber balloons. The principle of operation is similar to the sand replacement but the hole is filled by a rubber balloon where water is pumped. The amount of water can be easily determined by the graduation of the cylinder.

According to NF standard, a metal cylinder is filled with water which is then pumped into a rubber membrane mounted on the base of the cylinder. The water pressure is controlled by a pressure gauge and the volume of the balloon is measured on the graduated piston stem.



NF Type Balloon Density Apparatus are supplied complete with complete with;

- Reinforced Membranes, 6 pcs./pack
- Base Plate
- Locking Clamps, 4 pcs. [6 pcs. for UTS-1000NF]

ASTM Type Balloon Density Apparatus is supplied complete with complete with;

- A graduated cylinder, 1596 mL capacity housed inside an aluminum guard
- A reversible rubber aspirator pump
- Density plate
- Rubber balloons, 12 pcs.

Product Code	Dimensions	Weight (approx.)
UTS-0990	250x250x700 mm	7 kg
UTS-0992	360x360x1000 mm	10 kg



UTA-0510-T

SAND EQUIVALENT SHAKER



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This manual contains important information on the safe usage and maintenance of UTEST UTA-0510-T Sand Equivalent Shaker and of its related components. Please read through the manual carefully before operating the device for the first time and keep it for the future reference.

Symbol	Description
	<p>WARNING: In conjunction with one of the signal words this symbol indicates a hazard which will or could result in death or serious injury.</p>
	<p>ELECTRIC HAZARD: In conjunction with one of the signal words this symbol indicates a hazard involving electrical voltage and identifies information about protection against electrical voltage.</p>
	<p>HIGH TEMPERATURE WARNING: This icon indicates a hot surface warning. Protective gear must be worn at all times while working with or close to the sections marked with this warning icon.</p>
	<p>NOTE: Recommendations and important information on how to handle the product.</p>

UTEST General Terms and Conditions of Sales and Delivery apply in all cases. Warranty and liability claims arising from personal injury and damage to property cannot be upheld if they are due to one or more of the following causes:

- ✓ Unauthorized modifications to the device and its components.
- ✓ Failure to use the instrument in accordance with its designated use and purpose which is described in this manual.
- ✓ Failure to adhere to the sections of the manual dealing with the performance check, operation and maintenance of the instrument and its components.
- ✓ Incorrect performance checks for operation and maintenance of the instrument and its components.
- ✓ Damage resulting from the effects of foreign bodies, accidents, vandalism and force majeure.

The instrument is only to be used for its designated purpose as describe herein. Replace faulty components only with original replacement parts from UTEST. Accessories should only be installed or connected to the instrument if they are expressly authorized by UTEST. If other accessories are installed or connected to the instrument, then UTEST will accept no liability and the product guarantee is forfeit.

This part contains important safety instructions that the user must follow for operation and storage of UTA-0510-T.

- ✓ Device should be seated on a steady base.
- ✓ Always follow basic safety precautions when using this product to reduce risk of injury from any dangerous situations.
- ✓ Read and understand all instructions in the documentation that comes with UTA-0510-T.
- ✓ Observe all warnings and instructions marked on the product.
- ✓ Before removing any covers or performing maintenance repair and service, isolate from electrical supply by removing mains plug
- ✓ Wear protective clothing when handling equipment at extreme temperature.
- ✓ Avoid contact with these materials if any organic or inorganic chemicals are used in the test to be performed with the equipment. Wear safety glasses, gloves and a lab coat before starting the test.
- ✓ Do not lean the cabinet to the wall at zero distance.
- ✓ While the test is in operation do not remove any covers or attempt to adjust any part of the machine.



WARNING: *The equipment is not allowed to be operated by children or anyone under the influence of alcohol, drugs or pharmaceutical preparations. Anyone who is not familiar with this manual*

must be supervised when using the equipment. Carry out the stipulated maintenance properly and at the correct time. Following completion of the maintenance tasks, perform a functional check.

Device Handling

UTEST

The electronic and mechanic parts of UTA-0510-T are sensitive components. Please handle them carefully.

- ✓ Do not place any heavy objects on the device.
- ✓ Avoid any impact or rough handling that might damage the device.
- ✓ Do not disassemble UTA-0510-T.
- ✓ Install the product in a protected location where no one can step on or trip over the power cord and in a location where the power cord cannot be damaged.

UTA-0510-T Sand Equivalent Shaker is used for the uniform shaking of Sand Equivalent Measuring Cylinders, at a specified rate and stroke. The shaker is supplied complete with a timer. The horizontal movement, cycle and shaking time can easily be adjusted on the shaker to comply with EN or ASTM standards. The Sand Equivalent Shaker supplied complete with the safety cover and timer. Horizontal movement and cycle values of the device is given in the Table 1.

Table 1- Horizontal Movement and Cycle

Horizontal Movement	200 mm \pm 10 mm (EN), 203.2 mm \pm 1 mm (ASTM)
Cycle	90 \pm 3 / 30 sec. (EN), 175 \pm 2 / min. (ASTM)

The device has various equipment for security purposes. The first one is the "Safety Switch" which prevents the device from operating when the START button is pressed while the safety cover is open. Another is the "Emergency Stop Button" located on the front panel of the device to immediately stop the device in case of any negativity. Dimensions and weight of the device is given in the Table 2.

Table 2-Dimensions and Weight of the UTA-0510-T

Dimensions	800x360x425 mm
Weight (approx.)	48 kg
Power	200 W

1.2 Parts of the UTA-0510-T **UTEST**

The Sand Equivalent Shaker consists of the safety cover, cradle, bakelite screw, timer, start and stop button, and emergency stop button. All of the part is shown in the Figure 1.



Figure 1-Parts of the UTA-0510-T

Timer: The digital control unit can be used to adjust the operating time according to the standard to be tested. This unit can be set up to a maximum of 99 minutes and 59 seconds.

Start and Stop Button: Start button is used to start the test and Stop button is used to stop the test at desired time.

Safety Cover: Safety Cover is used to reduce the sound occurred during the test period and it is also used as a safety feature in case of any negativity.

Emergency Stop Button: Emergency Stop Button is located on the front panel of the device to immediately stop the device in case of any negativity.

Cradle: Sand equivalent measuring cylinders is placed on cradle before starting the test.

Bakelite Screw: When sand equivalent measuring cylinders is placed on cradle, it is fixed its place by turning bakelite screw clockwise direction before starting the test. After the test, the screw has to be loosened to get the cylinder.

2. INSTALLATION

UTEST

2.1 Environment

UTEST

Make sure that the room in which the device is going to be placed have a proper mains supply which is in compliance with the machine specifications.

Check the voltage (V), ampere (A), frequency (Hz), phase (ph), and power (W) of the UTA-0510-T in Table 3.

Table 3-UTA-0510-T Electrical Connection Properties

UTA-0510-T Electrical Connection Properties				
Voltage	Ampere	Frequency	Phase	Power
220-240 V	4 A	50-60 Hz	1Ph	200 W

The main electricity line must be free from instabilities and repetitive power cuts for both the extended life of the device and the continuity of testing. Therefore, make sure that the mains supply is well grounded. If the power cuts are frequent or the grounding is not well enough, the use of an uninterruptible power supply (UPS) is recommended.

Make sure that the device is placed in a clean and dry surrounding. Direct contact of the device with the sunlight should be avoided. A conditioned room for example, will comply the above conditions and will result in best operational performance and measurement results. The device should be well accessible from the front and the sides for connections, testing and maintenance.

In order to prevent inaccurate test results, the ground should be rigid enough to minimize vibrations or shocks. If there are any other testing equipment or a source that creates vibrations on the floor, UTA-0510-T should be placed on the maximum possible distance to that source. Surface

of the ground should be horizontal and smooth enough so that the horizontal and vertical alignments of the device are not shifted.

2.2 Unpacking

UTEST

Open the wooden case without damaging the contents and remove all packaging materials. Check for completeness and damages if exist. Report any irregularities directly to the supplier. Take necessary precautions and carefully transport and place the device to its place. Remove the power cable.

3. OPERATION

UTEST

1. Read the requirements of the related standard of the test. (EN 933–8; ASTM D2419; AASHTO T176)
2. Prepare the sample for testing according to required standard.
3. After connecting the power cord, turn on the power switch (See Figure 2).



Figure 2-On Position of the Device

4. Set the time you want to test on the timer. To do this, press the "Set" button on the timer once. Then set the time using the "Up" (this key is used to increase the time.) and "Down" (this key is used to decrease the time.) keys on the timer. Then press Set button again. The unit will store the set time in its memory (See Figure 3).



Figure 3-Timer

5. After placing the sample in the sand equivalent measuring cylinder, place it on the cradle, making sure that the plug on the sand equivalent measuring cylinder is placed to the bakelite screw side (see Figure 4). Then fix the sand equivalent measuring cylinder to its place by turning bakelite screw clockwise direction.

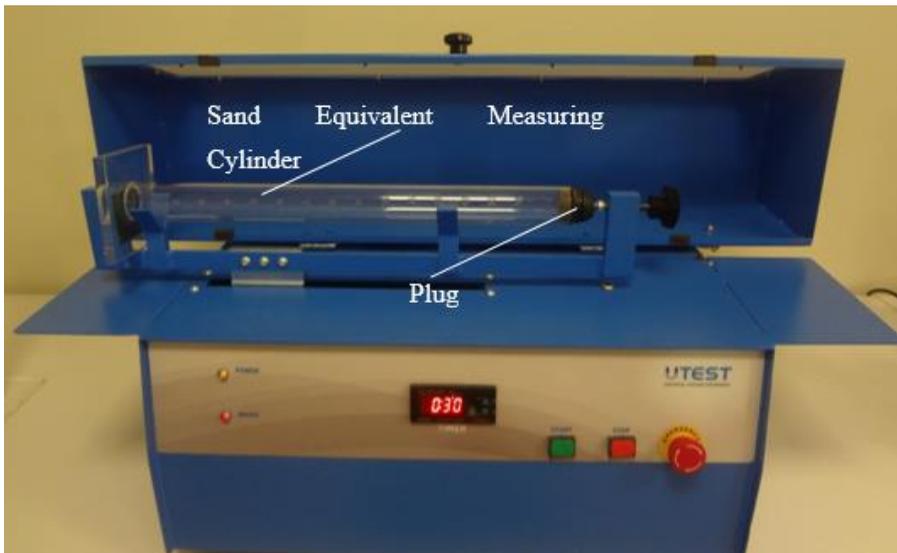


Figure 4-Placing Sand Equivalent Measuring Cylinder

6. Close the cover and press Start Button to initiate the test.
7. After test is finished open the safety cover and loosen the bakelite screw and take the sand measuring cylinder.



