

Tiles & Ceramic Testing Instruments



EIE INSTRUMENTS PVT. LTD.



Laboratory Testing Instruments *for*

- Ceramic Wall & Floor Tiles
- Sanitary Ware
- Ceramic Kitchen Ware
- Research Institutes and R & D Laboratories

Manual Universal Gauge (Plucometer) - TC-101-M

Compliance Standards:

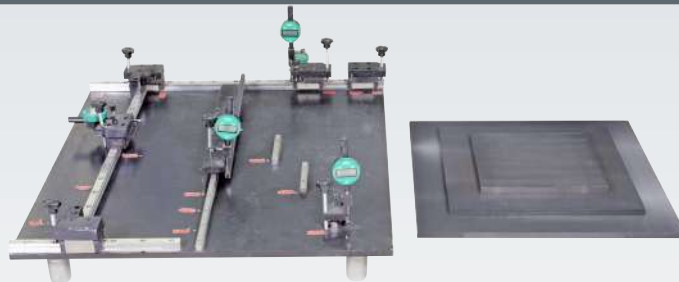
- EN ISO 10545-2, IS 13630 (Part 1).

Applications:

- For determining the dimensional characteristics of ceramic tiles.

Details:

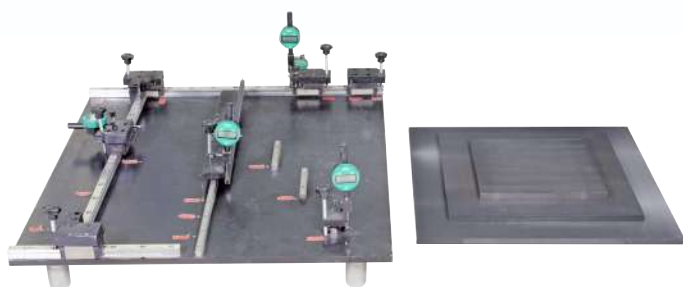
- Mild steel construction, Powder coated in attractive shades.
- Fitted with digital dial gauges for tiles surface flatness and warpage measurement apparatus.
- Instrument also measures tiles straightness of sides and tiles rectangularity (Orthogonality).
- Supplied complete with Locating studs, Allen keys, Calibrating plates and Magnetic stands.
- Available in following various options.



Model No.	Accommodates Tiles Size
TC-101-M30	300 X 300 MM Tiles
TC-101-M60	600 X 600 MM Tiles
TC-101-M80	800 X 800 MM Tiles
TC-101-M120	1200 X 1200 MM Tiles
TC-101-M60X120	600 X 1200 MM Tiles
TC-101-M80X120	800 X 1200 MM Tiles

M: Manual

Fully Automatic Universal Gauge - TC-101-FA



Model No.	Accommodates Tiles Size
TC-101-FA30	300 X 300 MM Tiles
TC-101-FA60	600 X 600 MM Tiles
TC-101-FA80	800 X 800 MM Tiles
TC-101-FA120	1200 X 1200 MM Tiles
TC-101-FA60X120	600 X 1200 MM Tiles
TC-101-FA80X120	800 X 1200 MM Tiles

FA: Fully Automatic

Compliance Standards:

- EN ISO 10545-2, IS 13630 (Part 1).

Applications:

- For determining the dimensional characteristics of ceramic tiles.

Details:

- Mild steel construction, Powder coated in attractive shades.
- Fitted with various digital LVDT for tiles surface flatness and warpage measurement apparatus.
- Instrument also measures tiles straightness of sides and tiles rectangularity (Orthogonality).
- Output of all LVDT will be displayed in centralized controlled display.
- Supplied complete with Locating studs, Allen keys, Calibrating plates and Magnetic stands.
- Available in following various options.

Portable Gauge (Digital Gauge) - TC-102D

Complies with following International Standards:

- IS : 13630 (Part - 1), EN ISO : 10545 (Part - 2).

