

EIE INSTRUMENTS PVT. LTD.

(An ISO 9001 : 2008 Certified Company)

A Catalog on

- ▶ Concrete Testing
- ▶ Cement Testing



Also Manufacturer of Testing Instruments for

- | | |
|-----------------------|--------------------------|
| • Bitumen Testing | • AAC Block Testing |
| • Asphalt Testing | • Brick Testing |
| • Metal Testing | • Tile & Ceramic Testing |
| • Aggregate Testing | • Pharmaceutical Testing |
| • Plastic Testing | • Soil Testing |
| • Geo Textile Testing | • General Lab. |
| • Paver Block Testing | • Yarn Testing |
| • Petroleum Testing | • Coal Testing |



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MISSION

- To provide user friendly, simplified, technologically advanced, reliable & robust instrumentation/automation to global customers backed by efficient services.
- Applying creative innovations and modern techniques to uplift the standard of quality as to satisfy customers' need of achieving high precision & accuracy in measurement and testing.
- Further, to create an environment to nurture and promote innovations and core values amongst the employees so as to leave no stone unturned in fulfilling the expectations of customers.
- To deliver reliability & credibility.

VISION

- EIE Instruments envisages itself as an emerging organization standing ahead of the competition through its marketing and manufacturing of the advanced laboratory equipments.
- EIE Instruments evolves itself as a workplace of efficient individuals dedicated to serve the nation & Indian industry with constant improvement driven by innovation, integrity & inspiration.

VALUES

EIE believes to

- Render gentle services to customer.
- Establish a win-win relationship with vendors.
- Empower its employees with knowledge, environment and faith.



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Cube Moulds (TM-110)

BIS 10086



Benefit of plastic mould

- Rigid to maintain fixed dimensions.
- Light weight.
- Scratch proof.
- No need for nut-bolt.
- Easy to use.

EIE Moulds are made of high quality metal, strong enough to resist distortion & retain their shape, size even under rugged conditions. We offer moulds of different sizes and weight for cube, beam & cylindrical moulding required for compressive strength testing.

M.N.	Weight
TM-110LW	7.5 to 8Kg
TM-110 MW	9 to 10Kg
TM-110 HW	11 to 12Kg
TM-110 ISI	13 to 14Kg (ISI Mark)
TM-110PL	Made of Plastic with weight of 1 to 2Kg

Beam Moulds (TM-110-B)

Model No.	Size
TM-110-B-BMS	150 X 150 X 700 mm - Made of MS
TM-110-B-BPL	150 X 150 X 700 mm made of Plastic
TM-110-B-SMS	100 X 100 X 500 mm - Made of MS
TM-110-B-SPL	100 X 100 X 500 mm made of Plastic
TM-110-B-BCI	150 X 150 X 700 mm made of CI
TM-110-B-SCI	100 X 100 X 500 mm made of CI



Cylindrical Moulds (TM-110-C)



Model No.	Size	
TM-110-CIS	150 X 300 ISI	Made of C.I. Split Type
TM-110-C-0	150 X 300	Made of Plastic
TM-110-C-PL	150 X 300 Plastic	Made of C.I. Split Type
TM-110-C-12	100 X 200	Made of C.I. Split Type
TM-110-C-11	100 X 100	Made of C.I. Split Type
TM-110-C-15	150 X 150	Made of C.I. Split Type
TM-110-C-30	300 X 300	Made of C.I. Split Type

Gypsum Capping Powder

- High compressive strength.
- Easy to use.
- Gypsum Powder.
- Very good data accuracy.
- Less time consume fast sample perpetration.

Accelerated Curing Tank (VIPL 42)

BIS 9013



It is used to predict 28 days compressive strength of the concrete in few hours. The curing tank is suitable to conduct the test by both the method as under.

- **Boiling water method**

- **Warm water method**

EIE make accelerated curing tank is capable to accommodate 3 to 24 moulds as per the requirement of the customer.

- **Temp. Range: Ambient to 100°C**
- **Temp. resolution: 0.1°C**
- **Accuracy: 1%**
- **Water is circulated through mechanical Stirrer**
- **Drainage valve is provided at the bottom**

Model No.	VIPL-42
Inner chamber	Made of S.S.
Outer chamber	Made of G.I. (powder coated) (Made of S.S. also available)
Temperature controlling	By PID temperature controller to control temperature at different points. It will have in built soak timer as well
Different available sizes	From 3 cubes to 24 cubes
Heating element	Water heater

VIPL-42-3	3 cube	Single Phase, 20 volts
VIPL-42-6	6 cube	Single Phase, 20 volts
VIPL-42-12	12 cube	Three Phase, 440 volts
VIPL-42-18	18 cube	Three Phase, 440 volts
VIPL-42-24	24 cube	Three Phase, 440 volts

Concrete Mixer (TM-57)



Model No	TM-57
Drum capacity	30 litre approx
Mixing capacity	2 cubic feet approx
Drum rotation	20-24 RPM
Electric supply	220V, 50Hz, Single Phase, AC supply

NOTE: Mixer with bigger capacity and with variable controllable RPM also available. Please contact us for more details of the same.

Pan Mixer (TM-57-B)

The purpose of the mixer is to smear mechanically the aggregate surface with cement paste uniformly & produce a mix of uniform consistency. This in turn gives consistent quality of cube specimens when casted in the moulds. The Concrete Mixer developed is transportable on wheels. The design of mixing paddles ensures uniform & efficient mixing of cement & aggregates both in dry & wet conditions. This machine is suitable for aggregate size up to 20mm. The equipment can also be put to use for mixing of any other material in dry/wet conditions. The arrangement helps the operators to access the pan contents conveniently & emptying the mixture after completion of the operation. The lid with mixing paddles clears off the top of the drum to provide maximum access to the operator.

Model No	TM-57 (B)	
Drum capacity	60 litre approx	
Mixing capacity	40 litre approx (9 cube capacity)	
Drum rotation	20-24 RPM	
Electric supply	440V, 50Hz, Three Phase, AC supply	
Weight approx	350 Kg	
Overall Dimension	930mm X 890 mm X 1350mm	

TM-57-B	40 liter	Tilting Type
TM-57-B-R	40 liter	Removable Pan Type
TM-27-B-BD	40 liter	Bottom Discharge
TM-57-B-BD (L)	50 liter	Bottom Discharge
TM-57-B-BD (EL)	60 liter	Bottom Discharge



NOTE: Pan Mixer with bigger capacity and with variable controllable RPM also available. Please contact us for more details of the same.

NOTE: Pan Mixer with removable pan is also available. The pan will come out of the machine on trolley and can be shifted to desired place.

Vibrating Table (TM-198)

BIS 2514



Proper compaction of cement concrete while casting specimens for compression testing is essential to achieve higher compressive strength. EIE Vibrating Table is ideally suited for this purpose. The table top is suitable to hold cube moulds and stops along its edges to prevent moulds from sliding off the table during operation.

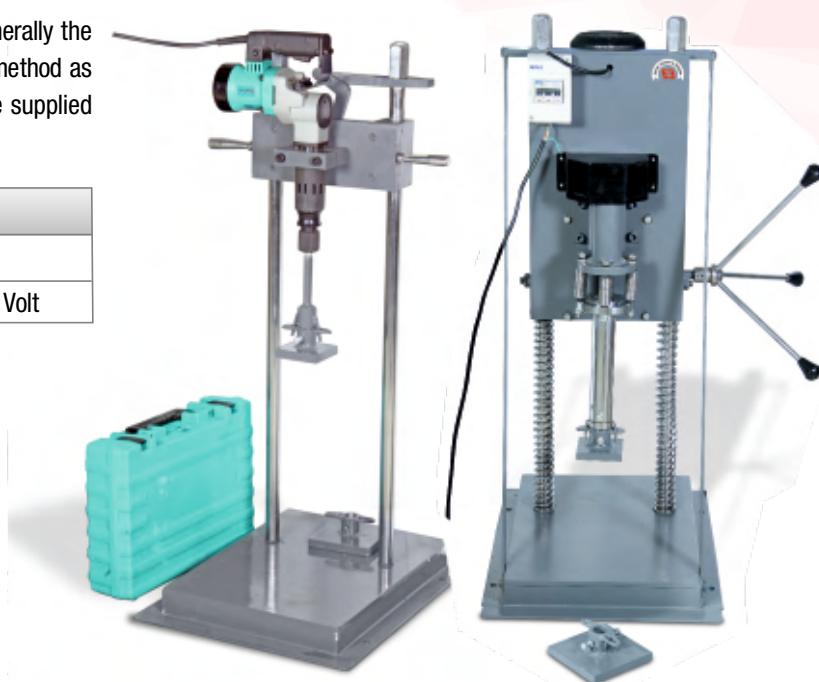
Model No.	TM-198
Available sizes	1000 X 1000 mm, 600 X 600 mm, 1000 X 2000 mm
RPM	3000-6000 RPM
Operation	440V, 50Hz, Three Phase, AC supply
Material of construction	M.S.