WARNING: *It is important to care that the unit must be switched off and the main cable must be removed before starting any maintenance for user's safety.*

All safety devices must be functional at all times. Damaged protective covers or devices must be replaced as soon as possible. When safety components are replaced, the protective devices are to be properly attached and tested.

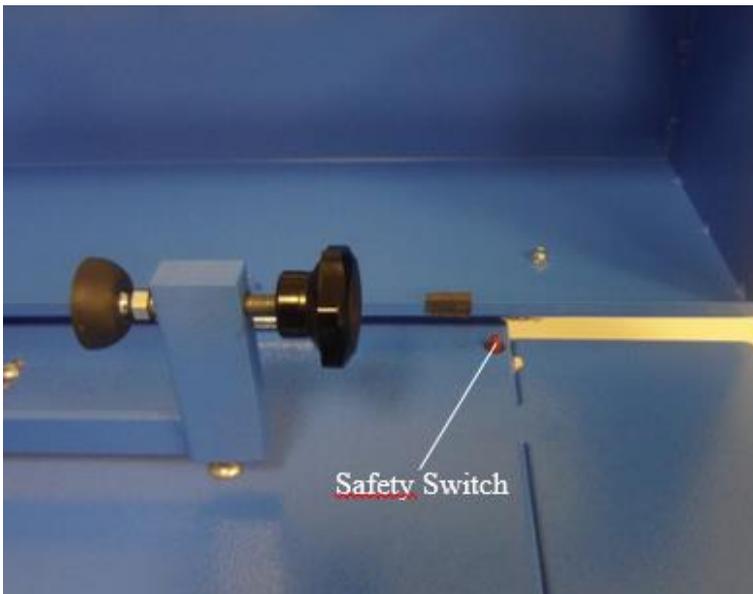


Figure 5-Safety Switch

UTEST recommend that the device is cleaned of any particles and dust from the scattered specimen after the test with a damp cloth and brush to avoid incrustations which could damage the paint work.

As with all electrical equipment, machine must be used correctly and maintenance and examination must be performed at regular periods. Such precautions will guarantee the safe and sufficient functioning of the equipment.

Maintenance of the equipment is responsibility of the purchaser and must be performed as stated by this chapter. Failing to perform the recommended maintenance actions or maintenance performed by unauthorized people can void the warranty.

5. TROUBLESHOOTING

UTEST

Possible problem and repair technics are mentioned below. Please read this section before calling UTEST technical service.

If the machine does not switch on, fuse in rocker switch is changed with its spare given. You must first plug out the power cable to perform this operation. After that extract the box which carries the fuse with screwdriver and change the fuse with its spare (See Figure 6 and 7).

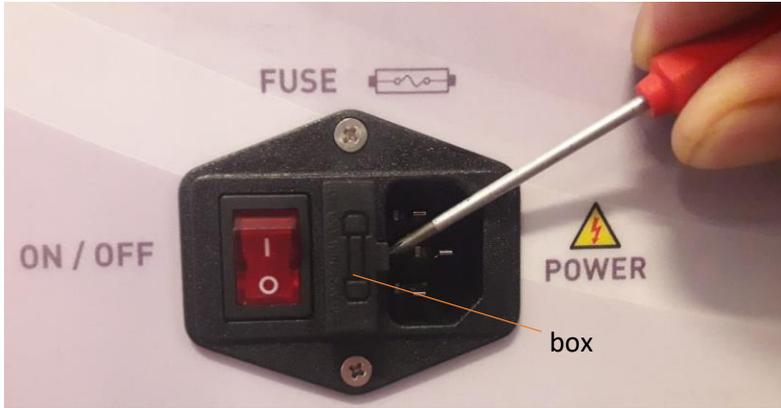


Figure 6-Extraction of Box

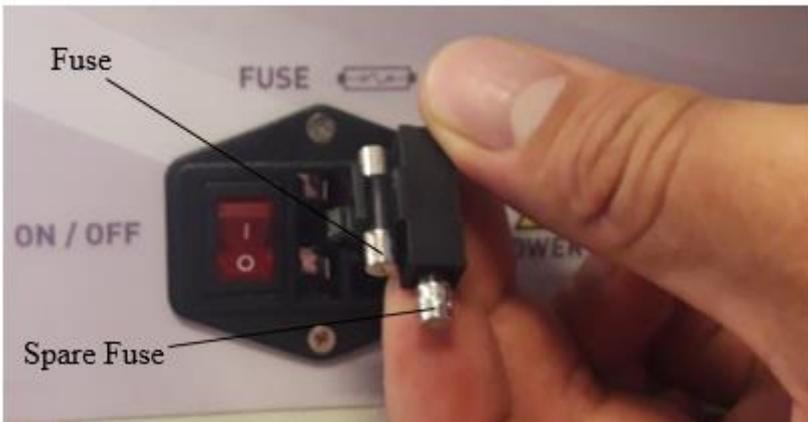


Figure 7-Fuse with its Spare



BENART Uluslararası Teknik Kontrol ve Belgelendirme Ltd. Şti.

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UYGUNLUK SERTİFİKASI CERTIFICATE OF CONFORMITY

Firma Adı Company Name	: UTEST MALZEME TEST CİHAZLARI VE MAKİNELERİ İMALATI VE DIŞ TİCARET ANONİM ŞİRKETİ
Adres Address	: 1. ORGANİZE SANAYİ BÖLGESİ URAL CAD. NO:18 SINCAN/ANKARA/TÜRKİYE
Ürün Tanımı Product Description	: KUM EŞDEĞERİ SALLAMA CİHAZI SAND EQUIVALENT SHAKER
Ürün Markası/Modeli/Tipi Product Brand/Model/Type	: UTEST/UTA-0510-T, UTA-0510-N, UTA-0510-K
Referans Yönetmelik(ler) Reference Directive(s)	: 2006/42/AT Makine Emniyet Yönetmeliği Ek-1 2006/42/EC Machinery Safety Directive Annex-I
Test Raporu Test Report	: Benart Uluslararası Teknik Kontrol Ve Belgelendirme Ltd.Şti. : LVD-2778
Sertifika No Certificate No	: 3108
Yayın Tarihi Issue Date	: 23.01.2019
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Genel Müdür/General Manager



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UTCM-1100

CURING CABINET



USER MANUAL

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This manual contains important information on the safe usage and maintenance of UTCM-1100 Curing Cabinet and of its related components. Please read through the manual carefully before operating the device for the first time and keep it for the future reference.

Symbol	Description
	<p>WARNING: In conjunction with one of the signal words this symbol indicates a hazard which will or could result in death or serious injury.</p>
	<p>ELECTRIC HAZARD: In conjunction with one of the signal words this symbol indicates a hazard involving electrical voltage and identifies information about protection against electrical voltage.</p>
	<p>HIGH TEMPERATURE WARNING: This icon indicates a hot surface warning. Protective gear must be worn at all times while working with or close to the sections marked with this warning icon.</p>
	<p>NOTE: Recommendations and important information on how to handle the product.</p>

UTEST General Terms and Conditions of Sales and Delivery apply in all cases. Warranty and liability claims arising from personal injury and damage to property cannot be upheld if they are due to one or more of the following causes:

- ✓ Unauthorized modifications to the device and its components.
- ✓ Failure to use the instrument in accordance with its designated use and purpose which is described in this manual.
- ✓ Failure to adhere to the sections of the manual dealing with the performance check, operation and maintenance of the instrument and its components.
- ✓ Incorrect performance checks for operation and maintenance of the instrument and its components.
- ✓ Damage resulting from the effects of foreign bodies, accidents, vandalism and force majeure.

The instrument is only to be used for its designated purpose as describe herein. Replace faulty components only with original replacement parts from UTEST. Accessories should only be installed or connected to the instrument if they are expressly authorized by UTEST. If other accessories are installed or connected to the instrument, then UTEST will accept no liability and the product guarantee is forfeit.

This part contains important safety instructions that the user must follow for operation and storage of UTCM-1100.

- ✓ Device should be seated on a steady base.
- ✓ Always follow basic safety precautions when using this product to reduce risk of injury from any dangerous situations.
- ✓ Read and understand all instructions in the documentation that comes with UTCM-1100.
- ✓ Wear protective clothing when handling equipment at extreme temperature.
- ✓ Avoid contact with these materials if any organic or inorganic chemicals are used in the test to be performed with the equipment. Wear safety glasses, gloves and a lab coat before starting the test.
- ✓ Observe all warnings and instructions marked on the product.
- ✓ Before removing any covers or performing maintenance repair and service, isolate from electrical supply by removing mains plug.
- ✓ If the instructions given in troubleshooting cannot help to solve your problem, plug out the power cable and call UTEST technical service.
- ✓ For safe operation of the unit, should be enough air circulation and mains water supply around device.
- ✓ Don't put anything on top of the device.

- ✓ It should be left an air gap of 30 cm behind and 10 cm side between the walls and device. Do not cover the air ventilation gaps.
- ✓ Make sure that the device's supply cable is not passing under or over hot or sharp surfaces.
- ✓ While the test is in operation do not remove any covers or attempt to adjust any part of the machine.



WARNING: *The equipment is not allowed to be operated by children or anyone under the influence of alcohol, drugs or pharmaceutical preparations. Anyone who is not familiar with this manual must be supervised when using the equipment. Carry out the stipulated maintenance properly and at the correct time. Following completion of the maintenance tasks, perform a functional check.*



WARNING: *Manual mode is only for troubleshooting purposes and machine should not be operated in manual mode for more than 2 minutes to avoid damaging the cooling unit. UTEST will accept no liability and the product guarantee will be forfeit in case any kind of damage arises from not adhering to this manual.*



WARNING: *Do not operate cooling unit immediately after turning the machine on. Cooling unit should be operated at least 2 minutes after the machine has been turned on.*



WARNING: *Do not use flammable solid or liquid materials which produce flammable gas, liquids or solids that cause rust or rusty conditions.*

The electronic parts and mechanic parts of UTCM-1100 are sensitive components. Please handle them carefully.

- ✓ Do not place any heavy objects on the device.
- ✓ Avoid any impact or rough handling that might damage the device.
- ✓ Do not disassemble UTCM-1100.
- ✓ Install the product in a protected location where no one can step on or trip over the power cord and in a location where the power cord cannot be damaged.