Application:

- Suitable For measurement of Diagonal Linearity.
- Comprises of a steel bar with two calibrated feet, which can be set at varying distances apart.
- Also, consists of a spherical bubble and a 60mm diameter dial gauge, marked in 1/100mm increments.
- Each unit is supplied with a ground calibration plate, in a wooden box.



Model No.	Accommodates Tiles Size
TC-102D450	-----
TC-102D600	-----
TC-102D	600X1200

Water Absorption Test (Boiling Water Method) - TC-103NR



Compliance Standards:

- BIS 13630 (Part-2).

Purpose:

- For water absorption test and bulk density test of ceramic tiles. The tiles will be placed vertically in the slots provided to conduct the water absorptions characteristic test.

Details:

- Temp range :
 - Non-Refrigerated Bath : 5°C above ambient to 100°C.
 - Refrigerated Bath : 5°C to 100°C.
- Temp control : Digital Auto-tune PID Controller.
- High speed stirrer to maintain uniform temperature distribution.
- Immersion heater to achieve the set point temperature.

Non-Refrigerated Bath TC-103-NR

Model No.	Accommodates Tiles Size
TC-103-NR60	600 X 600 mm Tiles
TC-103-NR80	800 X 800 mm Tiles
TC-103-NR100	1000 X 1000 mm Tiles
TC-103-NR120	1200 X 1200 mm Tiles

NR: Non-Refrigerated

Refrigerated Bath TC-103-R

Model No.	Accommodates Tiles Size
TC-103-R60	600 X 600 mm Tiles
TC-103-R80	800 X 800 mm Tiles
TC-103-R100	1000 X 1000 mm Tiles
TC-103-R120	1200 X 1200 mm Tiles

R: Refrigerated

Water Absorption Test (Vacuum Test Method) - TC-103V

Compliance Standards:

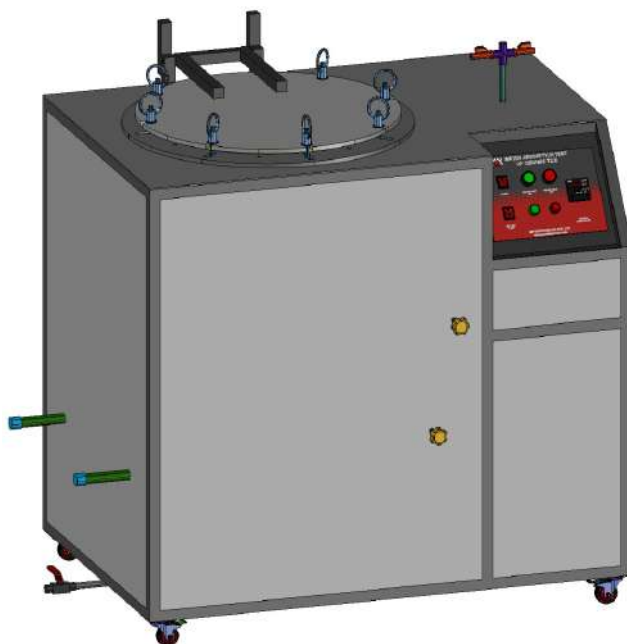
- EN ISO 10545-3, EN ISO 10545-9, IS 13630 (Part-2).

Purpose:

- To establish the water absorption of ceramic tiles under vacuum with automatic cycles.

Salient Features:

- Double walled in construction.
- Inner chamber made of stainless steel material.
- Lid made of acrylic material for sealing application.
- Mild steel exterior body powder coated in attractive shades.
- Bath comprises of essential accessories such as Vacuum pump, Vacuum timer, Inlet water connection, Solenoid valve for automatic inlet of water and alarm to establish vacuum within the chamber to determine porosity, apparent relative density and water absorption of tiles.
- Internal overall size : 400mm dia x 450 mm height.
- Volume : 56.5 Liters.
- Operates on : 230 Volts, 50 Hz, Single Phase, AC Supply.
- Accommodates : Test specimen up to 300 x 300mm size.