Model No.	Size	Capacity	Power
TM-198-6	600 X 600 mm	4 cubes of 15cm	Three Phase 440 Volts
TM-198-10	1000 X 1000 mm	9 cubes of 15cm	Three Phase 440 Volts
TM-198-12	1000 X 2000 mm	18 cubes of 15cm	Three Phase 440 Volts

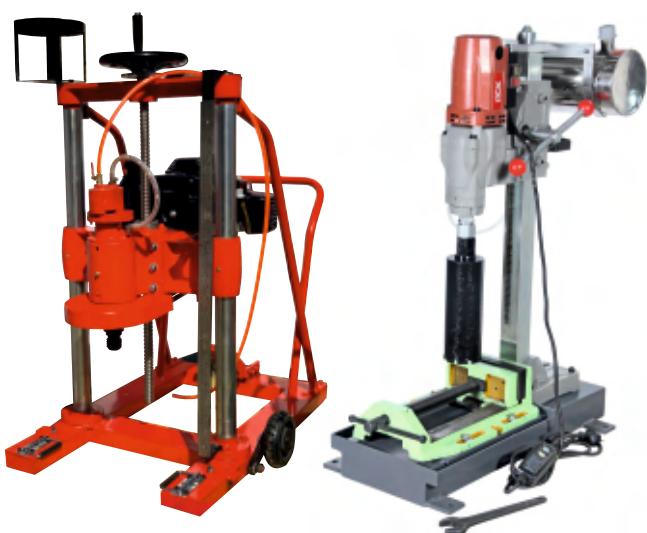
Vibratory Hammer (TM-200/TM-201)

Used for the compaction of concrete samples in a mould. Generally the Vibratory Hammer is found to be a much faster & quicker method as compared to impact hammering. The Vibratory hammers are supplied with 2 Tamping Feet & 1 Shank.

Model	Type	Power Supply
TM-200	Lab model	3 Phase, 440 Volt
TM-201	Portable model	Single Phase 220 Volt



Concrete Core Drilling Machine (TM-51-E)



There are two type of machines available

TM-51-E Electric 5 HP motor

The machine is composed by three main parts:

- Electric motor speed reducer.
- Light alloy base with adjustable feet, and wheels.
- Support column.

These three parts can be easily assembled and disassembled for transportation. The support steel column can be angled with respect to the base. The motor support is mounted on rollers and ball bearings. The aluminum base can be easily fit on site by anchors, by suitable holding column. The machine can be used horizontally and vertically as well to take out Core up to 300 mm. Following accessories are required to take out the core.

- Core bits.
- Anchor faster.
- Strap wrench
- Core drill bits are available in 50, 75, 100, 150 and 200 mm dia. With approx length of 200 and 400 mm.

TM-51-EN Engine Drive 6 HP Engine

- Engine driven.
- Wheel driven.
- Core dia 75 to 150 mm.
- Suitable for Concrete and asphalt pavement.
- 6 HP Brigg & Stations Engin (American) / Honda.
- Easy transportation.
- Inbuilt water tank.
- Core depth 300 mm.

TM-51-E	Electrical Operated
TM-51-EN	Engine Operated

Ve-be Consistometer (TM-197)

BIS 10510, BIS 1199



This test method is used to measure the consistency of stiff or extremely dry concrete. Consistency is measured as the time required for a given mass of concrete to be consolidated by vibrating in a cylindrically shaped mould. The small vibrating table operates at a fixed amplitude and frequency.

The machine comprise of following things.

- A** Slump cone without foot rests (TM-197-S).
- B** Mould (TM-197-M).
- C** Vibrating table (TM-197-T).
- D** Swivel arm with hopper (TM-197-H).
- E** Contact plastic disc with graduated rod (TM-197-R).

• **Vibrator table (TM-197-T)**

The vibrator table is 380 mm long and 260 mm wide and is supported on rubber shock absorbers at a height of about 305 mm above floor level. The table is mounted on a base which rests on three rubber feet and is equipped with an electrically operated vibrometer mounted under it, operating on 220 volts.

• **Slump cone without foot rest (TM-197-S)**

A sheet metal cone open at both ends is placed in the metal pot and the metal pot is fixed on to the vibrator table by means of two wing-nuts. The sheet metal cone is 30 cm high and its bottom diameter is 20 cm and top diameter 10 cm.

• **Swivel arm with hopper (TM-197-H)**

The swivel arm with hopper is telescoped into swivel arm holder welded to the base of the table. It is of rigid construction and is able to easily sit and get removed from the top of the slump cone.

• **Contact plastic disc with graduated rod (TM-197-R)**

Graduated rod with centimetre markings is fitted with a plastic contact plate. A dead mass placed directly above the disc is provided, such that the moving assembly comprising rod, disc and mass weighs 2750 ± 50 g. The whole assembly is attached to the swivel arm.

Slump Test Apparatus (TM-165)

BIS 7320



The slump test apparatus is used to determine the workability of the fresh concrete. The slump cone is comprised of following things.

- Slump cone.
- Graduated tamping rod for the slump cone.
- Base plate.
- Specification of slump cone.

Material of construction	CRC sheet of 16 gauge
Top dia.	10 cm
Bottom dia.	20 cm
Height	30 cm

Specification of graduated tamping rod

Material of construction	M.S. (chrome plated)
Height	600 mm
Dia.	16 mm
Scale making of the tamping rod	Yes

Compaction Factor Apparatus (TM-55)

BIS 5515

Compaction factor is useful tool for determination of work ability determination of concrete mixes of very low work ability such as those normally used with concrete, compacted by vibration. Concrete mix having maximum size of aggregate not exceeding 38 mm, can be tested for work ability.

Compaction factor comprise of following thing.

- 2 Hoppers.
- Receiver assembly.
- Tamping Rod of 16 mm dia x 60 cm long.
- Distance between bottom of upper hopper and top of lower hopper shall be 200 ± 1 mm.
- Distance between bottom of lower hopper and top of receiver shall be 200 ± 1 mm.

Par	Top internal dia. (mm)	Bottom internal dia. (mm)	Internal height (mm)	Radius of bottom fillet (mm)
Upper hopper	250 ± 2.5	125 ± 2.5	275 ± 1	N.A
Lowe hopper	225 ± 2.5	125 ± 2.5	225 ± 1	N.A
Receiver	150 ± 1	150 ± 1	285 ± 1	20



Flow Table (TM-79)

BIS 1199



Flow table is used to determine the fluidity of concrete, where the nominal size of the aggregate does not exceed 38 mm.

The Flow Table top is 76.2 cm dia, finely machined from a solid brass casting. The integrally cast ribs are designed for support and strength. The stand is fabricated of cast iron and is of sturdy construction. Holes for mounting on foundations are drilled in the base plate. The ground and hardened steel cam is designed to drop the table by 12.5 mm. The equipment is supplied along with flow mould suitable for operation. EIE flow table comes in two variant. Electrical and Hand Operated.

Par	Flow table H.O.	Flow table E.O.
Model no	TM-79	TM-79-E
Operation	Hand Operated	Electrical, single phase, 50 Hz, Ac supply
Top dia.	76.2 cm	76.2 cm
Drop of table	12.5 mm	12.5 mm

Specification for the mould.

Model No.	TM-79-M
Upper dia.	25 mm
Bottom dia.	17 mm
Height	12 mm

Concrete Thermometer

Concrete thermometer is available in different variety i.e. glass thermometer, dial thermometer and digital thermometer. Infrared non-contact thermometer.



Air Entrainment Meter (TM-13)

BIS 1199 and BIS 9799

Entrainment of a small amount of air in the cement/concrete has been found to improve considerably the durability of concrete. The recommended limits specified for the air content are between 3% and 6.5%. Smaller percentages may result in deterioration taking place more quickly and larger percentages may reduce the strength without any improvement in the durability of concrete.

The air entrainment meter consists essentially of a stainless steel flanged cylindrical vessel with cover assembly, incorporating the measuring cylinder, pressure gauge and valves. Supplied complete with hand pump and calibration cylinder apparatus, which is essential for adjustment to site barometric pressure. The cylindrical vessel of all models can also be used as unit weight measure for fresh concrete for density determination.



Concrete Penetrometer (TM-126)

BIS 8142



It consists of cylindrical spring housing with a plunger attached to the top of the spring. Penetration needle is attached to the other end of the spring housing. The plunger is graduated in 1 kg divisions, to a maximum capacity of 60 kg, which can be read with respect to the top end of the spring housing. A set of six needle points with areas of 645, 323, 161, 65, 32 and 16 mm² are provided. Supplied complete in a carrying case.

Compression Testing Machine (TM-42)

As per BIS 14858 and BIS 516

Compression testing machine is used to measure the compressive strength of the concrete. EIE instruments have four types of compression testing machine.

- **Hand Operated compression testing machine (TM-042-H)**
- **Electrical Compression testing machine - Analog (TM-042-A)**
- **Digital Compression testing machine (TM-042-D)**
- **Fully automatic compression testing machine (TM-042-AC)**
- **Fully automatic compression testing machine servo controlled (TM-042-FA)**
- All above machine comes in following capacity
 - 1000 kN
 - 2000 kN
 - 3000 kN
 - 5000 kN

Following is the specification and comparison of all the compression testing machines.