The UTCM-1100 Curing Cabinet is used for curing of cement, concrete cubes or other mortar specimens. It can be used for curing cement specimens within the mould, or after removing from the mould. The curing cabinet provides $20 \pm 1^\circ\text{C}$ temperature and over 90% RH humidity for cement specimens. Internal chamber and racks are made of stainless steel which is a material that will not react with cement. The temperature is maintained at $20 \pm 1^\circ\text{C}$ by an immersion heater and refrigerator unit which are supplied complete with cabinet. The cabinet is equipped with a digital control unit which controls and monitors the temperature.

The device is designed so that the humid air can reach all parts of the mould. Moulds should not be placed on top of each other. Each mould should be taken out of the place where it is kept for sample removal. Samples should be placed on the racks by adjusting the distance between each other so that moisture reaches the entire bottom surface of the samples freely. In the curing cabinet, there is a system that ensures the distribution and circulation of moisture, temperature and air evenly inside the cabin. UTCM-1100 Curing Cabinet is also supplied complete with six displaceable shelves.

The front fascia of the cabinet consists of power on/off switch and touch control panel. UTCM-1100 is equipped with a moisture probe to instantly

measure the humidity inside the device. In this way, the moisture in the device can be seen instantly on the digital screen (see Figure 1).



Figure 1: Moisture Probe

Thanks to two fans inside the device, the air inside the device is kept at $20 \pm 1^\circ\text{C}$ temperature in accordance with the standard. At the same time, water is sprayed into the device thanks to 3 nozzles in the device. In this way, the humidity inside the device can be adjusted (see Figure 2).



Figure 2: Nozzles

On the rear panel there is an ethernet socket used to connect the device to the computer to control the operation with the device via the computer and there is a water connection inlet plug used to connect the device to the mains water (see Figure 3).

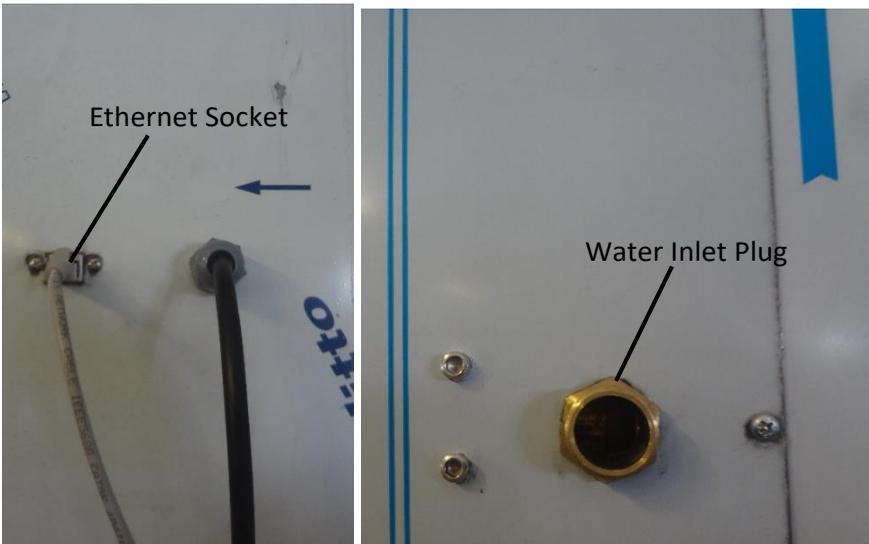


Figure 3: Ethernet Socket and Water Inlet Plug

Water originating from moisture and accumulating in the device is discharged from the device through the water discharge hole in the device (Figure 4).



Figure 4: Water Discharge Hole

The first thing to do with the installation of the UTCM-1100 is to connect the device to the mains water. Before doing this process, the connections of the water treatment unit should be made in order to prevent any organic and inorganic foreign matter coming from the mains water for clogging the nozzles and to purify the water (see Figure 5).

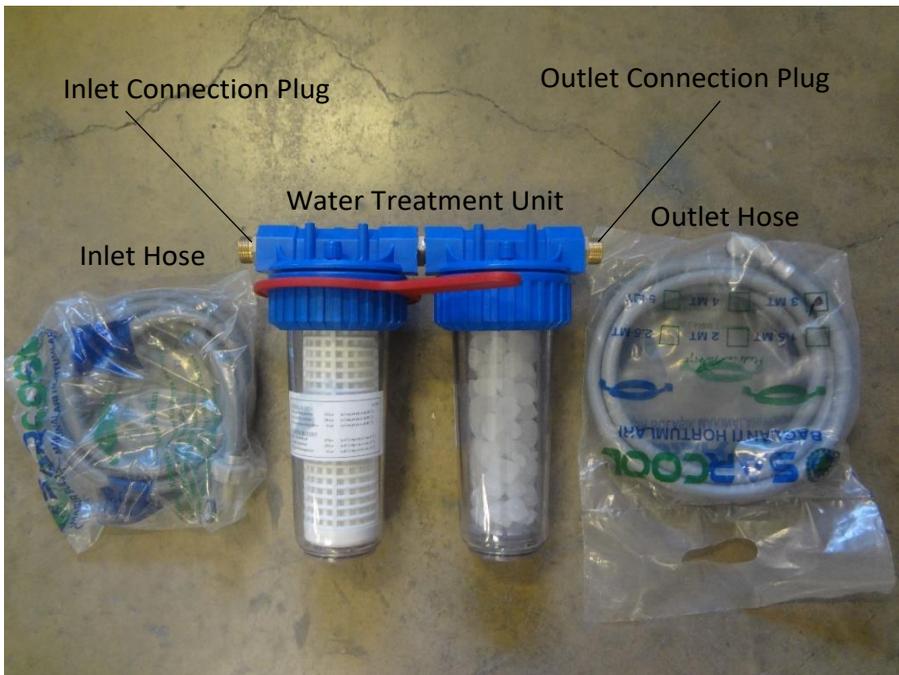


Figure 5: Water Treatment Unit

To make these connections:

1. Connect the mains water to the water treatment unit indicated by "IN" by inlet hose sent with the device. Connect one end of the hose to the IN part of the water treatment unit and the other end to the mains water supply.
2. Connect to the section on the water treatment unit indicated by "OUT" via the outlet hose sent with the device. Connect one end of the hose to the OUT part of the water treatment unit and the other end to the water inlet plug on the device.
3. Before turning on the mains water, make sure that the air bleed valves on the water treatment unit must be opened. Having these valves open will prevent accumulation of air in the water treatment unit. Keep open it until water comes out from the valves. You can close the valves after the water comes.

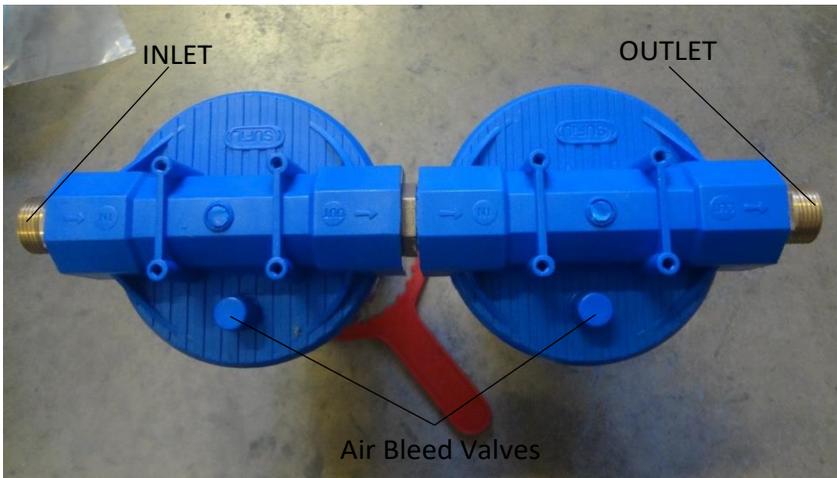


Figure 6: Inlet and Outlet Points

If filter inside the water treatment unit will be cleaned, red apparatus shipped with the unit should be putted on the unit as in Figure 4 and the filter can be removed from the water treatment unit by turning it counter-clockwise.



WARNING: *The cabinet must not be operated without water supply connection, this issue is very important. If the cabinet is switched on without water connection, there will be a warning message on the screen.*

2.1 Environment

UTEST

Make sure that the room in which the device is going to be placed have a proper mains supply which is in compliance with the machines specifications, and enough number of plugs for the connection of the device, PC/laptop, etc. Check the voltage (V), ampere (A), frequency (Hz), and the phase of the mains supply in Table 1.

Table1: UTCM-1100 Electrical Connection Properties

UTCM-1100 Electrical Connection Properties		
Voltage	Frequency	Phase
220-240 V	50 - 60 Hz	1Ph

Main electricity line must be free from instabilities and repetitive power cuts for both the extended life of the device and the continuity of testing. Therefore, make sure that the mains supply is well grounded. If the power

cuts are frequent or the grounding is not well enough, the use of an uninterruptible power supply (UPS) is recommended.

Make sure that the device is placed in a clean and dry surrounding. Direct contact of the device with the sunlight should be avoided. A conditioned room for example, will comply the above conditions and will result in best operational performance and measurement results. Device should be well accessible from the front and the sides for connections, testing and maintenance. Dimensions and weight of the device is given in the Table 2.

Table 2: Dimensions and the Weight of the Curing Tank

Internal Dimension	1140x680x1370 mm
External Dimension	1400x800x2100 mm
Weight (approx.)	200 kg

In order to prevent inaccurate test results, the ground should be rigid enough to minimize vibrations or shocks. If there are any other testing equipment or a source that creates vibrations on the floor, UTCM-1100 should be placed maximum possible distance to that source. Surface of the ground should be horizontal and smooth enough so that the horizontal and vertical alignment of the device are not shifted.



NOTE: *If remote assistance will be required from the UTEST Technical Service Department, the room should have an internet access.*

2.1 Unpacking

UTEST

Open the wooden case without damaging the contents and remove all packaging materials. Check for completeness and damages if exist. Report any irregularities directly to the supplier.

Take necessary precautions and carefully transport and place the device to its place.

The control unit consists of the HMI display. The humidity and temperature can be controlled and monitored on the HMI. The control unit makes use of the touch screen easier. To display the desired main menu and submenus, simply touch the corresponding menu text on the screen. If you want to change the value of a parameter, touch it with your finger to the parameter and virtual keyboard will be displayed. Desired values can be set the desired values using the numbers on this keyboard. Just press OK to confirm the value. Whole test can be performed and all the settings can be set of the device on this screen. Control unit consists of Main Menu, Test Screen, Program Selection, Active Program, Monitoring, and Settings. When HMI is opened UTEST logo will be seen. To reach other menus touch the logo.