MOR Testing Machine - TC-104



Compliance Standards:

- EN ISO : 10545 (Part - 4), IS : 13630 (Part - 6).

Detail:

- Electro-Mechanical Design.
- Quite and vibration free operation.
- Standard Digital Model with Load Cell and LCD Display.
- Programmable rate of loading.
- Auto stop and Auto reverse upon breaking of the sample.
- Selectable test units - KG/KN.

Model No.	Accommodates Tiles Size
TC-104-EH3030	For 300 X 300 MM Tiles, 1000kg force
TC-104-EL3030	For 300 X 300 MM Tiles, 500kg force
TC-104-EH6060	For 600 X 600 MM Tiles, 1000kg force
TC-104-EL6060	For 600 X 600 MM Tiles, 500kg force
TC-104-EH100100	For 1000 X 1000 MM Tiles, 1000kg force
TC-104-EL100100	For 1000 X 1000 MM Tiles, 500kg force
TC-104-EH120120	For 1200 X 1200 MM Tiles, 1000kg force
TC-104-EL120120	For 1200 X 1200 MM Tiles, 500kg force
TC-104-EH80120	For 800 X 1200 MM Tiles, 1000kg force
TC-104-EL80120	For 800 X 1200 MM Tiles, 500kg force

E: Electronic H: High Strength L: Low Strength G: Green Sample

Ball Release Test Apparatus (Co-efficient of Restitution) - TC-105

Compliance Standards:

- EN ISO 10545-5, IS 13630 (Part-14).

Applications:

- Instrument for the determination of the resistance to the impact of the ceramic tiles. Determination of the coefficient of restitution by dropping a steel ball from a fixed height onto the test specimen and measuring the height of rebound.

Optional Accessories:

- Fabricated from mild steel material.
- Powder coated in attractive shades.
- Chrome steel ball of $\varnothing 19 \pm 0,05$ mm diameter.
- Free fall height of the balls : 1 meter.
- Electrical Timing Device to measure the interval between 1st and 2nd impact.
- Direct reading of co-efficient of restitution.



Deep Abrasion Machine for Unglazed Tiles - TC-106

Compliance Standards:

- EN ISO 10545-6, IS 13630 (Part-12).

Details:

- Diameter of steel disc : 200 ± 0.2 mm.
- Thickness of steel disc : 10 ± 0.2 mm.
- Material of steel disc : Mild steel.
- Speed of rotation of disc : 75 ± 5 rpm.
- Adjustment of force : Adjusted between 5-20 kgs in steps of 1 kg.
- Electric motor : $\frac{1}{4}$ Hp, single phase, ac motor.
- Counter : 3-Digits electronic counter with memory backup.
- Capacity of storage hopper : 05 Liters.

Optional Accessories:

- Corundum (white fused aluminum) (5 kg).
- Flat Laboratory Grade transparent silica glass for the calibration.



Surface Abrasion Testing Machine - TC-107



Model No.	Accommodates Sample Size
TC-107 E4	4 Samples
TC-107 E8	8 Samples

E: Electronic

Compliance Standards:

- EN ISO 10545-7, ASTM C1027, IS 13630 (Part-11).

Applications:

- To determine the resistance to abrasion on glazing tiles.

Details:

- Easy to use and with rugged construction.
- Electronically controlled RPM Indications.
- Mild steel structure body with powder coating paint.
- Rotational speed defined and calibrated at 300 RPM.
- Supplied complete with acrylic safety cabinet.

Wet Abrasive Media:

- Steel balls of 1mm - 5mm diameter.
- Aluminum oxide abrasive powder.

Dry Abrasive Media (Optional accessories):

- Porcelain cylinders.
- Silicon carbide powder.

Requirements at Operator End:

- Distilled water.

