

# Tiles & Ceramic 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

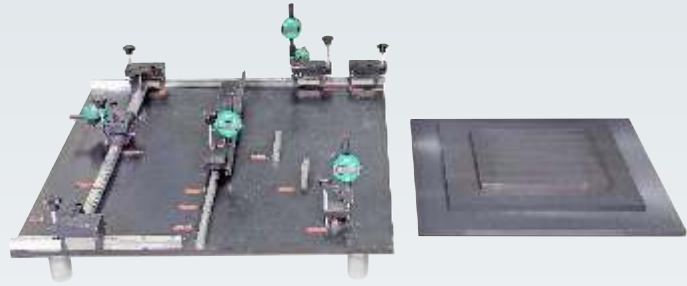
- EN ISO 10545-2, IS 13630 (Part 1).

## 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-M60	600 X 600 mm Tiles
TC-101-M80	800 X 800 mm Tiles
TC-101-M100	1000 X 1000 mm Tiles
TC-101-M120	1200 X 1200 mm Tiles

**M:** Manual

# Fully Automatic Universal Gauge - TC-101-FA



Model No.	Accommodates Tiles Size
TC-101-FA60	600 X 600 mm Tiles
TC-101-FA80	800 X 800 mm Tiles
TC-101-FA100	1000 X 1000 mm Tiles
TC-101-FA120	1200 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.



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



## Compliance standards

- EN ISO 10545-3, EN ISO 10545-9, IS 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-GL30	For 300 X 300 mm Tiles, 300 Kgf Force
TC-104-EH60	For 600 X 600 mm Tiles, 1000 Kgf Force
TC-104-EL60	For 600 X 600 mm Tiles, 500 Kgf Force
TC-104-EH100	For 1000 X 1000 mm Tiles, 1000 Kgf Force
TC-104-EL100	For 1000 X 1000 mm Tiles, 500 Kgf Force
TC-104-EH120	For 1200 X 1200 mm Tiles, 1000 Kgf Force
TC-104-EL120	For 1200 X 1200 mm Tiles, 500 Kgf Forces

**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 1<sup>st</sup> and 2<sup>nd</sup> 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 :  $200 \pm 0.2$  mm.
- Thickness of steel disc :  $10 \pm 0.2$  mm.
- Material of steel disc : Mild steel.
- Speed of rotation of disc :  $75 \pm 5$  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 : Hermetically 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  $750 \pm 20$  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 300mm 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  $-25^{\circ}\text{C}$ .

## 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 :  $-20^{\circ}\text{C}$  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

## 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



Mfg. by :

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