Figure 7: UTEST Logo

Main menu for the machine is consisted of language selection and operation options for the machine. Automatic testing gives the users the option to perform freezing and thawing tests automatically. Manual testing should be used for troubleshooting purposes.

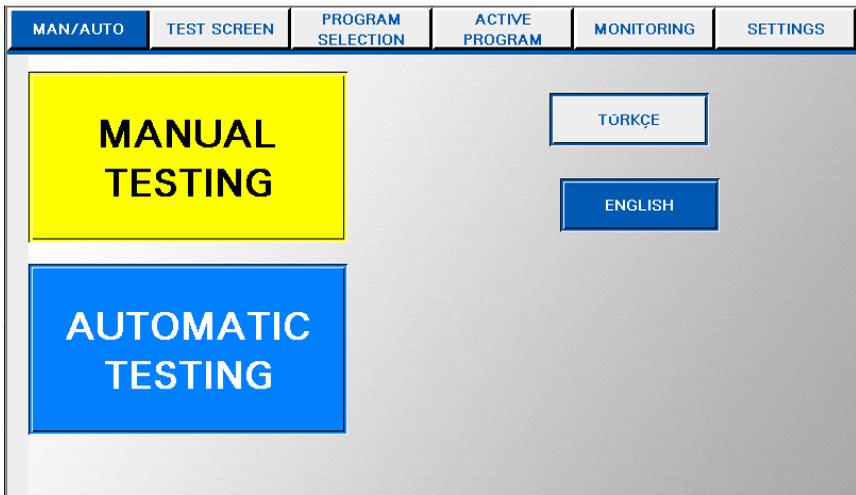


Figure 8: Main Menu

Manual testing should be selected for manual control of fan, cooling, heating, increase moisture, decrease moisture, and defrost. Every unit can be controlled before starting to test. Indicators near each option will be lit once application is in operation. Avoid using the machine in Manual Mode unless otherwise instructed by UTEST technical personnel.

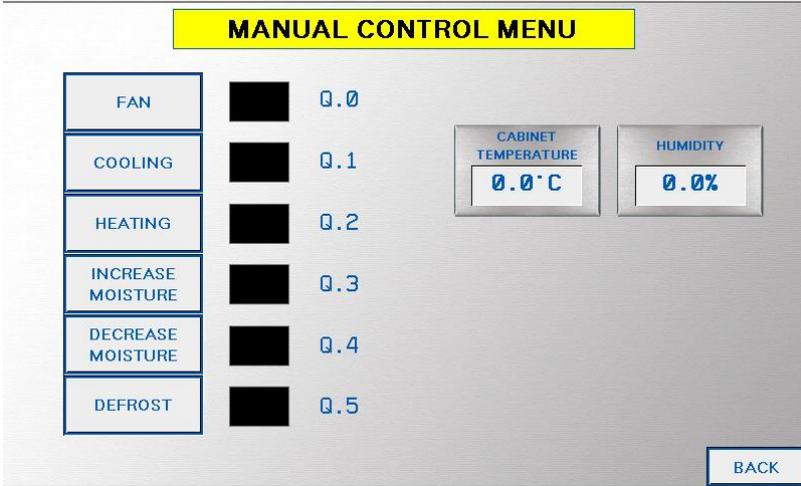


Figure 9: Manual Control Menu



WARNING: *This operation mode should NOT be used without proper supervision. UTEST takes no responsibility for improper device operation using Manual Testing and for any damage that can be caused to the machine using Manual Testing.*

3.1.2 Automatic Testing Menu



When this menu is selected, screen directs user directly to the test screen.

3.2 Test Screen Tab



Test control for UTCM-1100 Curing Cabinet should be made in this menu. Before starting the test, program selection should be made using “Program Selection” menu.

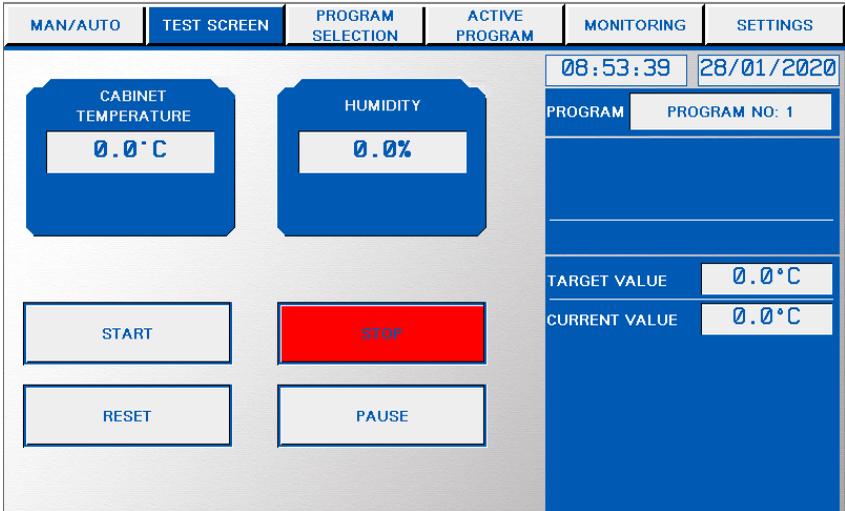


Figure 10: Test Screen Menu

Cabinet Temperature and Humidity: Instant temperature and humidity value inside the device can be seen on these two screens.

Start, Pause, Stop: After selecting program and control method, test can be started using, Start button. Pause and Stop buttons cannot be used if Screen Lock is active.

Reset: It has the same function with Stop button. When pressed for 3 seconds, resets the configuration to default values.

At the right side of the menu selected program and its specifications with current information about the test can be seen.

In this menu, standard programs can be chosen from existing recipes. Also new program can be created according to desired temperature and humidity. Target values will be entered when the program selection has been made. Selected programs can be edited using edit button. Number of the program can be seen on the right side of the program number selection part.

MAN/AUTO	TEST SCREEN	PROGRAM SELECTION	ACTIVE PROGRAM	MONITORING	SETTINGS
PROGRAM NO: 1		PROGRAM NR 1			
TEMPERATURE	HUMIDITY			VIEW	
0.0°C	40.0%			SAVE	
				EDIT	
				Idle	
				OK	

Figure 11: Program Selection Tab

Temperature: Stands for the desired temperature which will be reached during the test.

Humidity: Stands for the desired humidity which will be reached during the test.

View: By pressing the View key the humidity and temperature values of the selected program or the program to be selected can be viewed. To see the values of the program you want, enter the program you want to see. You can then view the properties by pressing View.

Save: After selecting the desired program from PROGRAM NR, the first operation is to press SAVE button. Then press OK to start testing with the selected program.

Edit: Under this menu the user can create a new program of his/her choice. After pressing the Edit button, New Recipe button has to be pressed. Humidity and temperature values can be adjusted as desired and the user can create his own program. Once the program is created, the user must first press the SAVE button and then the OK button.



Figure 12: Edit Tab

Under this menu, you can see which step the test is in. In this screen, close monitoring of test steps can be made. The number left of the active stage will be blinking with a green light.

MAN/AUTO	TEST SCREEN	PROGRAM SELECTION	ACTIVE PROGRAM	MONITORING	SETTINGS																																								
<table border="1"><thead><tr><th>STEP NR</th><th>RAMP</th><th>TEMPERATURE</th><th>HOLD</th><th>HUMIDITY</th></tr></thead><tbody><tr><td>1</td><td>0 min</td><td>0.0°C</td><td></td><td>40.0%</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></tbody></table>					STEP NR	RAMP	TEMPERATURE	HOLD	HUMIDITY	1	0 min	0.0°C		40.0%																															PROGRAM NO: 1
STEP NR	RAMP	TEMPERATURE	HOLD	HUMIDITY																																									
1	0 min	0.0°C		40.0%																																									

Figure 13: Active Program Tab

3.5 Monitoring Tab

This tab can be used to monitor current operation of the machine during testing. PLC outputs can be monitored on this screen.

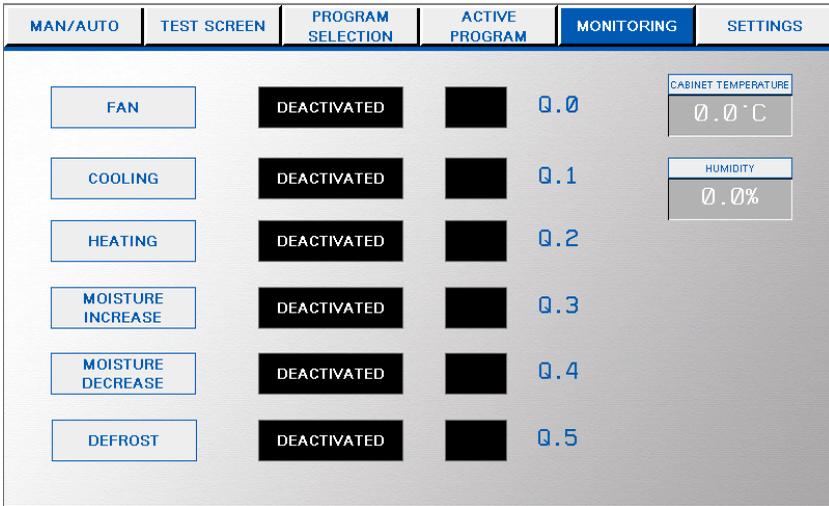


Figure 14: Monitoring Tab

3.6 Settings Tab

This screen can be accessed through Settings button in the automatic testing menu. It can be used to tune the operation of the machine.

MAN/AUTO	TEST SCREEN	PROGRAM SELECTION	ACTIVE PROGRAM	MONITORING	SETTINGS
Page-1	CABINET THERMOCOUPLE OFFSET			0.0°C	
	HUMIDITY SENSOR OFFSET			0.0°C	
Page-2	HEATING HYSTERESIS			0.0°C	
	COOLING HYSTERESIS			0.0°C	
	MOISTURE BOOST LIMIT			0.0%	
	MOISTURE INCREASE DURATION			0 s	
	MOISTURE INCREASE DOWNTIME			0 s	
	COMPRESSOR STANDBY DURATION			0 min	

Figure 15: Settings (Page 1)

Cabinet Thermocouple Offset: This option can be used to define an offset to the cabinet probe reading of the machine.

Humidity Sensor Offset: This option can be used to define an offset to the humidity sensor reading of the machine.

Heating Hysteresis: Applies a delay to the target temperature in both negative and positive directions with the amount specified in the cell. This value can be used if the actual temperature exceeds the target value due to previous heating process.