Viewing Cabinet (P.E.I. Box) - TC-108

Compliance Standards:

- EN ISO 10545-7, ASTM C1027, IS 13630 (Part-11).

Applications:

- To check the level of abrasion on glazed ceramic tiles.

Salient Features:

- Specially designed cabinet in accordance with international standards.
- Aesthetic outer appearance.
- Adjustable feet with hard rubber bases.
- LED Illumination with colour temperature of 6000K.
- Supply : 240 Volts, 60 Hz, single phase AC Supply.

Optional Accessories:

- Lux meter.



Thermal Shock Tank - TC-110



Compliance Standards:

- EN ISO 10545-9, ASTM C484, IS 13630 (Part-5).

Applications:

- To determine the Resistance to thermal shock of Ceramic tiles.

Details:

- Comprises of “Horizontal” & “Vertical” Thermal Shock tank.
- Vertical tank is designed for “Direct cooling” of ceramic tile.
- Horizontal tank is designed for “Indirect cooling” of ceramic tile.
- Fitted with flowmeter to maintain the water flow rate.
- Fitted with Digital Auto-Tune PID Controller.
- Supplied complete with 5 kg pack of aluminum granules of different diameters.

Model No.	Accommodates Tiles Size
TC-110 DHV60	600 X 600 mm Tiles
TC-110 DHV80	800 X 800 mm Tiles
TC-110 DHV100	1000 X 1000 mm Tiles
TC-110 DHV120	1200 X 1200 mm Tiles

D: Digital H: Horizontal Tank V: Vertical Tank

Moisture Expansion Tester - TC-111

Compliance Standards:

- EN ISO 10545-10, IS 13630 (Part-3).

Purpose:

- Laboratory instrument to determine the amount of water absorption on tiles which have undergone boiling and cooling. The result is a % difference between the dry weight and the weight after the test.

Detail:

- High speed stirrer to maintain uniform temp distribution.
- Immersion heater to achieve the set point temp.
- Accommodate test specimen up to 600 x 600 mm size with special S.S. Stand.
- Stainless steel Specimen holder basket to keep the sample specimens separate from each other.
- Temperature ranges : 5°C - 100°C.
- Temperature controller : Digital Auto-tune PID Controller
- Refrigeration system : Hermatically sealed refrigeration system.



Tiles Autoclave - TC-112

Compliance Standards:

- EN ISO 10545-11, ASTM C424, IS 13630 (Part-9).

Purpose:

- To determine the crazing resistance of glazed tiles.

Details:

- Triple safety against accidental over pressure.
- Safety Valve/Digital Temp. indicator cum controller.
- Design to work and withstand 750 ± 20 kpa.
- Simple in design and operation.
- Easy heater replacement.
- Calibrated Pressure Gauge.
- Available in various Chamber Sizes.

Dimension	Model No.	Accommodates Tiles Size
250mm Dia. x 350mm Depth	TC-112 D15	8 x 12"
350mm Dia. x 450mm Depth	TC-112 D43	12" x 16"
450mm Dia. x 550mm Depth	TC-112 D87	16" x 20"
500mm Dia. x 750mm Depth	TC-112 D147	18" x 28"

D: Digital



Frost Resistance Tester of Ceramic Tiles - TC-113



Compliance Standards:

- EN ISO 10545-12, ASTM C1026, IS 13630 (Part-10).

Applications:

- Instrument for frost test resistance on ceramic tiles, roof or a like products from room temperature up to -25°C .

Details:

- Inner tank fabricated from Stainless steel material S.S.-304 Grade.
- Tank fitted with motorized stirrer and S.S. basket to place the tiles vertically.
- Fully automatic test cycle.
- Temp sensors : PT100 sensor.
- Temp controller : Microprocessor based Digital PID Controller.
- Temperature range : -20°C to $+20^{\circ}\text{C}$.