Parameter	Hand Operated	Electrical	Digital	Automatic Servo Controlled	Microprocessor Based Automatic
Pumping	Manual	Electrical	Electrical	Electrical (servo controlled)	Electrical
Reading	Analogue	Analogue	Digital	Digital	Digital
Least count	0.5% of the full load	0.5% of the full load	0.1 KN or better	0.1 KN or better	0.1 kN
Accuracy	2%	2%	1%	1%	1%
Release valve operation.	Required (Manually)	Required (Manually)	Required (Manually)	Not required (Automated)	Required Manually
Auto stop after failure of the sample	Not available. Need to stop the machine manually.	Not available. Need to stop the machine manually.	Available. Machine automatically stops after completion of test.	Available. Machine automatically stops after completion of test.	Available. Machine automatically stops after completion of test.
Calculation of results	Manual	Manual	Auto calculation of result in N/mm ² and Kg/Cm ² .	Auto calculation of result in N/mm ² and Kg/Cm ² .	Auto calculation of result in N/mm ² and Kg/Cm ² .
Holding of Load	Possible	Possible	Possible	Possible	Possible
Pace rate	Not controllable	Not controllable	Manually controllable	Automatic control	Automatic control
Bar graph	N.A	N.A	Available	Not required, as machine is controlling automatically	Not required, as machine is controlling automatically
Multi channel operation	Not possible	Not possible	Not possible	3 channel operation	N.A.
Controller	N.A	N.A	1" X 3" key pad controller	7" X 7" touch screen operation	4" Touch Screen
Saving of records	N.A	N.A	Save 10 readings	Saves 50 readings	Saves 50 readings
Pen drive slot	N.A	N.A	Optional (saves reading in excel format) (Record date-time, Sr no and Peak load)	Inbuilt pen drive slot. (saves reading in excel format) (Record date-time, Sr no and Peak load and N/mm ²)	N.A.
Real time graph (on controller itself)	N.A	N.A	N.A	Available	N.A.

Compression Testing Machine (TM-42)



As per BIS 14858 and BIS 516

Parameter	Hand Operated	Electrical	Digital	Fully Automatic Servo Controlled	Microprocessor Based Automatic
Computer operation software and data acquisition software	N.A	N.A	Available at extra cost It saves following things <ul style="list-style-type: none"> • Sr No • Date • Time • Peak load • Graph • N/mm² • Kg/cm² • Average 	Available at extra cost It saves following things <ul style="list-style-type: none"> • Sr No • Date • Time • Peak load • Graph • N/mm² • Kg/cm² • Average 	Available at extra cost It saves following things <ul style="list-style-type: none"> • Sr No • Date • Time • Peak load • Graph • N/mm² • Kg/cm² • Average
Displacement controlled operation	Not possible	Not possible	Not possible	Available at extra cost	N.A.
Modulus of elasticity	Not possible	Not possible	Not possible	Available at extra cost	N.A.
Splitting tensile test	Not possible	Attachment available at extra cost. Manual calculation required	Attachment available at extra cost. Manual calculation required	Attachment available at extra cost. Automatic calculation from the indicator/controller	Attachment available at extra cost. Automatic calculation from the indicator/controller
Pump speed	Single speed	Single speed	Double speed	Double speed	Double speed
Remote trouble controller	Not possible	Not possible	Not possible	Possible. I.P. based enables you to access the machine just by providing the internet connectivity	Possible. I.P. based enables you to access the machine just by providing the internet connectivity
LAN connectivity	Not possible	Not possible	Not possible	Possible. Inbuilt LAN port	N.A.
Auto recalibration	Not possible	Not possible	Available password protected	Available password protected	Available password protected
Piston over travel safety cut off	N.A	N.A	N.A	Available at extra cost	Available at extra cost
Over load safety cut off	N.A	N.A	Available	Available	Available
Shot circuit protection	Not required	Not available	Available	Available	Available
Spherical sitting of the platen to adjust the sample	Yes	Yes	Yes	Yes	Yes
Platen hardness	More than 55 HRC	More than 55 HRC	More than 55 HRC	More than 55 HRC	More than 55 HRC
Platen flatness	In tolerance of 0.1 mm	In tolerance of 0.05 mm	In tolerance of 0.05 mm	In tolerance of 0.03 mm	In tolerance of 0.03 mm
Auto Pace Rate Controlling Range	N.A.	N.A.	N.A.	0.01 kN/sec to 10 kN/sec	3 kN/sec to 10 kN/sec

Electrical Compression Testing Machine (TM-42-A)

Here in electrical compression testing machine pumping will be done electrically.

- Reading has to be noted manually on dial gauge.
- Max red pointer to record the reading at the point of failure.
- Simple plug and play instrument.
- Robust and rugged product.
- Over load cut off.
- Least count will be 0.5% of the full load.
- Accuracy will be 2% of the applied load.
- 20% over load safe.
- Push button start and stop.
- Following capacity available in this category.



Digital Compression Testing Machine (TM-042-D)



- Pumping will be electrical.
- Two speed hydraulic pump.
- Least count 0.1 kN.
- Accuracy 1% of the applied load.
- Over load cut off.
- Over voltage protection.
- Direct reading in N/mm².
- Saving of last 10 reading.
- Saves data in USB drive (optional).
- Computer connectivity possible (optional).
- Manual pace rate controllable with the help of star graph.
- Displays actual pace rate on the screen.
- Auto stop of the machine on the failure of the sample.
- Controller with back light.
- Auto recalibration of the machine (password protection).
- Password protected calibration.
- 20% over load safe.
- In built printer option available (optional).
- PC link software (optional).

Fully Automatic CTM (TM-42-AC)

- 4" touch screen display.
- Back light controller.
- Easy to use.
- Auto recalibration (password protected).
- Password protected calibration.
- Automatically controls the pace rate.
- Pace rate controlling accuracy 10%.
- Least count 0.1 kN or batter.
- Machine accuracy 1%.
- Saves last 50 results.
- Over load protection.
- Over voltage protection.
- Auto stop after failure of the sample.
- 20% over load protection.
- Elevated model for ease of operation.
- Machine available in following capacity.



Hand Operated Compression Testing Machine (TM-42-H)



Hand operated is ideal for the mobile van or for the place where power is not easily available. Here, you have to pump the machine with the help of your hand and observe the reading on the gauge. Following are the salient features of the hand operated CTM as follows.

- Specially designed dual speed hand pump for easy pumping.
- Pressure gauge with red needle to record the reading at the failure point.
- Robust and rugged product.
- Least count will be 0.5% of the full load.
- Accuracy will be 2% of the applied load.
- 20% over load safe.
- Following capacity available in this category.
- Digital dial gauge in hand operated variant also available.

Fully Automatic CTM Servo Controlled (TM-42-FA)



- 7" touch screen operation.
- Big eye catching display.
- Servo controlled machine.
- Machine accuracy 1% or better.
- Direct reading in n/mm^2 and kg/cm^2 .
- Saves last 50 reading.
- Controls pace rate automatically.
- Pace rate controlling accuracy 2%.
- Live load vs. Time graph.
- Auto stop after failure of the sample.
- Inbuilt USB slot to save reading in USB drive.
- Over load protection.
- Over voltage protection.
- Auto operation of the release valve.
- 20% over load protection.
- Computer connectivity with software (optional).
- Easy to use.
- Simple plug and play instrument.
- Displacement controlled operation (optional).
- Capable to control 4 no load frame from one pumping unit i.e. flexural attachment, smaller capacity load frame with different least count.
- Controls pace rate from 0.1 Kn/sec to 10 Kn/sec or better.
- Direct reading of flexural strength in n/mm^2 as per BIS 516 (optional).
- Splitting tensile test operation (optional).
- Aggregate crushing value operation (optional).
- Inbuilt printer facility to print the result from the machine itself (optional).
- Elevated model for ease of operation.

Specification of the load frame. Common for hand operated, Electrical, Digital and Automatic models

Capacity	1000 kN	2000 kN	3000 kN
Vertical clearance	300 mm	350 mm	350 mm
Horizontal clearance	250 mm	290 mm	370 mm
Platen size	230 mm	300 mm	300 mm
Piston stroke	50 mm	50 mm	50 mm
Cylinder material	Made of harden round bar	Made of harden round bar	Made of harden round bar
Piston material	High grade steel round bar	High grade steel round bar	High grade steel round bar
Weight	250 kg	500 kg	650 kg

Features of software of the compression testing machine (EIE data manager software).

- Saves reading in excel file.
- Saves Load vs. Time graph.
- Capable to print from the computer.
- Keeps aging details of the cube moulds.
- Keeps customer details.
- Keep sample identity mark in report.
- Two way communication (start and stop from the computer and from the machine both way).
- Saves reading after failure of the sample.

Flexural Testing Machine (TM-74)

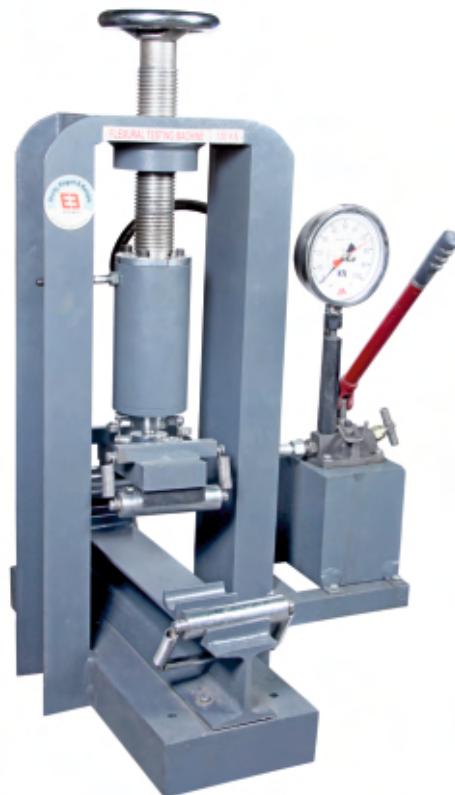
BIS 9399

All the flexural testing machines will be hydraulic operated only. The variants of the machines are as under.