Cooling Hysteresis: Applies a delay to the target temperature in both negative and positive directions with the amount specified in the cell. This value can be used if the actual temperature exceeds the target value due to previous cooling process.

Moisture Boost Limit: This value is the humidity value that requires intensive moisture reinforcement to be reached. Usually “90” is entered.

Moisture Increase Duration and Moisture Increase Downtime: The periods of spraying moisture into the cabin during humidification are done with these two settings. (Downtime: 10s, Duration: 2s is recommended.)

Compressor Standby Duration: This setting is necessary to protect the cooling compressor from constantly stopping and starting. The compressor stops after running and reaching the target value. If it needs to work later, it waits for the time here to be completed. This time should be minimum 2 minutes for device safety.

MAN/AUTO	TEST SCREEN	PROGRAM SELECTION	ACTIVE PROGRAM	MONITORING	SETTINGS
Page-1		CABINET AIR TEMPERATURE LOWER LIMIT		0.0°C	
		CABINET AIR TEMPERATURE UPPER LIMIT		0.0°C	
Page-2		MOISTURE DECREASE DURATION		0 s	
		MOISTURE DECREASE DOWNTIME		0 s	
		MOISTURE DECREASE START HYSTERESIS		0.0	
		MOISTURE DECREASE STOP HYSTERESIS		0.0	
		DEFROST WAITING TIME		0	
		DEFROST WORKING TIME		0	

Figure 16: Settings (Page 2)

Cabinet Air Temperature Lower Limit and Cabinet Air Temperature Upper

Limit: These values determine the temperature limits of the cabin. The lower limit and upper limit are entered here.

With these settings, the period of dehumidification used to reduce the amount of moisture formed in the device is determined. (Duration: 20s, Downtime: 30s is recommended.)

Moisture Decrease Duration and Moisture Decrease Downtime:

With these settings, the period of dehumidification used to reduce the amount of moisture formed in the device is determined. (Duration: 20s, Downtime: 30s is recommended.)

Moisture Decrease Start Hysteresis and Moisture Decrease Stop

Hysteresis: It is an important setting to ensure that the device operates with minimum fluctuation at the targeted humidity. It determines when the “Moisture Decrease” process will start when the device exceeds the targeted humidity value and when the “Moisture Decrease” process will stop. For the Moisture Decrease Start Hysteresis 2 as a value and for the Moisture Decrease Stop Hysteresis 1.5 as a value is recommended.

Defrost Waiting Time and Defrost Working Time:

With this setting, the moisture in the device is prevented from freezing. A value is entered by UTEST as the factory setting for this value, but this value can be increased if the humidity inside the device freezes despite the entered value. There is no optimum value for this value because this value may vary depending on the environment in which the device is installed. Defrost Working Time

defines how long the defrost process will take, and Defrost Waiting Time adjusts how long the device will wait after the defrost operation to finish.

4. COMPUTER CONNECTION

UTEST

The Curing Cabinet has a LAN port for connection to a PC. UTEST Software and a LAN cable supplied complete with the cabinet. Temperature and humidity data can be monitored and recorded in real time during the test by connection to a PC. With UTEST Software, data can be converted to an excel report.

Establish the connection between HMI and the computer using the USB cable provided. Plug the end of the USB cable into the ethernet port on the back of the device. Plug the other end of the cable into the USB port of your computer.

To establish the connection, make sure the IP of your computer is set to 192.168.100.100. The IP of the digital display unit should be left as default. You can refer to the following figures to change your computer's IP to 192.168.100.100.

First, as shown in Figure 17, right click on the "Network" and select "Open Network and Internet Settings".



Figure 17: Network and Internet Settings

Then select “Change Adaptor Options” from the screen that appears (Figure 18).

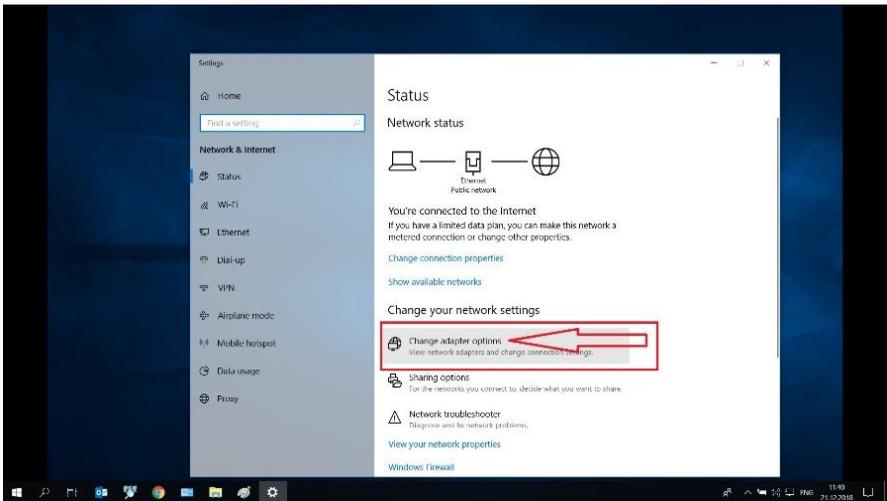


Figure 18: Changing Adaptor Options

Right-click on the "Ethernet" connection on the adapter options page and select "Properties" (Figure 19).

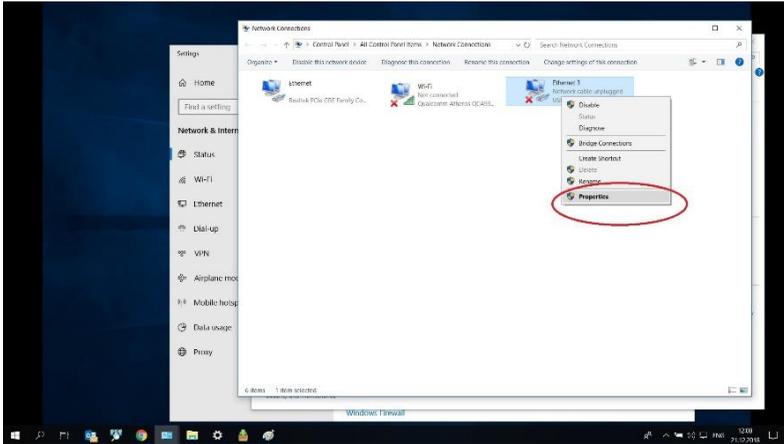


Figure 19: Properties for Current Connection

Select Internet Protocol Version 4 (TCP / IPv4) from the screen that appears (Figure 20).

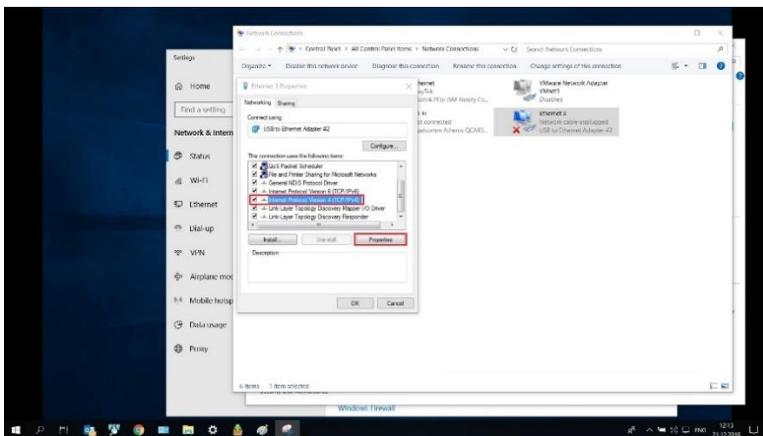


Figure 20: Accessing IPv4 Option

Click on "Use the following IP address" on this screen. Enter 192.168.1.176 as the IP address and 255.255.255.0 as the Subnet mask and press OK to end the process. After that, the connection between your computer and the device will be established and the test can be conducted from UTEST computer software.

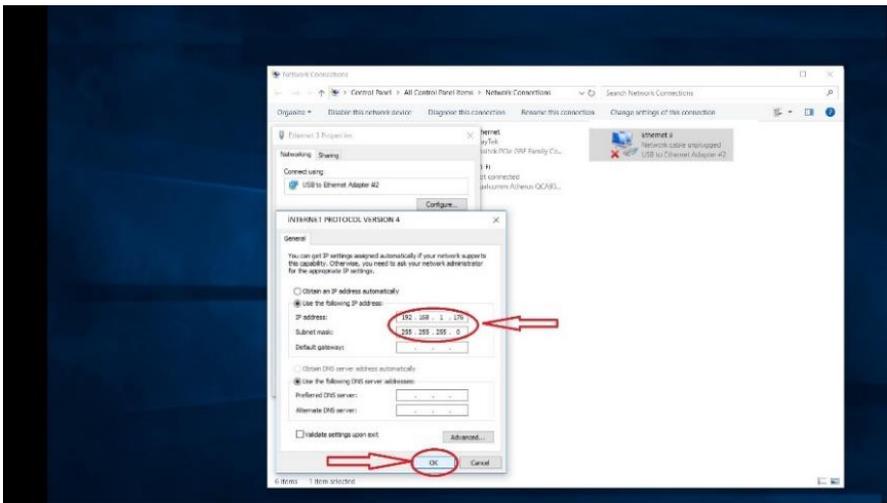


Figure 21: Setting Correct IP

5. UTEST COMPUTER SOFTWARE



Run the software using the application (*.exe) file. When the software is launched users will be greeted with software main menu as shown in Figure 22. On this interface, time, cabinet temperature, and % humidity value will be displayed. To start the test first user has to be create new test file from New Test tab. After that pressing Start button will start the test. After test initialization software start to take temperature data at every specified time

interval. These temperature data for both sample and cabinet can be seen on the software screen under related column. After the test is finish, all of the data can be taken as Excel sheet by pressing Export to Excel button. File will be created in the software file.