- Can accommodate : Test samples upto 60 x 60 cm size.
- Programmable controller to conduct pre-decided Freeze-Thaw cycles automatically.
- Programmable controller Capable to conduct freeze thaw cycles in 6 hours (As per IS:13630)
- Can store the user-defined programs.
- Dedicated software as optional accessory.

Model No.	Accommodates Tiles Size
TC-113-FA60	600 X 600 mm Tiles
TC-113-FA80	800 X 800 mm Tiles
TC-113-FA100	1000 X 1000 mm Tiles
TC-113-FA120	1200 X 1200 mm Tiles

FA: Fully Automatic

Reflectance Meter/Whiteness Meter - TC-117



Salient Features:

- Ideal for measuring whiteness & brightness
- Same instrument can be used to measure Whiteness & Brightness with secondary standard.
- Green, Blue LED.
- Simple to operate
- Instrument conforms to the basic requirement of IS : 101

Light Source	Long life LED / Tungsten Lamp
Detector	Sealed silicon photo detector
Diffuse Reflectance	00.0 to 100.00 with negative & over range indication,
Display	3.5 digit LED (With decimal display)
Accuracy	$\pm 1 \%$
Accessories	Manual, Powder Tray, Pressure Plate, Standard - Green, Blue, Red and Amber Filter
Overall Dimensions	380 X 445 X 205(L X W X D) mm
Weight Net	5 Kg
Operating Voltage	230 V, 50 Hz, Single Phase, AC Power suppl

Apparatus for Determination of Bulk Density of Tile - TC-118

BIS 13630 Part 2

Complies with International Standards:

- 13630 (Part - 2).

Purpose:

- For bulk density test of ceramic tiles.
- The machine comprise of following things.
- The machine will supplied with 5 Kg electronic balance with 1 Gm of least count.
- Wire Loop Basket-Capable of supporting specimens under water for making suspended mass measurements.
- The machine has arrangement to weigh the tile in water. The water jar will come upward manually and give weight of the tile on balance.

Other Instruments Required to Conduct the Test:

(Will Be Supplied At Extra Cost):

- Desiccator
- Silica Gel



Bulk Density of Green Ceramic Tiles - TC-119

(By Mercury Displacement Method)



Details:

- Conforms to ISO 18754
- Designed for unfired (green) ceramic tiles
- Determines bulk density by mercury displacement principle
- Mercury does not penetrate fine pores, ensuring accurate volume measurement
- Manual immersion system (compact press) for controlled specimen submersion
- High-precision electronic balance for reliable weight and volume determination
- Based on modified Stringer method for convenience without loss of accuracy
- Suitable for quality control and R&D laboratories
- Mercury to be procured separately by user

Button Press - (Hydraulic) - 5 Tone (50 KN) - TC-120

Hand Operated

Applications:

- To prepare test specimen by molding in a specially designed sample die.

Details:

- Manually operated hydraulic press of 5000 kg (50 KN) capacity
- Pressure applied on the sample with help of manually operated Hydraulic Jack
- Platen sizes 15 x 15 cms approximately
- Supplied complete with sample die of 50mm (Optionally other dies can be supplied at extra cost)

Note:

- Electrically operated button press up to 3000 KN capacity also available



Rapid pot Mills With Single/Double/Four Jars - TC-121P



Applications:

- Used for rapid grinding of frits, glaze, colours and various compounds for laboratory testing. Widely used in ceramic industries, dye works, cement plants, research laboratories, pharmaceutical companies and art schools.