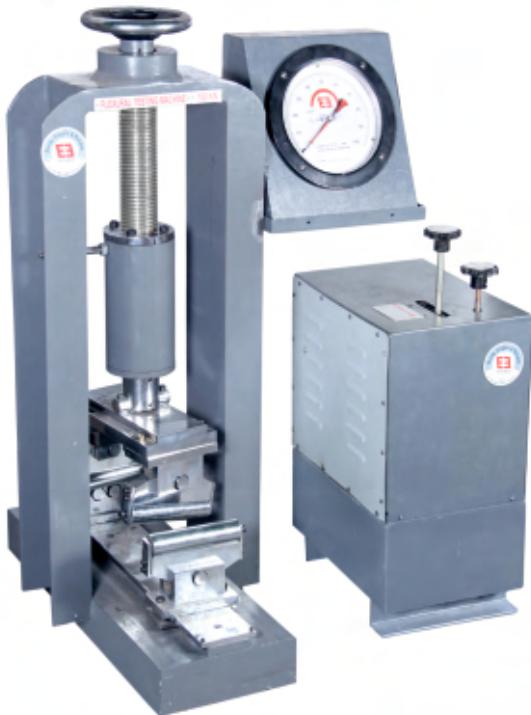
- TM-74-H Flexural Testing Machine Hand Operated.
- TM-74-A Flexural Testing Machine Electrical - Analog.
- TM-74-D Flexural Testing Machine Digital.
- TM-74-AC Flexural Testing Machine Fully Automatic.
- TM-74-FA Flexural Testing Machine Fully Automatic Servo Controlled.

Flexural Testing Machine H.O. (TM-74-H)

- The pumping of the machine will be manual.
- Specially designed dual speed hand pump for easy pumping.
- Pressure gauge with red needle to record the reading at the failure point.
- Simple plug and play instrument.
- Robust and rugged product.
- Least count will be 0.5% of the full load.
- Accuracy will be 2% of the applied load.
- 20% over load safe.
- The capacity of the machine is 100 kN.
- Adjustable roller of 38 mm dia as per the requirement of BIS 516.



Flexural Testing Machine Electrical (TM-74-A)



- Here in electrical Flexural testing machine pumping will be done electrically.
- Reading has to be noted manually on dial gauge.
- Max red pointer is there to record the reading at the point of failure.
- Simple plug and play instrument.
- Robust and rugged product.
- Over load cut off.
- Least count will be 0.5% of the full load.
- Accuracy will be 2% of the applied load.
- 20% over load safe.
- 38 mm adjustable roller as per BIS 516.
- Push button start and stop.

Flexural Testing Machine Digital (TM-74-D)

- Pumping will be electrical.
- Two speed hydraulic pump.
- Least count 0.01 kN.
- Accuracy 1% of the applied load.
- Over load cut off.
- Over voltage protection.
- Direct reading in N/mm² of flexural value in kg/cm² as per BIS 516.
- Saving of last 10 reading.
- Saves data in USB drive (optional).
- Computer connectivity possible (optional).
- Manual pace rate controllable with the help of star graph.
- Displays actual pace rate on the screen.
- Auto stop of the machine on the failure of the sample.
- Controller with back light.
- Auto recalibration of the machine (password protection).
- Password protected calibration.
- 20% over load safe.
- In built printer option available (optional).
- PC software (optional).



Flexural Testing Machine Automatic (TM-74-AC)



- 4" touch screen display.
- Back light controller.
- Easy to use.
- Auto recalibration (password protected).
- Password protected calibration.
- Automatically controls the pace rate.
- Pace rate controlling accuracy 10%.
- Least count 0.01 kN or better.
- Machine accuracy 1%.
- Saves last 50 results.
- Over load protection.
- Over voltage protection.
- Auto stop after failure of the sample.
- 20% over load protection.
- Inbuilt printer option available (optional).
- Elevated model for ease of operation.
- Pace rate controlling range 1kN/sec to 10 kN/sec.

Flexural Testing Machine Fully Automatic Servo Controlled (TM-74-FA)



- 7" touch screen operation.
- Big eye catching display.
- Servo controlled machine.
- Machine accuracy 1% or better.
- Direct reading in flexural strength in n/mm² and kg/cm² by entering "a" value as per BIS 516.
- Saves last 50 reading.
- Controls pace rate automatically.
- Pace rate controlling accuracy 2%.
- Live load Vs. Time graph.
- Auto stop after failure of the sample.
- Inbuilt USB slot to save reading in USB drive.
- Over load protection.
- Over voltage protection.
- Auto operation of the release valve.
- 20% over load protection.
- Computer connectivity with software (optional).
- Easy to use.
- Simple plug and play instrument.
- Displacement controlled operation (optional).
- Crack opening test attachment (optional).
- Capable to control 4 no load frame from one pumping unit i.e. ctm attachment, smaller capacity load frame with different least count.
- Controls pace rate from 0.03 kN/sec to 10 kN/sec or better.
- Elevated model for ease of operation.
- Inbuilt printer facility to print the result from the machine itself.(optional).

Concrete Permeability Test Apparatus (TM-139)

BIS 3085, DIN 1048



The design of concrete mix aims at maximum durability for the conditions prevailing at the site where it is to be used ability to resist the flow of water through, is one of the important durability characteristics. The permeability is determined on cement. Mortar and concrete specimens, either cast in the laboratory or obtained by cutting out cores from existing structures. The Permeability test is carried out as per the standard IS:3085 and DIN 1048.

Item name	Model No.
Concrete Permeability Apparatus 1 cell model for 100 mm cube	TM-139-CS-3
Concrete Permeability Apparatus 3 cell model for 100 mm cylinder	TM-139-LS-3
Concrete Permeability Apparatus 3 cell model for 150 mm cube	TM-139-CL-3
Concrete Permeability Apparatus 1 cell model for 150 mm cylinder	TM-139-LL-1
Concrete Permeability Apparatus 1 cell model for 300 mm cylinder	TM-139-LXL-1
Concrete Permeability Apparatus 3 cell model for 150 mm cube as per DIN Std 1048	TM-139-D-3
Concrete Permeability Apparatus 6 cell model for 150 mm cube as per DIN Std 1048	TM-139-D-6

Note: We also have concrete permeability as per railway standard to test the concrete mould of 120 X 200 mm on site. This is very handy instrument, to test the concrete onsite. More details will be provided on request.

Bulk Density Cylindrical Measure (TM-19)

BIS 1199, BIS 10079, BS 1881



- For determining the unit weight of aggregates.
- We have following variants in the same.

Bulk Density cylinder	3 liters	TM-19-3L
Bulk Density cylinder	5 liters	TM-19-5L
Bulk Density cylinder	10 liters	TM-19-10L
Bulk Density cylinder	15 liters	TM-19-15L
Bulk Density cylinder	20 liters	TM-19-20L
Bulk Density cylinder	30 liters	TM-19-30L

Capping Set (EIE-016)

BIS 516, BS 1881, ASTM C31, ASTM C 617



- It is essential that the ends of the concrete cylinder specimens are flat and parallel when conducting a compressive strength test.
- So, the end surfaces are required to be capped with capping compound, using capping sets to obtain these conditions.
- The vertical capping set comprises of a base with an upright, which serves as a guide for positioning the capping plate and a cylinder.
- Precisely machined capping plate is for keeping molten compound and to position the cylinder.
- It will be supplied complete with a cylinder carrier and a ladle.
- Hot melting pot also available (Optional).

Hydraulic Jack (CA-1019)

- Hydraulic Jacks have multipurpose utility,
 - Application of loads while engaged in field investigation.
 - Determination of load carrying capacity of piles in the field, tensioning of wires in pre-stressed structures.
 - Loading of members of any structure for deformation characteristics.
- The jacks are supplied complete with manually operated pumping units fitted with load gauge and high pressure flexible hose pipe.
- All the jacks have a piston travel of 50 mm and jacks upto 1000 kN capacity are provided with retraction springs.
- Following are the different variants in the same.

Hydraulic Jack with hand pump	50 kN	CA-1019
Hydraulic Jack with hand pump	100 kN	CA-1020
Hydraulic Jack with hand pump	250 kN	CA-1021
Hydraulic Jack with hand pump	500 kN	CA-1022
Hydraulic Jack with hand pump	1000 kN	CA-1023
Hydraulic Jack with hand pump	2000 KN	CA-1024
Hydraulic Jack with hand pump	3000 kN	CA-1025

Longitudinal Compressometers (EIE-015-I)

ASTM-C469

- This equipment is for the determination of lateral extension of 150 mm dia x 300 mm high cement concrete cylinders while testing them in compression.
- The extensometer consists of two movable frames pivoted at one end.
- A dial gauge measures the lateral extension, and a removable spacer strip is for the initial setting of the dial gauge.
- Mounting of extensometer on the specimen is with the help of screws.
- Supplied complete with dial gauge 0.002 x 5 mm or digital dial gauge 0.001 x 25 mm.

For cement concrete cylindrical specimens of 150 mm dia x 300 mm length.	EIE-015-II
For cement concrete cylindrical specimens of 150 mm dia x 300 mm length.- Digital	EIE-015-II-D

Lateral Extensometer (EIE-015-II)

- This apparatus is used for determination of the strain and deformation characteristics of cement concrete cylindrical specimens of 150 mm dia x 300 mm length.
- The Compressometer consists of two frames for clamping to the specimen by means of five tightening screws with hardened and tapered ends.
- Two spacers hold the two frames in position. An adjustable pivot rod rests on pivot screws.
- A spring enables the pivot rod to remain in contact with pivot screws.
- The ball chain is for adjusting the tension of the spring.
- A dial gauge, fixed to a bracket, fitted to the top frame, is used for taking deformation measurement. Supplied complete with dial gauge 0.002x5mm or Digital Dial Gauge 0.001 x 25 mm.