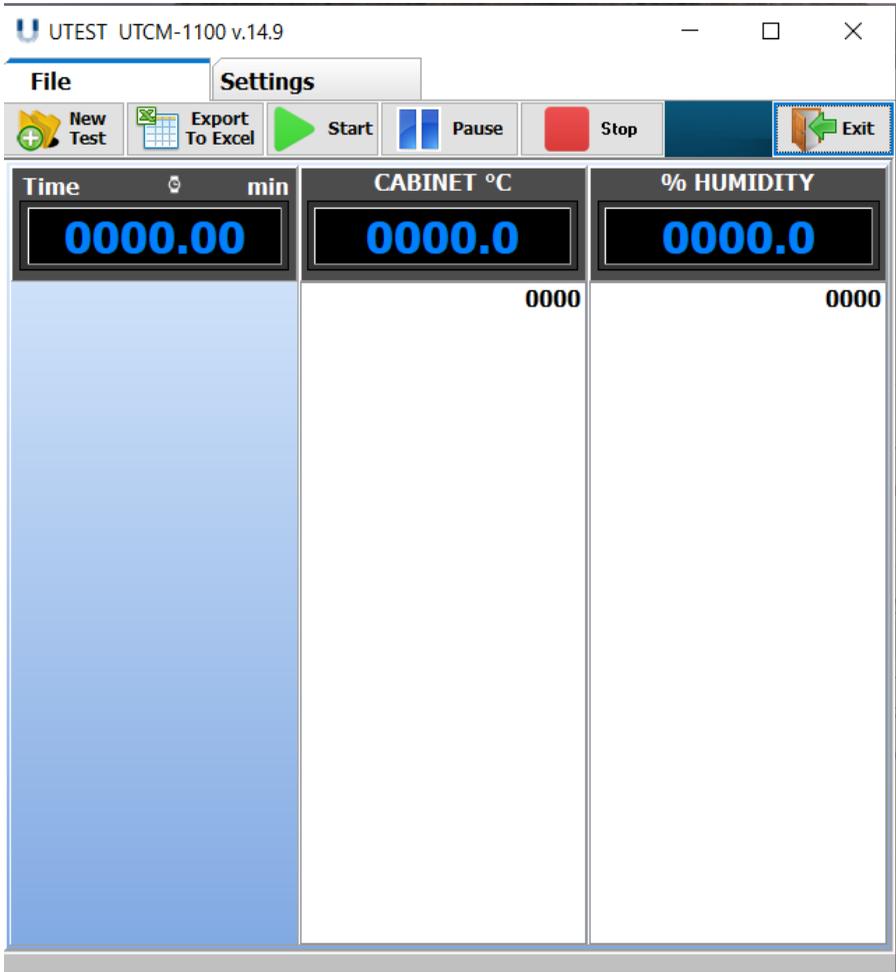


Figure 22: Main Menu of the Software

1. Read the requirements of the related standard of the test.
2. Prepare the sample for testing according to required standard.
3. After connecting the power cord, turn on the power switch located front side of the device.
4. Place the shelf inside the device and place the sample on this shelf.
5. Choose related standard from Program Selection Menu and press first SAVE button and after that OK button.
6. Return to Test Screen Tab and press START button to start the test.



HIGH TEMPERATURE WARNING: *While taking samples from the device, do not forget to wear protective gloves against high or low temperature.*



ELECTRIC HAZARD: *It is important to care that the unit must be switched off and the main cable must be removed before starting any maintenance for user's safety.*

As with all electrical equipment, machine must be used correctly and maintenance and examination must be performed at regular periods. Such precautions will guarantee the safe and sufficient functioning of the equipment.

We recommend that the device is cleaned of any particles and dust from the scattered specimen after the test with a cloth.

Maintenance to the equipment is responsibility of the purchaser and must be performed as stated by this chapter. Failing to perform the recommended maintenance actions or maintenance performed by unauthorized people can void the warranty. If the device will not be used for a period of time, disconnect the mains plug.

8. TROUBLESHOOTING

UTEST

Possible problems and repair technics are mentioned below. Please read this section before calling UTEST technical service.

If the machine does not switch on, check fuse of the device that located front side of the machine under the On/Off switch. If the device does not work, the fuse may have blown. To protect the device from instable electricity currents or overloads a glass fuse is utilized and it is located at the front side of the device. Open the lid by using screw driver, change the fuse and place the lid and fuse back again How to do this is explained in Figure 23 and Figure 24 as a representation.



Figure 23: Opening the Lid



Figure 24: Glass Fuse



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EC DECLARATION of CONFORMITY
AT UYGUNLUK BEYANI

Manufacturer: Utest Material Testing Equipment Co.
Üretici UTEST Malzeme Test Cihazları ve Makineleri İmalat ve Dış Tic. A. Ş.

Address: Ankara I.OSB Ural Cad. No:18 Sincan/ANKARA/TURKIYE
Adres

Herewith declares that the product
İş bu belge ile beyan ederiz ki aşağıdaki ürün

Model: UTCM-1100
Model

Serial Number: See Details on Product Identification Plate
Seri No Ürün Tanımlama Etiketine Bakınız

Description: Curing Cabinet, 1000 L
Ürün Adı Kür Kabini, 1000 L

is in conformity with the provisions of the following EC directives;
belirtilen AT Yönetmelikleri hükümleri ile uyumludur;

- **2006/42/ EU Machinery Safety Directive Annex-1**
2006/42/EU Makine Emniyeti Yönetmeliği Ek-1
 - **2014/35/ EU Low Voltage Directive**
2014/35/ EU Alçak Gerilim Yönetmeliği
 - **2014/30/ EU Electromagnetic Compability Directive**
2014/30/ EU Elektromanyetik Uyumluluk Yönetmeliği

is in conformity with the following standards;
belirtilen standartlar ile uyumludur;

- EN 196-1
- ISO 679

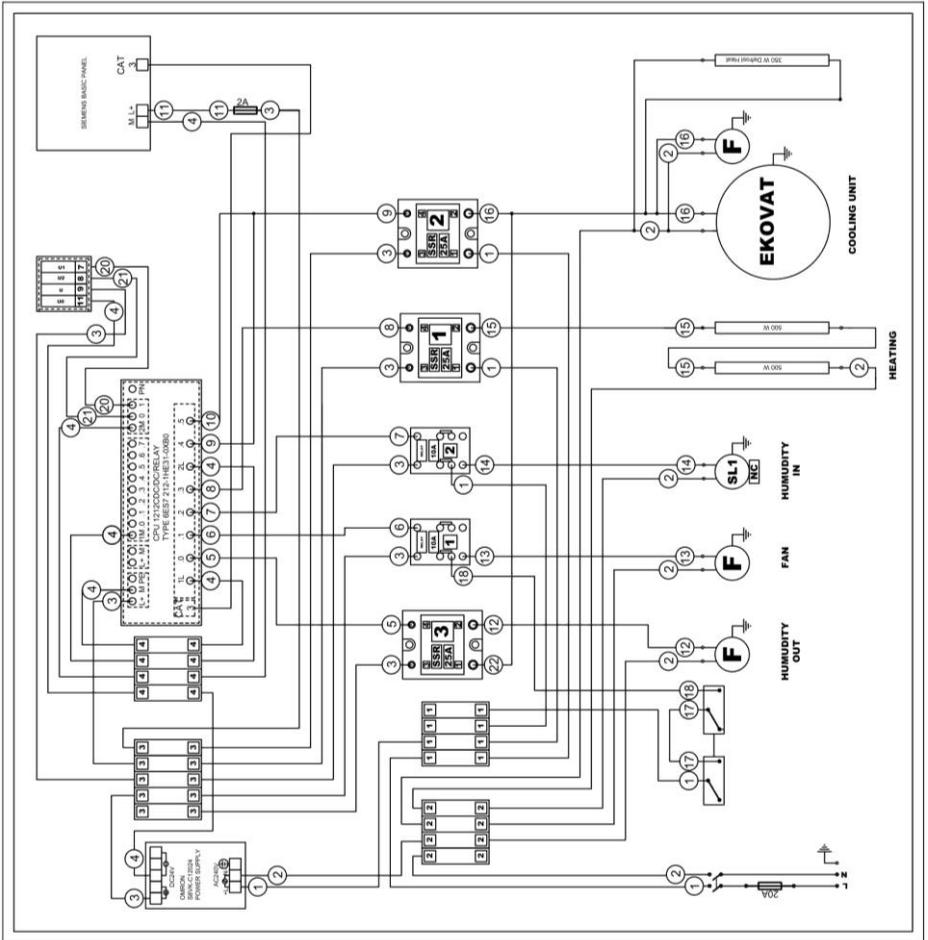
Issue Date:
Yayın Tarihi
16.12.2016

Onay: Tarkan Ö. USANMAZ
Approved By: General Manager / Genel Müdür



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10. WIRING DIAGRAM





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UTS-0992

UTS-0996

UTS-1000

BALON YOĞUNLUK SETİ



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Bu kılavuz UTEST UTS-0992, UTS-0996 ve UTS-1000 BALON YOĞUNLUK SETİ ve ilgili bileşenlerin güvenli kullanımı ve bakımı hakkında önemli bilgiler içermektedir. Lütfen cihazı çalıştırmadan önce kılavuzu dikkatlice okuyun ve ileride referans olması için saklayın.

Sembol	Açıklama
	UYARI: Bu sembol ölüm veya ciddi yaralanma ile sonuçlanabilecek veya ortaya çıkabilecek büyük bir tehlikeyi belirtir.
	ELEKTRİK TEHLİKESİ UYARISI: Bu sembol elektrik voltajını içeren bir tehlikeyi belirtir ve elektrik voltajına karşı koruma hakkında bilgiler verir.
	YÜKSEK SICAKLIK UYARISI: Bu simge sıcak yüzey uyarısını gösterir. Bu uyarı simgesiyle işaretli bölümlerle çalışırken veya bunlara yaklaşırken her zaman koruyucu giysiler giyilmelidir.
	NOT: Bu simge ile belirtilen kısımlar ürünün nasıl kullanılacağına ilişkin öneriler ve önemli bilgiler verir.

UTEST Genel Satış ve Teslimat Şartları her durumda geçerlidir. Aşağıdaki nedenlerden biri ve/veya birkaçı nedeniyle kişisel yaralanma ve/veya maddi zararların oluşması halinde garanti ve sorumluluk talepleri yerine getirilemez:

- ✓ Cihazda ve/veya bileşenlerinde yapılan izinsiz/yasak değişiklikler,
- ✓ Cihazın bu kullanım kılavuzunda belirtilen kullanım amacına ve uygun olarak kullanılmaması,
- ✓ Cihazın ve bileşenlerinin performans kontrolü, işletimi ve bakımı ile ilgili kılavuzunda belirtilen bölümlerine uymamak,
- ✓ Cihazın ve bileşenlerinin çalışması ve bakımı konusunda hatalı performans kontrolü,
- ✓ Yabancı cisimlerin, kazaların, vandalizmin ve mücbir sebeplerin etkilerinden doğan zararlar.