Common Salient Features:

- Robust mild steel construction with powder-coated finish
- Compact, self-contained and aesthetically designed cabinet
- Safe, quiet and smooth operation
- Variable speed operation with optional AC drive
- Digital RPM indication
- Ceramic/Alumina grinding jars
- Noise-reduction cabinet with safety microswitch
- Built-in timer for controlled grinding cycles



Model Comparison-Rapid Pot Mill

Specification	Single Pot Model	Double Pot Model	Four Pot Model
Model No	TC-121P1	TC-121P2	TC-121P4
Number of Pots (Jars)	1	2	4
Jar Capacity	500 cc (0.5 L)	500 cc each	500 cc each
RPM Range	20 – 400 RPM	20 – 400 RPM	20 – 400 RPM
RPM Indicator	Digital (Std.)	Digital (Std.)	Digital (Std.)
Speed Control	Optional AC Drive	Optional AC Drive	Optional AC Drive
Timer Range	Up to 99.99 Hours	0 – 99 Minutes	0 – 99 Minutes
Jar Material	Ceramic / Alumina	Ceramic / Alumina	Ceramic / Alumina
Motor	0.5 HP, 1440 RPM	0.5 HP, 1440 RPM	0.5 HP, 1440 RPM
Power Supply	440 V, 3 Phase, 50 Hz	440 V, 3 Phase, 50 Hz	440 V, 3 Phase, 50 Hz

All models are designed for reliable, repeatable and efficient laboratory grinding applications.

Moh's Hardness Test Kit - For Concrete/Ceramic Tiles - TC-122



Standards:

- BS 6431-13, EN ISO 10545-14

Applications:

- Scratch resistance evaluation of ceramic tiles
- Concrete hardness determination (polishing & flooring industry)
- Identification of minerals by hardness
- Testing of stone, glass, plastics, touch screens, countertops & faucet finishes

Key Features:

- Optimized industrial version for concrete hardness testing
- 4 double-ended, color-coded picks covering Mohs 2–9
- 2 hardness reference plates (Mohs 3.5 & 5.5)
- 100-grit grinding stone for tip sharpening
- Non-tarnishing nickel-plated brass pin-vise holders
- Rugged molded plastic carrying case
- Hardness table for 80 common materials
- Customized industrial instructions for use

Technical Data:

- Dimensions: 8 × 5 × 2 inches
- Weight: ≈ 397 g

Compact, durable and reliable kit for quick on-site hardness assessment of concrete and ceramic surfaces.

Skid Resistance Tester - TC-123



Consider Following Specifications:

- Pendulum type Skid Resistance Tester for rapid evaluation of surface friction
- Conforms to ASTM E303 & BS EN 1097-8
- Measures Skid Resistance Value (SRV) under wet or humid conditions
- Suitable for asphalt pavements, road markings, stone surfaces, highways, city roads & airport runways
- Operates on pendulum energy loss principle with standardized rubber slider
- Ensures repeatable, reliable results with stable mechanical design
- Pendulum bob weight: 1500 g ± 30 g
- Face-on static pressure on pavement: 22.2 ± 0.5 N
- Shaking moment of force: 615000 g·mm
- Overall weight: approx. 20 kg
- Supplied with carrying case, tool kit, water spray bottle, operation manual & calibration certificate

Also Available



Electronic Balance



Hot Air Oven-EIE-101D



Glass/Plastic Dessicator



Vernier Caliper



Sieve Shaker



Gloss Meter



Flow Cup Viscometer



Density Cup



Reflectance Meter



Analog Infrared Moisture Balance



Digital Infrared Moisture Balance



Button Press



EIE INSTRUMENTS PVT. LTD.

(An ISO 9001:2015 Certified Company)

Corporate Office :

A-1301, BVR Ek, Opp. Hotel Inder Residency, Nr. Gujarat College, Ellisbridge, Ahmedabad-380 006, India.

Ph. : (079) 6621 1234 • Mob.: +91-92272 30010

Email : info@eieinstruments.com

Manufacturing Plant-1 & NABL LAB Address :

Survey No. 1098, Nr. Mahakali Temple, Opp. Primary School, Village Kubadthal, Tal : Daskroi, Ahmedabad-382 433, India.

Ph. : (079) 3520 8300

Website : www.eieinstruments.com

www.eieceratest.com

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