For cement concrete cylindrical specimens of 150 mm dia x 300 mm length.	EIE-015-I
For cement concrete cylindrical specimens of 150 mm dia x 300 mm length.	EIE-015-I-D

Length Comparator (TM-101)



- The instruments can be used in following tests.
- Initial drying shrinkage.
- Drying shrinkage.
- Moisture movement.
- Here is the variant of the instrument.

Length comparator	TM-101
Length comparator digital	TM-101-D

Concrete Test Hammer



- This instrument is used for analyzing the uniformity and compressive strength characteristics of concrete structures.
- It is available in models with different impact energies, each designed for a specific test application to investigate a wide range of material types and sizes.
- The hammer measures rebound number based on concrete surface hardness of concrete which can be co-related with compressive strength.

Please contact us for the detailed specifications.

Concrete Test Hammer Digital

- The digital concrete test hammer works in the same manner, but results are recorded digitally with ability to set test parameters and factors including age, shape and correction factor.
- Computer connectivity is also possible here.
- Please contact us for the detailed specifications.



Concrete Test Hammer Anvil

- This instrument is used to calibrate the concrete test hammer. The calibration anvil provide the calibrated (predefined) impact energy.

Concrete Cover Meter/Rebar Locator

- This instrument is for precise and non-destructive measurement of concrete cover and rebar diameters and the detection of rebar locations using the eddy current principle with the pulse induction method.
- A rebar detector with real-time visualization of the rebars beneath the instrument to locate rebars & measure concrete cover.



Ultra Sonic Pulse Velocity

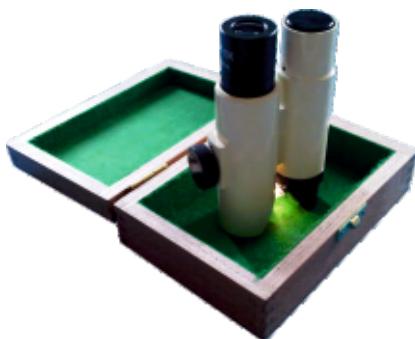


- UPV investigates the structural Integrity for a wide range of materials; like concrete, refractories, ceramics, timber etc.
- UPV can be used in the laboratory or on site to investigate uniformity; cavities; cracks; fire/frost damage, deterioration.
- UPV measures transit time and pulse velocity to provide information on the uniformity of concrete, cavities, cracks and defects.
- Contact us for more details.

Corrosion Analysis Meter

- The instrument gives rapid and comprehensive tests of the site and provides an immediate assessment of locations where corrosion of steel in concrete is likely to take place before the rust becomes visible.
- The instrument assesses the corrosion condition of steel in concrete through the half-cell potential method.
- Available with a rod electrode for confined spaces or spot checks or a wheel electrode for large surfaces.
- The 4-wheel electrode version is the fastest corrosion assessment instrument available.
- Contact us for more details.

Crack Measurement Microscope



- This Crack Measurement Microscope is used to measure the thickness of the crack in the existing concrete structure.
- Contact us for more details.

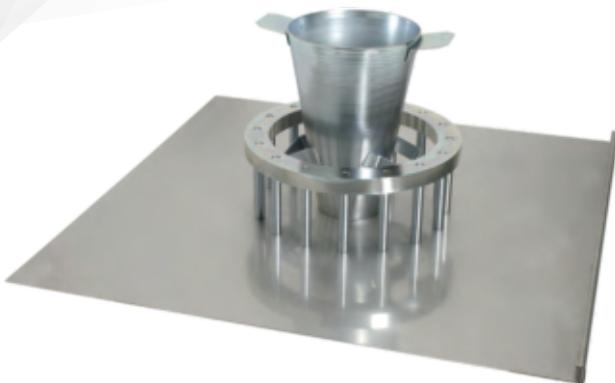
Flow Table (VIPL-SCC-F)

(BIS 9103)

- Flow table for self compacting concrete (VIPL-SCC-F) (BIS 9103).
- Flow table is used to determine the flow of fresh mixed super plasticized concrete to high working.
- The slump cone is placed centrally on the table of to be held position by standing on the two foot pieces.
- A wooden tamping bar is provided for lightly tamping for each layer.



J Ring (VIPL-SCC-J)



- This test method provides a procedure to determine the passing ability of self-consolidating concrete mixtures.
- The difference between the slump flow and J-Ring flow is an indication of the passing ability of the concrete.
- The test method is applicable for laboratory use in comparing the passing ability of different concrete mixture.
- It can also be used to investigate the resistance of SCC to segregation by comparing test results from two different portions of sample.
- The J-Ring test measures three parameters: flow spread, flow time and blocking step.
- The J-Ring flow spread indicates the restricted deformability of SCC due to blocking effect of reinforcement bars and the flow time indicates the rate of deformation within a defined flow distance.
- The blocking step quantifies the effect of blocking.

L Box (VIPL-SCC-L)

- L Box to investigating the flow rate and passing ability of SCC (self consolidating concrete) in confined spaces. It measures the reached height of fresh SCC after passing through the specified gaps of steel bars flowing within a defined flow distance.
- With this reached height, the passing or blocking behaviour of sec can be estimated.



U Box (VIPL-SCC-U)



- The U Box is used to determine the confined flowability and the capacity of SCC concrete to flow within confined space.
- The box is made of steel frame consisting of three bars.
- In this test the degree of compatibility can be indicated by the height that the concrete reaches after flowing through an obstacle.
- The quality of the concrete can be judged by the height reached.

V Funnel (VIPL-SCC-V)

- The V-Funnel flow time is the period a defined volume of self consolidating concrete needs to pass a narrow opening and gives an indication of the filling ability of SCC provided that blocking and/or segregation do not take place.
- The flow time of the V-Funnel test is to some degree related to the plastic viscosity.



RCPT (Rapid Chloride Penetration Test) (EIE 017)



ASTM C1202



- Understanding transport phenomena in concrete at its micro-structural level has become the topic of increasing importance in elucidating the deterioration process of concrete such as corrosion of reinforcement embedded in concrete which is caused by penetration of aggressive substances into concrete.
- The chloride resistance of concrete governed primarily by the pore structure and the concrete diffusivity.
- Therefore, wherever there is a potential risk of chloride-induced corrosion, the concrete should be evaluated for chloride permeability.
- The most important concrete characteristic, apart from permeability, is diffusion.
- Usually chlorides penetrate in concrete by diffusion along water paths or open pores.
- The objective of the experiment is to determine the chloride penetration resistance of concrete specimens at 28 days through the rapid chloride permeability test.
- The machine will be supplied with vacuum pump, vacuum desiccators, 3% NaCl solution, 0.3 M NaOH solution, Mould for the sample preparation, Acrylic mould to conduct the test, Necessary sealant.
- The machine is supplied in following variant. Each model can be supplied with computer connectivity and data acquisition system.

Rapid chloride penetration test, single cell	EIE-017
Rapid chloride penetration test, Three cell	EIE-017-3
Rapid chloride penetration test, Six cell	EIE-017-6
Rapid chloride penetration test, Nine cell	EIE-017-9
Rapid chloride penetration test, Eighteen cell	EIE-017-18

Buoyancy Balance (CA-1018)

- The Density of Hardened concrete specimens like Cubes & Cylinders can be quickly & accurately checked using Buoyancy Balance.
- The Buoyancy Balance consists of a rigid support Frame, incorporating a Water Tank, mounted on a platform.
- A mechanical lifting device is used to raise the Water Tank through the Frame height immersing the specimen suspended below the balance.
- The Balance supplied may also be used as a standard weighing system in the laboratory. The capacity of the balance will be 10 Kg X 0.1 g.
- The density can be automatically computed through balance, without manual calculation also available (optional).
- PC interface also available (optional).



Curing Tank (Heating and Cooling) (CA-1026)

BIS 516, BIS 4031-VI



- Curing tank (CA-1026) is used for the curing of cement and concrete cubes.
- Once cement specimen is prepared and kept the filled moulds in moist closet or moist room for 24 ± 1 hours after completion of vibration. After that samples are removed from the moulds and immediately submerge in clean fresh water and kept there until taken out just prior to breaking. The water in which the cubes are submerged has to be maintained at a temperature of $27 \pm 2^\circ\text{C}$.
- The curing tank is controlled by digital PID controller.
- Accuracy $\pm 1^\circ\text{C}$.
- Resolution $\pm 0.1^\circ\text{C}$.
- Temperature range 15°C to 100°C .
- The curing tank is available in following variants.

Curing tank Heating plus cooling for 12 cubes	CA-1026
Curing tank Heating plus cooling for 24 cubes	CA-1027
Curing tank Heating plus cooling for 36 cubes	CA-1028

Note: The curing tank with bigger size is available.
Please contact for more details.

Initial Surface Absorption Test Apparatus (ISAT)

AS PER BS 1881 PART 5

- This apparatus is used to assess the surface absorption characteristics of concrete. The rate of flow of water per unit area into a concrete surface when subjected to a constant head of 200 mm is measured. The unit consists of a capillary tube mounted on a scale, a water reservoir & connecting tubes. Easy to use, mounted on a stand.