Cihaz sadece bu kılavuzda tanımlandığı şekilde belirlenmiş amacı için kullanılmalıdır. Arızalı bileşenleri yalnızca UTEST'teki orijinal yedek parçalarla değiştirin. Aksesuarlar sadece UTEST tarafından açıkça yetkilendirilmişlerse cihaza kurulmalı veya bağlanmalıdır. Bunların dışında başka aksesuarlar kurulursa veya cihaza bağlanırsa, UTEST sorumluluk kabul etmez ve ürün garantisi bu durumda geçersizdir.

Bu bölüm, kullanıcının UTEST UTS-0992, UTS-0996 ve UTS-1000'nin çalışması ve saklanması için izlemesi gereken önemli güvenlik talimatlarını içerir.

- ✓ Cihaz sabit bir zemine oturmalıdır.
- ✓ Tehlikeli durumlarda yaralanma riskini azaltmak için bu ürünü kullanırken her zaman temel güvenlik önlemlerini alın.
- ✓ UTS-0992, UTS-0996 ve UTS-1000 ile birlikte gelen belgelerdeki tüm talimatları okuyun ve anlayın.
- ✓ Üründe belirtilen tüm uyarı ve talimatları dikkate alınız.
- ✓ Ekipmanı aşırı sıcaklıkta tutarken koruyucu elbise giyin.
- ✓ Ekipmanda yapılacak testte herhangi bir organik veya inorganik kimyasal madde kullanılıyorsa, bu malzemelerle temastan kaçınınız. Teste başlamadan önce koruyucu gözlük, eldiven ve laboratuvar önlüğü giyin.
- ✓ Cihazı duvarla arasına en azından 1 insanın girebileceği şekilde konumlandırınız.
- ✓ Test devam ederken herhangi bir kapağı çıkarmayın veya makinenin herhangi bir parçasını ayarlamaya çalışmayın.



DİKKAT: *Cihazın çocuklar veya alkol, uyuşturucu veya farmasötik müstahzarlar etkisi altında olan herhangi biri tarafından kullanılmasına izin vermeyin. Öngörülen bakımı uygun şekilde ve doğru*

zamanda gerekleřtirin. Bakım grevlerini tamamladıktan sonra, fonksiyonel bir kontrol yapın.

Cihazın Tařınması

UTEST

UTS-0992, UTS-0996 ve UTS-1000'in mekanik paraları hassas paralardır. Bu nedenle cihazı tařırken ok dikkatli olun.

- ✓ Cihazın zerine ađır bir obje koymayınız.
- ✓ Cihaza zarar verebilecek darbelerden ve sert kullanımlardan kaının.
- ✓ UTS-0992, UTS-0996 ve UTS-1000 demonte etmeyiniz.

Balon Yoğunluk Seti sıkıştırılmış toprak yoğunluğunun, Fransız standart NF P94-061-2'ye uygun olarak arazide belirlenmesinde kullanılır. NF standardına göre metal bir silindire doldurulan su, daha sonra silindirin tabanında bulunan plastik membrana pompalanır. Su basıncı, basınç göstergesi aracılığı ile kontrol edilir. Balon hacmi, derecelendirilmiş piston mili üzerinden ölçülür.

UTEST standarda uygun şekilde 3 farklı cihaz üretmektedir. Bunlar UTS-0992, UTS-0996 VE UTS-1000'dir. Bu cihazlar arasındaki tek fark kapasiteleridir. Bu cihazların kapasiteleri ve bunlarla birlikte verilen ekipmanlar aşağıda verilmiştir.

- ✓ UTS-0992; 3.000 ml kapasitesi olan bir derecelendirilmiş piston mili, Güçlendirilmiş Membran (6 adet/paket), Taban Plakası, Sabitleme Kıskaçı (4 adet), bir basınç göstergesi ve bir dolan suyu derecelendirilmiş piston miline aktaran hava boşaltım milinden oluşmaktadır.
- ✓ UTS-0996; 6.000 ml kapasitesi olan bir derecelendirilmiş piston mili, Güçlendirilmiş Membran (6 adet/paket), Taban Plakası, Sabitleme Kıskaçı (4 adet), bir basınç göstergesi ve bir dolan suyu derecelendirilmiş piston miline aktaran hava boşaltım milinden oluşmaktadır.

- ✓ UTS-1000; 10.000 ml kapasitesi olan bir derecelendirilmiş piston mili, Güçlendirilmiş Membran (6 adet/paket), Taban Plakası, Sabitleme Kıskaçı (6 adet), bir basınç göstergesi ve bir dolan suyu derecelendirilmiş piston miline aktaran hava boşaltım milinden oluşmaktadır.

Balon Yoğunluk Yöntemi materyalin yoğunluğunun, ıslak materyalin yoğunluğunun ve hafifçe ya da güçlü bir şekilde sıkıştırılmış topraktaki su yüzdesinin bir kauçuk balon kullanılması ile belirlenmesini içermektedir.

Deney yöntemi, kum ikamesi yöntemi ile yapılan yoğunluk deneyi ile aynı prensibe sahiptir ama açılan çukura yerleştirilen bir balonun içine su pompalanmasıyla gerçekleştirilir. Kullanılan su miktarı derecelendirilmiş mezür ile kolaylıkla saptanabilir. Ancak bu yöntem ufak bir basınç altında formu bozulan çok yumuşak topraklar için veya çukur hacminin sabit bir değerde tutulmadığı durumlarda uygun değildir.



DİKKAT: *Tüm cihazlar membrana aşırı basınç uygulanmasının önlenmesi için bir **Basınç Güvenlik Anahtarı** ile donatılmıştır. Bu anahtar belli bir basınç sonrasında suyu bırakır. Bu sayede pistonu aşırı basınç uygulanmasının önüne geçilir.*

1.2. Cihazın Parçaları

UTEST

Bu cihazın tüm modelleri bir derecelendirilmiş piston mili, Güçlendirilmiş Piston, Taban Plakası, Sabitleme Kıskaçı, bir basınç göstergesi ve dolan suyu

derecelendirilmiş piston miline aktaran bir hava boşaltım milinden oluşmaktadır. Tüm parçalar Figür 1’de gösterilmiştir.



Figür 1: Cihazın Parçaları

2. KURULUM

UTEST

2.1. Çevresel Koşullar

UTEST

Cihazın kuru ve temiz bir ortama yerleştirildiğinden emin olun. Cihazın güneş ışığı ile doğrudan temasından kaçınılmalıdır. Örneğin klimalı bir oda yukarıdaki şartları sağlayacak, en iyi çalışma performansını ve en doğru ölçüm sonuçlarını sağlayacaktır. Cihaz bağlantılar, test ve bakım için önden ve yanlardan kolayca erişilebilir bir konumda olmalıdır.

Hatalı test sonuçlarının oluşmaması için zeminin titreşimleri ve şokları en aza indirebilecek kadar katı olması gerekir. Zeminde titreşimler yaratan başka test ekipmanlarının veya kaynakların olması durumunda cihazın bu kaynağa mümkün olan en uzak şekilde konumlandırılması gerekir. Zeminin yüzeyi, cihazın yatay ve dikey hizasının kaymaması için hem pürüzsüz hem de yatay olmalıdır.

2.2. Kutuyu Açma

UTEST

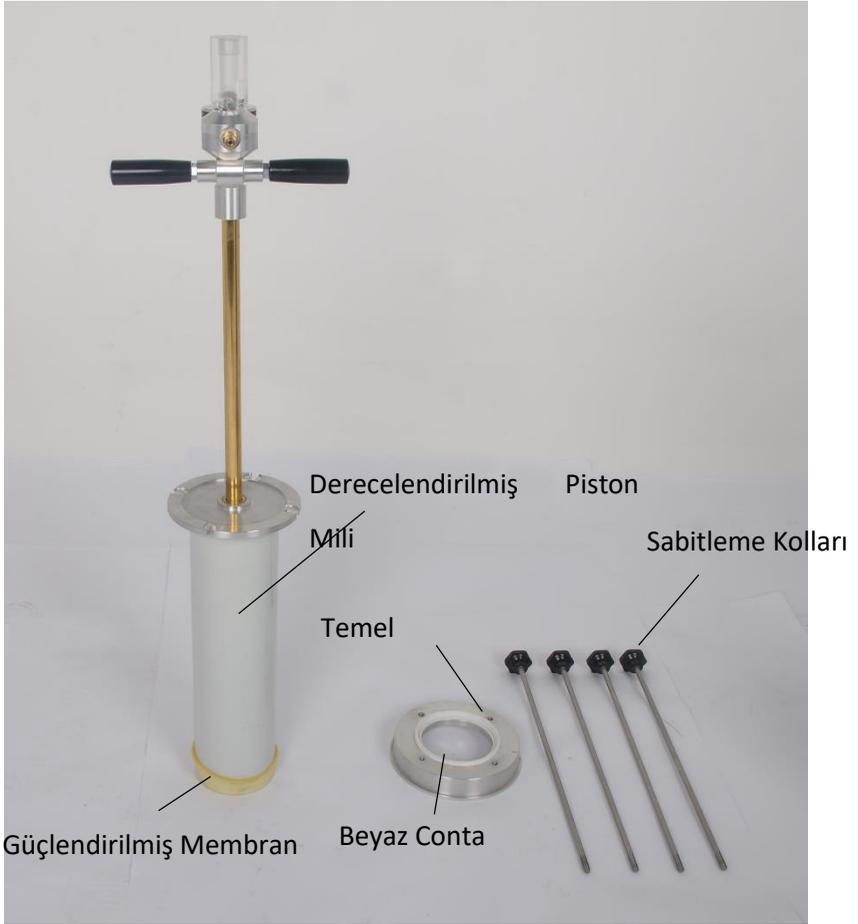
Kasayı içindekilere zarar vermeden açın ve tüm paketleme materyallerini kaldırın. Herhangi bir eksik veya hasar olup olmadığını kontrol edin. Herhangi bir sorunu doğrudan satıcıya rapor edin. Gerekli önlemleri alın ve cihazı yerleştirileceği noktaya taşıyın.

Balon Yoğunluk Yöntemi 3 aşamada uygulanır. Birinci aşamada ilk hacim (V_0), ikinci aşamada ıslak ağırlık (w), üçüncü aşamada toplam hacim (V_t) hesaplanır.

Testi başlatmadan önce 4 adet sabitleme kolunu çıkarın. Bu amaçla başlarındaki siyah başlı vidaları saat yönünün tersine döndürün. Sonrasında derecelendirilmiş piston milini temelden ayırın. Derecelendirilmiş piston milini tamamen çekin. Güçlendirilmiş membranı derecelendirilmiş piston milinin alt kısmına yerleştirin (bkz: Figür 2 ve Figür 3).