RCMT (Rapid Chloride Migration Test)

AS PER NT BUILD 492 METHOD FOR SIX CELL - DIGITAL

Six cell RCMT equipment :

- Six nos Digital Power supply 0-60 volt continuously adjustable individually
- Digital voltmeter 6 nos 0-99.9 v dc at 1 ampere
- Digital Ammeter 6nos, 0-999 mA
- Digital Temperature indicator with PT100 RTD sensor 6 nos. 0-99.9°C
- Manually the reading has to be taken.
- Cooling fan is provided for continuous operation.
- Table Model type.
- UPS of 1KVa capacity may be used for continuous operation.
(To be Provided by Customer)

Migration Test setup consists of the following :

- Neoprene Rubber sleeve 100 mm Internal diameter and 115 mm external diameter 150 mm long - 1 no.
- Stainless steel clamp 105-110 mm - 1 no.
- Catholyte reservoir: plastic box, $370 \times 270 \times 280$ mm (length \times width \times height).
- Plastic support
- Cathode Stainless steel 0.5 mm thick - 1 no.
- Anode : Stainless steel mesh or plate with hole - 1 no.

Supplied with following Accessories:

- Vacuum Pump and the desiccator set up for the NORD 492 test
- CaOH salt 5 kg
- NaOH salt 5 kg
- NaCl salt 5 kg

Cement Sampler (CA-1001)

ASTM C183



- There are two types of cement sampler.
 - Packaged cement tube sampler (CA-1001-S).
 - Bulk cement sampler (CA-1001-B).
- Packaged cement tube sampler (CA-1001-S) is used to sample cement from packages. Made of brass, it has an outside dia. of 32 mm x 700 mm long.
- Bulk cement sampler (CA-1001-B) is used to sample cement in bulk storage or bulk shipments. It consists of two brass concentric tubes with slots. The inner tube rotates to close the slots and take the sample. The capacity of the internal tube is approx. 3 litres.

Le Chatelier Flask (CA-1002)

BIS 4031-II



- The instrument is made of good quality glass to measure the specific gravity of hydraulic cement as specified in IS:4031-II. Bulb capacity approx. 250 ml. Neck graduated with 0 to 1 ml and 18 to 24 ml in 0.1 ml.

Le Chatelier Water Bath (CA-1003)

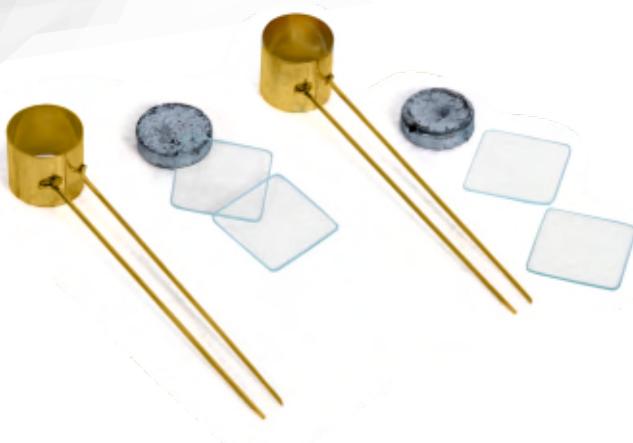
BIS 4031-XI



- Digital PID controller.
- Resolution 0.1°C.
- Drainage system.
- Capable to accommodate 8 flask.
- Temperature range from 15°C to 100°C.
- Front and back covered with toughened glass for the visibility.
- Thickly insulated.

Le Chatelier Mould (TM-102)

BIS 5514



- It consists of a small split cylinder forming a mould of 30mm internal dia. and 30 mm high. On either side of the split cylinder, two parallel indicating arms with pointed ends are fixed.
- Two loops of suitable material and strength soldered to the upper half of the mould on each side of the central split is provided to facilitate demoulding of the hardened paste specimen after test.
- The resilience of the mould shall be such that the action of a mass of 300g applied shall increase the distance between the indicator ends of the needle by 17.5mm + 2.5mm without permanent deformation.
- The mould is supplied complete with two glass plates and lead weight.

Water Bath for Soundness Test (CA-1013)

BIS 5514

- This water bath is used for the soundness test of the cement.
- The water-bath is capable of raising the temperature of the water to boiling in $30\text{ min} \pm 5\text{ min}$.
- The water bath is thermostatically controlled.
- The water bath with digital PID controller also available (CA-1013-D)
- Temperature range ambient to 100°C .
- Thickly insulated for the least heat loss.
- Stand is provided to hold the Le-Chatelier moulds.



Blain Air Permeability Test Apparatus (TM-22)

BIS 1727, 4031, 4825



- Used to determine the particle size of Portland cement, limes and similar powders expressed in terms of their specific surface.
- It consists of a stainless steel cell, perforated disc and plunger.
- A U-tube glass manometer is fitted to the wooden stand.
- The pack of filter paper, thermometer, electronic balance with 0.001 gm resolution, Stop watch and Manometer liquid are the necessary accessories to complete the test (Available at extra cost).
- The machine is supplied in following variants.

Blain air permeability test apparatus	As per IS	TM-22
Blain air permeability test apparatus	ISI marked	TM-22-A

Vicat Needle Apparatus (TM-202)

BIS 5513, BIS 2542 (Part-2), BIS 2645, BIS 1727



- Vicat Apparatus is for determining the normal consistency, standard consistency and time of setting of cement and lime in accordance with BIS specifications.
- The procedure, as recommended in various standards, is for determining the quantity of water required to produce a cement paste of standard consistency.
- The standard consistency is attained when the 10 mm plunger of the apparatus penetrates the material to a pre-determined depth under free-fall.
- A new sample is prepared and tested with initial and final needles in accordance with the procedure described in various specifications.
- The scale of the machine is 40 mm long with a division of 1 mm.
- The machine will be supplied with vicat mould having 70 mm dia at the base, 60 mm at the top and 40 mm height or split type.
- A non porous base plate of glass or metal also provided.
- The machine will also provided with consistency plunger, initial and final setting needle in a carrying case.

The machine is available in following variants.

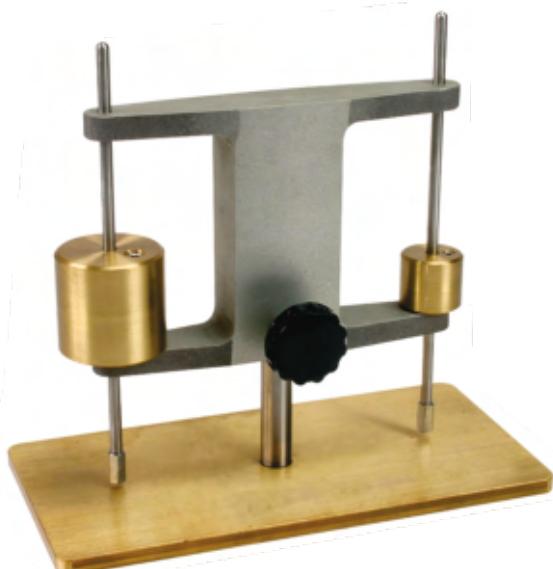
Vicat needle apparatus	As per IS	TM-202
Vicat needle apparatus	ISI marked	TM-202-A
Vicat needle apparatus	Fully automatic*	TM-202-AC

*Detailed specifications will be provided on request.

Gillmore Needle Apparatus (CA-1035)

ASTM C91, ASTM C141, ASTM C266

- Use to determine the setting time of cement.
- The apparatus consists of two horizontal arms which carry two weighted steel needles precisely machined to meets the requirement.
- The initial needle 2.12 mm dia., weighs 113 g and the final needle 1.06 mm dia., weighs 453.6 g.
- Supplied complete with one initial needle, one final needle and a glass base plate.



Flow Table (CA-1033)

BIS 4031-IV



- Used to determine the consistency of mortars and building lime. Two versions available: conforming to BIS 4031 (part 4), manual and motor operated.
- Motor operated models are driven by a motor speed reducer (100 rpm) and the number of drops are preset on the digital counter, which stops the machine automatically at the end of the cycle.
- The Flow Table consists of a brass table top 250 ± 2.5 mm dia, mounted on a rigid stand.
- The table top is reinforced with equally spaced ribs and allowed to drop through 12 mm by a ground and hardened cam.
- The machine is supplied Complete with Flow mould 100 mm base dia, 70 mm top dia and 50 mm high.

Flow Table hand operated	CA - 1033
Flow Table electrical with digital counter	CA - 1033-E

Gauging Trowel (CA-1034)

BIS 5515, 4031-XIV

- Gauging Trowel available with 150 (CA-1034-S) and 200 (CA-1034) mm long blade with straight edge.
- Weight 210 ± 10 g.



Cement Autoclave (TM-14)

BIS 4031-III



- The autoclave consists of a high-pressure steam Stainless Steel Pressure Vessel with internal dimensions 105 mm dia. x 405 mm high to accept a rack for holding specimens.
- Complete with pressure gauge, pressure regulator, temperature regulator, control switches, safety valve and specimen rack.
- The Cement Autoclave is suitable for conducting accelerated soundness tests on Cement or the Autoclave expansion test.
- Length comparator and shrinkage bar mould (single gang or three gang) are compulsory accessories to conduct the test.
- The pressure inside the vessel is controlled through a micro processor based PID controller.

Inside chamber	105 mm dia X 405 mm height
Rating	3000 watts
Pressure range	Up to 21 kg/cm^2
Least count	0.4 kg/cm^2
Temperature range	ambient to 215°C
Power supply	Single phase, 230 Volts, 15 Amp.
Inner chamber	Made of SS 304
Outer chamber	GI powder coated

Mortar Mixer (TM-121)

BIS 10890, 4031, 1727



- The machine is used for the Preparation of standard prisms as per the mixing procedure in accordance with BIS 10890.
- This apparatus has specially been designed to prepare cement mortar for strength determination as specified in BIS 4031.
- It can also be used in mixing lime with pozzolanic materials for determination of lime reactivity (as per IS: 1727) and for uniform mixing of soils with additives such as lime, cement, etc.

Speed	Two
Planetary speeds	62 \pm 5 and 125 \pm 10 rpm or user defined
Paddle speed	140 \pm 5 and 285 \pm 10 rpm or user defined
Bowl capacity	5 litres
Power	Single phase, 230 Volts
Weight	45 kg (approx.)

The machine is available in the following variants.

Mortar mixer	TM-121
Mortar mixer-Digital	TM-121-D

Ball Mill (TM-24)

- The machine consists of drum made of welded steel having inside diameter of 350 mm X 350 mm depth or inside diameter of 450 mm X 450 mm.
- The machine rotates at the RPM of 28-30.
- The machine is supplied complete with 12-19 mm dia steel ball and revolution counter. Various size of steel balls available to suit individual test is required.
- Digital ball mill is fitted with Pre-settable digital counter.
- The machine comes in following variants.

Ball mill	300 X 300 mm	TM-024
Ball mill	450 X 450 mm	TM-024-L
Ball mill - Digital	300 X 300 mm	TM-024D
Ball mill - Digital	450 X 450 mm	TM-024D-L



Jaw crusher (TM-87)



- Designed to speed-up crushing of aggregates, Ores, Mineral, Coal and similar materials.
- Compact and rugged for laboratory and small pilot production units.
- Manganese steel jaws adjustable up to 6 mm opening.
- 225 kg materials can be crushed in approx. eight hours.
- Discharging opening adjustment range: 6 - 20 mm.
- Supported with strong steel frame.
- Suitable to crush stone up to 50 mm.
- Suitable for cement and chemical laboratories.
- Operates on three phase, 440 Volts.

Note: Machine with bigger capacity also available.

Pulverizer (TM-143)



- The pulverizer (TM-143) is designed for grinding materials to produce fine mesh samples.
- The grinding is done between two disc, one of which is stationary and other revolving eccentrically at high speed.

Feed size	6 mm
Discharge size	100 to 150 mesh
Capacity	250 gms/min
Grinding disc diameter	175 mm
Operation	Three phase, 440 volts

Note: Machine with bigger capacity also available.

Heat of Hydration of Cement (TM-56)

BIS 4031-IX, B IS 11262

- Heat of Hydration apparatus is used for determining heat of hydration of cements by measuring difference between heat of solution of dry cement and heat of solution of a separate sample partially hydrated for 7 days & 28 days.
- Constant-speed stirrer maintains uniform temperature throughout liquid and supplies sufficient agitation to keep solid reactant suspended in the acid mixture.
- This equipment consists of insulated wood case, vacuum jar with stopper, thermometer and holder, glass funnel, stirring paddle and chuck.
- The digital thermometer resolution will be 0.01°C.

The stirrer will rotate at a constant RPM of 400.



Shrinkage Bar Mould (CA-1015)

BIS 10086, 4031



- This mould is the same used for the Expansion of Portland cement with the High pressure autoclave, conforming to BIS 4031-III.
- The mould comes in single gang and three gang.
- Shrinkage bar mould 25.4 mm x 25.4 mm x 285 mm will be supplied complete with contact points.

Cube Mould (TM-110-CC)

BIS 10080, 10086

- EIE moulds (TM-110-CC) are made of high quality metal and are strong enough to resist distortion and retain their shape and size under rugged conditions.
- These moulds are given internal surface finish of a very high order, to comply with requirements laid down in BIS 10080 and BIS 10086.
- The mould is available in following variants.

Cube Mould	7.06 Cm, As per IS TM-110-CC
Cube Mould	7.06 Cm, ISI marked TM-110-CCI

Flexural Prism Mould (CA-1042)

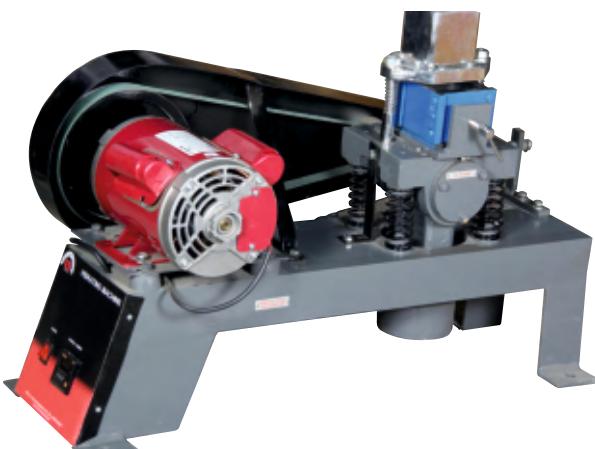
EN 196

- This mould is used for preparation of samples of size of 40 x 40 x 160 mm to test under flexure & compression as per EN-196.
- Then mould is available in three gang and single gang with base plate.



Vibrating Machine (TM-199)

BIS 10080, 4031



- Vibrating machine is used for the preparation and compaction of 70.6 mm mortar cube specimens.
- The mould table is mounted on four springs attached to an eccentric shaft which allows each sample to be vibrated at 12000 cycles per minute in accordance with the specifications in BIS 10080.
- The machine will be supplied with one cube mould of 70.6 mm and one poking rod.

Frequency / RPM	12,000 \pm 400
Counter	Digital
Counter-range	1 min to 99 mins
Mass of the vibrator on the supporting spring	29 \pm 0.5 Kg
Operation	Single phase, 230 Volts

Bomb Calorimeter



- Bomb calorimeter is used to measure calorific value (CV) of solids and liquid.
- CV is derived from the temperature rise due to combustion of the sample in presence of oxygen at specified pressure of the oxygen.
- The machine will be supplied with following accessories.
- Bomb with works certificate.
- Calorimeter vessel with bomb support & insulating base.
- Water Jacket.
- Combined lid for calorimeter vessel & water jacket.
- Stirrer.
- Connecting lead for calorimeter bomb.
- Fine adjustment valve with built in pressure gauge.
- Connecting tube to connect bomb, pressure gauge and fine regulating valve.
- Safety Relief Valve fitted on gas filling tube adapter.
- Pellet Press.
- Spanner for Oxygen tube connection.
- Ignition Wire - Nichrome 01 Roll
- Cotton Thread 01 Roll
- Stand for Bomb Lid.
- Hook for Lifting Bomb.
- Crucible SS.
- Gas Release Valve.
- Bomb Firing Unit 01 Set.
- Gelatin Capsules 01 Bottle.
- Differential Type Digital Thermometer complete with sensor and instruction sheet 01 Set.
- Integrated Firing Unit 01 Set.
- Clamp for Sensor.
- Thermometer for Jacket 50 °C .
- Gas Filling System 01 Set.
- O-ring for bomb & valve 01 set each.
- Schrader Valve with Key 01 each.
- Standard Benzoic Acid 01 Bottle of 200 gm.
- Electronic balance of 0.001 gm resolution and oxygen cylinder are compulsory accessories to complete the test (optional).
- The machine comes in following variants.

Bomb calorimeter Manual calculation	Bomb calorimeter with thermal printer and auto calculation	Bomb calorimeter with, auto calculation and auto gas filling thermal printer
EIE-001	EIE-001-P	EIE-001-PA
CV calculation manually	Auto calculation of CV	Auto calculation of CV
Printer facility not available	Inbuilt thermal printer to print CV of the sample	Inbuilt thermal printer to print CV of the sample
Oxygen filling is manual at specified pressure	Oxygen filling is manual at specified pressure	Oxygen filling is automatic at specified pressure, We just need to open the valve
Computer connectivity not possible	Computer connectivity possible	Computer connectivity possible
Temperature resolution 0.01°C	Temperature resolution 0.01°C	Temperature resolution 0.01°C

Briquette Mould, Single/Three gang with steel base plate (CA - 1029)



- Briquette Mould, Single gang with steel base plate (CA-1029) is used for the sample preparation of the tensile strength of the cement.
- Briquette Mould, comes in two variants ,Single gang with steel base plate (CA-1029) and three gang with steel base plate (CA-1030).

Jolting Apparatus (CA- 1036)

BIS 10078

- This machine, used to compact the 40x40x160 mm cement prisms in the mould, has been developed to fulfil precisely the BIS 10078 standards.
- Each single requirement as, for example, weigh distribution, dimensions, structural design and working cycle is individually checked and verified.
- Prism moulds, feed hopper, scrapers and glass plate are not included and have to be ordered separately.
- The machine (CA-1036) rigidly connected by two support arms to spindle at a horizontal distance of 800 mm from the centre of the table.
- The table can be raised and allowed to fall freely by a cam which is connected to a motor.
- The cam rotates at a rate of 60 rpm.
- A digital counter with sensor is provided, which stops the machine after 60 jolts.
- Locating pins are provided for mounting the mould compartments on the table.
- The mould, surrounded by the hopper, can be clamped rigidly to the table.



Gloss Meter/Reflectance Meter (EIE-008)



- This instrument is ideal for the measuring whiteness and brightness.
- Whiteness is measured in terms of diffuse reflectance, which is the ratio of reflected light measured at 90°.
- After passing through a suitable filter and the incident light that is generally at 45° to the surface of the sample Paper, Textiles, Food items, Pigments, Tiles and Minerals Ideal for measuring whiteness & brightness.
- Can be used to measure both whiteness & brightness by changing filters only Standard MgCO block supplied with the instrument.
- Reflectance Meter with Blue Filter for Brightness measurement.
- Reflectance Meter with Green Filter for Whiteness measurement.