Figür 2: Güçlendirilmiş Membran ve Derecelendirilmiş Piston Mili Kombinasyonu



Figür 3: Sabitleme Kolları, Temel ve Güçlendirilmiş Membran-Derecelendirilmiş Piston Mili Kombinasyonu

Akabinde derecelendirilmiş piston milini ayırmış olduğunuz temele yerleştirin. Temelde bir beyaz conta bulunmaktadır. Membranın bu conta ile derecelendirilmiş piston mili arasında sıkıca oturduğundan emin olun.

Sonrasında tüm sabitleme kollarını yerleřtirin ve saat yönünde çevirerek sıkıřtırın (bkz: Figür 4).



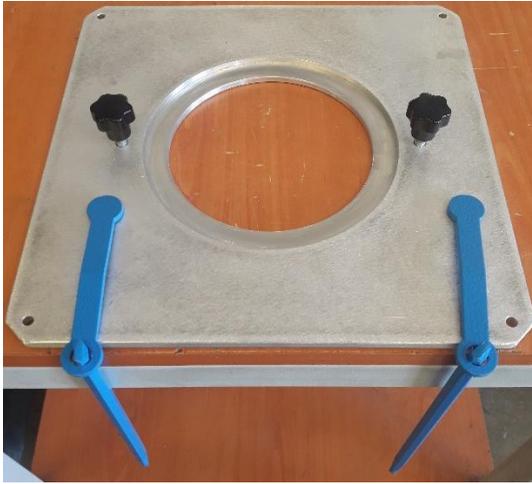
Figür 4: Su Dolumu için Hazırlanmış Dereceli Piston Mili

Sonrasında testin birinci aşamasına geçiniz.

3.1. Çukurun Kazılması ve Islak Kütlenin Belirlenmesi

UTEST

1. En az destek plakası kadar yatay ve düz bir yüzey hazırlayın.
2. Taban plakasını sabitleme kısıkaçları ile tutturun. Her bir kenarın ortasına bir adet sabitleme kısıkaçı yerleştirin. Kısıkaçların nasıl tutturulacağı Figür 5'te gösterilmiştir.



Figür 5: Taban Plakası ve Sabitleme Kısıkaçları

3. Plakanın boşluğundan çukuru kazınız. Çukurun derinliği plaka boşluğunun çapı kadar olmalıdır. Güven aralığı bu boşluğun yarıçapının yarısı kadardır. Çukurun şekli düzenli olmalıdır. Çatlaklar veya belirgin çukıntılar olmamalıdır.



NOT: Aletlerle çalışırken toprağın sıkıştırılmaması veya gevşetilmemesi için dikkatli olunmalıdır.

4. Çukurun minimum hacmi materyalin “Dmax”inin bir fonksiyonudur. Kazılan materyalin kütlesi “200 Dmax”ten büyük olmayacak, 1500 gramdan ise küçük olmayacaktır. Aparatın boyutu kazılan çukura uydurulmalıdır.
5. Kazıdan toplanan tüm materyali kayıp yaşanmadan toplayınız ve hava sızdırmaz bir çantaya yerleştiriniz. Islak materyali (" m_h ") tartınız ve gerekli olduğu takdirde nem içeriğini (" w ") kontrol ediniz.

3.2. İlk Hacmin (V_0) Hesaplanması

UTEST

1. Sıfırlama plakasını taban plakasına yerleştirin (bkz: Figür 6).



Figür 6: Sıfırlama Plakası ve Taban Plakası

2. Cihazı sıfırlama plakasının üzerine oturtunuz (bks: Figür 7).



Figür 7: Test için Hazırlanan Derecelendirilmiş Piston Mili

3. Sonrasında cihazı kendisi ile birlikte gönderilmiş olan iki adet pul ile taban plakasına sabitleyiniz, bu sayede balon şişirilirken dereceli

5. Sonrasında hava boşaltım milini derecelendirilmiş piston milinin tepesindeki boşluktan aşağı indirerek aynı noktadan su doldurmaya başlayın. Su dolarken hava boşaltım milini yukarı doğru çekerek pistonun içinde bulunan havayı boşaltın (bkz: Figür 10).
6. Piston tamamen su ile dolduktan sonra silindirin içinde hiç hava baloncuğu kalmadığından emin olarak suyu kapatın. Tıkacı saat yönünde çevirerek yerine oturtun.



Figür 9: Tıkacın Çıkarılması için Saat Yönünün Tersine Çevrilişi



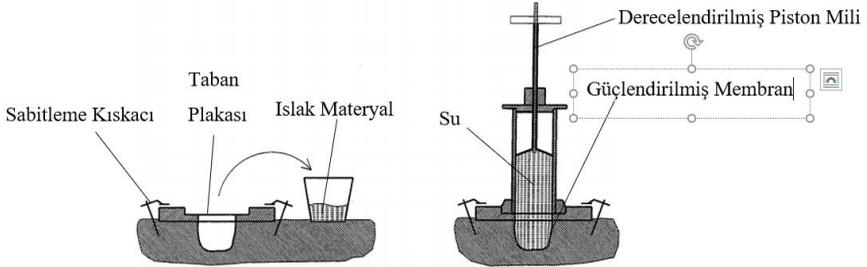
Figür 10: Hava Boşaltım Milinin Cihaza Yerleştirilişi

7. İstenen basınç 5 kpa'ya eşit veya 5 kpa'dan büyük olana kadar pistonu basın.
8. Derecelendirilmiş pistondaki " V_0 " hacmini ölçün.

1. Sıfırlama plakasını kendinize doğru çekin ve su dolu balonun kazmış olduğunuz çukura düşmesine izin verin.
2. İstenen basınç elde edilene kadar pistonu çalıştırın. “Suyun basıncı 5 kpa’ya eşit veya 5 kpa’dan büyük olmalı, ama materyali deforme etmemeli.” (bkz: Figür 11)
3. Sistemdeki hacim “ V_t ”yi ölçün.



NOT: Plakanın “özellikle de hacim ölçümleri esnasında” zeminden ayrılmamış olduğu görsel olarak da tüm işlemler esnasında doğrulanacaktır.



Figür 11: Testin Şematik Diyagramı

Sonrasında ıslak materyalin yoğunluğu, kuru materyalin yoğunluğu ve su içeriğinin yüzdesi standartta belirtilen formüllerle belirlenebilir.

Tüm güvenlik unsurları her zaman işlevini koruyor durumda olmalıdır. Hasarlanmış koruyucu kapaklar veya cihazlar mümkün olan en kısa süre içinde değiştirilmelidir. Güvenlik bileşenleri değiştirildiğinde koruyucu ekipmanlar düzgün şekilde bağlanacak ve test edilecektir.

Cihazın tüm toz ve parçacıklardan arındırılmasını tavsiye ediyoruz. Test bittikten sonra piston yavaşça kaldırın ve basıncın sıfırlandığından emin olun. Sonrasında sabitleme kollarını saat yönünün tersine çevirerek çıkarın ve membranı çıkarın. Suyu boşaltın ve cihazın tüm parçalarını bir bezle kurulayın.

Her bir test öncesinde basınç güvenlik anahtarının tam yerine oturduğundan emin olun, özellikle de pistonu basınç uygulanması öncesinde. Gevşerse saat yönünde çevirerek sıkıştırın.

Taban plakasını çıkardıktan sonra derecelendirilmiş pistonun iç yüzeyindeki parçaların düzenli aralıklarla yağlanması gerekmektedir. Yağlama işlemi pistonun rahat hareket etmesi için gereklidir. Bu bölümü her test sonrasında kontrol edin ve ihtiyaç halinde yağlayın.



Figür 12: Yağlanacak Yüzey

Bu cihazın bakımı satın alan kişinin sorumluluğundadır ve bu bölümde ifade edildiği şekilde uygulanmalıdır. Tavsiye edilen bakım işlemleri ve yetkisiz kişilerce uygulanan bakım çalışmaları cihazı garanti kapsamından çıkarır.



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DECLARATION of CONFORMITY
UYGUNLUK BEYANI

Manufacturer: Utest Material Testing Equipment Co.
Üretici UTEST Malzeme Test Cihazları ve Makineleri İmalat ve Dış Tic. A. Ş.

Address: Ankara 1.OSB Ural Cad. No:18 Sincan/ANKARA/TURKIYE
Adres

Herewith declares that the product
İş bu belge ile beyan ederiz ki aşağıdaki ürün

MODEL: UTS-0992
Model

SERIAL NUMBER: See Details on Product Identification Plate
Seri No Ürün Tanımlama Etiketine Bakınız

Description: Balloon Density Apparatus 3000 ml, NF
Ürün Adı Balon Yoğunluk Seti 3000 ml, NF

is in conformity with the following standards;
belirtilen standartlar ile uyumludur;

- NF P94-061-2;

Issue Date:
Yayın Tarihi
16.12.2016

Onay: Tark Ö. USANMAZ
Approved By General Manager / Genel Müdür



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Adres

Here with declares that the product
İş bu belge ile beyan ederiz ki aşağıdaki ürün

MODEL: UTS-0996
Model

SERIAL NUMBER: See Details on Product Identification Plate
Seri No Ürün Tanımlama Etiketine Bakınız

Description: Balloon Density Apparatus 6000 ml, NF
Ürün Adı Balon Yoğunluk Seti 6000 ml, NF

is in conformity with the following standards;
belirtilen standartlar ile uyumludur;

- NF P94-061-2

Issue Date:
Yayın Tarihi
16.12.2016

Onay: Tarkan Ö. USANMAZ
Approved By: General Manager / Genel Müdür



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UYGUNLUK BEYANI

Manufacturer: Utest Material Testing Equipment Co.
Üretici UTEST Malzeme Test Cihazları ve Makineleri İmalat ve Dış Tic. A. Ş.

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Adres

Here with declares that the product
İş bu belge ile beyan ederiz ki aşağıdaki ürün

MODEL: UTS-1000
Model

SERIAL NUMBER: See Details on Product Identification Plate
Seri No Ürün Tanımlama Etiketine Bakınız

Description: Balloon Density Apparatus 10000 ml, NF
Ürün Adı Balon Yoğunluk Seti 10000 ml, NF

is in conformity with the following standards;
belirtilen standartlar ile uyumludur;

- NF P94-061-2

Issue Date:
Yayın Tarihi
16.12.2016

Onay: Tarık Ö. USANMAZ
Approved By General Manager / Genel Müdür





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