Briquette Testing Machine (CA-1005) (EN 196-I)



- Tensile testing machine is used for the flexural strength determination of cement specimens 40 x 40 x 160 mm and tensile tests on cement briquettes.
- It consists of a beam loading system with a traveling weight driven by an electric motor providing a constant increase in load throughout the test.
- The machine is designed to accept either flexural or tensile attachments which have to be ordered separately as accessories.
- Constant rate of loading.
- Dual range.
- Automatic stop at failure.
- Accepts flexural or briquette specimens.

Tensile Testing Machine (CA-1004)

- The tensile testing machine is used to determine the tensile strength of the cement bags.
- Dual load cell (50/500 Kg).
- Resolution of load 0.1 Kg.
- Variable speed (1 mm/min to 50 mm/min).
- Resolution of elongation 0.1 mm.
- Accuracy 1%.
- Single Column machine (Double column machine also available).
- Digital read out of the load.
- Digital read out of the elongation.
- Digitally variable speed.
- Auto recalibration facility (Without proving) (Password protected).
- Password protected calibration.
- Single phase, 230 volts operated.

Capacity	Structure	Speed
50-500 kg	Single Column	1-50 mm/min 50-500 mm/min
More than 500 kg	Double Column	1-50 mm/min 50-500 mm/min



Note: Machine with different speed and load capacity available. Servo controlled machine also available. Table top model and single Column model also available.

Cement Mortar Permeability (TM-138)

BIS 2645, 1727



The machine is supplied in following variants.

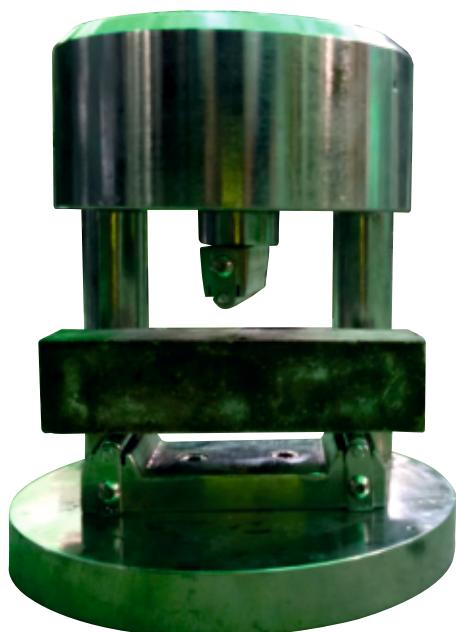
Cement mortar permeability Three cell	TM-138
Cement mortar permeability Six cell	TM-138-6C
Cement mortar permeability Twelve cell	TM-138-12C

- The usefulness of the integral water proofing compounds or admixtures is established by measuring the permeability of standard mortar specimens prepared with and without the addition of such compounds.
- The permeability unit consist of a specimen container ring of 100 mm diameter and 50 mm height held between a bottom plate and a water cell.
- The hydraulic head for testing is obtained by connecting the unit to a compressor through a water pressure vessel.
- A pressure regulator and a pressure gauge are included between the compressor and water pressure vessel to indicate the test pressure.
- Water percolating through the specimen shall be collected in a container.
- The water-cell is 100 mm diameter brass cylinder and the top and bottom is either of brass.
- The connecting pipe line from the water-cell to the water pressure vessel is also of hard polythene.
- The connection of the units to the compressor is done by means of armoured heavy duty rubber hose.
- The water pressure vessel is made of galvanized steel and capable of withstanding the applied pressure with an adequate margin of safety.
- A standard rammer is used to compact the mortar. The rammer shall consist of a plunger weighing 500 ± 5 gm. which falls freely through a height of 150 ± 1 mm in a tubular guide.
- The base of the plunger has a diameter of 50 ± 1 mm.
- The machine will be supplied with a rammer with each mortar permeability mould.
- The machine will not be supplied with compressor and has to be purchased separately.

Flexural Testing Machine Attachment (CA-1017)

EN 196-I

- The jig can be used on the complete range of EIE compression (TM-42 Series) testing machines and has an overall height of 223 mm.
- Robust frame fitted with an upper bearer that moves vertically supported by springs.
- One of the two lower bearers can tilt horizontally and the distance between the two bearers is 100 mm.



Compression Testing Machine 500 kN (TM-42-FA)

Automatic Servo Controlled BIS 4031-VI, 14858, 516, EN 196-I

- Capable to test cement sample as per BIS 4031-VI and EN 196-1.
- 7" touch screen operation.
- Big eye catching display.
- Servo controlled machine.
- Machine accuracy 1% or better.
- Direct reading in n/mm^2 and kg/cm^2 .
- Saves last 50 reading.
- Controls pace rate automatically.
- Pace rate controlling accuracy 2%.
- Live load vs. Time graph.
- Auto stop after failure of the sample.
- Inbuilt USB slot to save reading in USB drive.
- Over load protection.
- Over voltage protection.
- Auto operation of the release valve.
- 20% over load protection
- Computer connectivity with software (optional).
- Easy to use.
- Simple plug and play instrument.
- Displacement controlled operation (optional).
- Capable to control 4 no load frame from one pumping unit i.e. flexural attachment, smaller capacity load frame with different least count



- Controls pace rate from 0.1 kN/sec to 10 kN/sec or better.
- Direct reading of flexural strength in n/mm^2 as per BIS 516.
- Splitting tensile test operation (optional).
- Aggregate crushing value operation (optional).
- Inbuilt printer facility to print the result from the machine itself (optional).
- Elevated model for ease of operation.

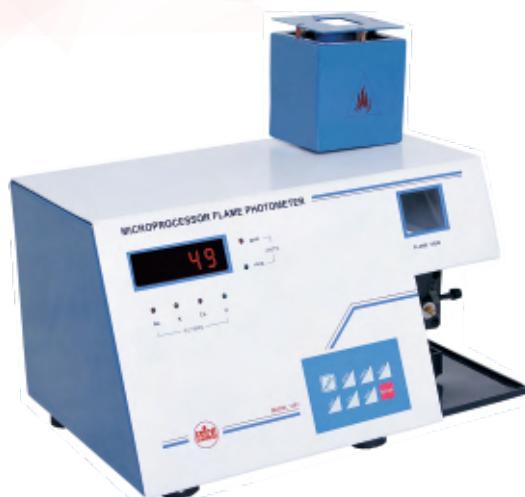
Compression Testing Machine 500 kN-Digital (TM-42-D)

BIS 4031-VI, 14858, 516, EN 196-I

- Capable to test cement sample as per BIS 4031-VI and EN 196-1.
- Pumping will be electrical.
- Two speed hydraulic pump.
- Least count 0.1 kN OR 0.01 kN.
- Accuracy 1% of the applied load.
- Over load cut off.
- Over voltage protection.
- Direct reading in N/mm^2 .
- Saving of last 10 reading.
- Saves data in USB drive (optional).
- Computer connectivity possible (optional).
- Manual pace rate controllable with the help of star graph.
- Displays actual pace rate on the screen.
- Auto stop of the machine on the failure of the sample.
- Controller with back light.
- Auto recalibration of the machine (password protection).
- Password protected calibration.
- 20% over load safe.
- In built printer option available (optional).



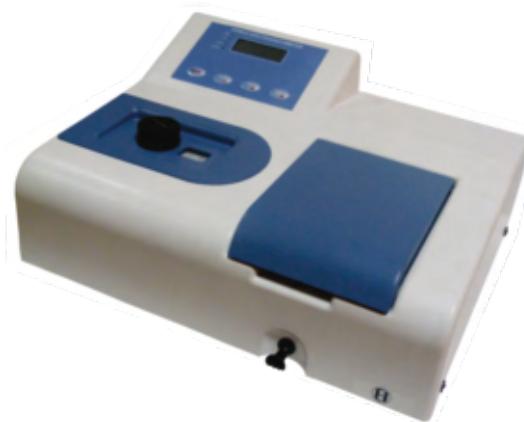
Flame Photometer (CA-1032)



- Flame photometer is used to find out the Na (sodium), K (Potassium), Ca (Calcium) (Optional), Li (Lithium) (Optional), Ba (Barium) (Optional) in the specimen.
- This model has a microprocessor based linear riser for non-linear curves.
- The microprocessor calculates values by using a piecewise linear algorithm between the standards fed in to the unit.
- The range is defined by the highest standard used for the linear riser.
- The display can be changed to the normal mode where the unprocessed output is displayed.

Spectrophotometers (Visible) (CA-1039)

- With wavelength range 340-1000nm widely used and are ideally suited for applications in biochemistry, electrochemistry, environment protection, education, medical and sanitary examination, etc. for qualitative and quantitative analyzing of various substance.
- Easy to use Digital display of %T, O. D. and concentration Single wide range photo detector Full visible spectrum covered 340nm to 1000nm.
- Auto zero and 100%T Application Biochemistry, chemistry & clinical pathology
Soil analysis Cement industry Fine chemicals Bottled mineral water industry
Food and beverages Pharmacology.



Spectrophotometers (UV-Visible) (CA-1039-I)



- Spectrophotometers are advanced double beam optical system.
- Double beam optical structure can inhibit the drift, suitable for long time test.
- They contain 1.8nm fixed band width.
- Double beam ensure low drift, low noise, and low stray light.
- Data and Curve can be stored in real time.
- Lamp can be on/off individually.
- It contain many function like Photometric, Quantitative standard curve, WL Scan, Time Scan, DNA/Protein Test, Multi-WL Test, System Utility.

Marsh Cone Funnel (CA-1040)

- Marsh funnel is used for routine viscosity determinations of building line, grouts and mud and used on almost every drilling rig.
- Made of rugged, break-resistant plastic that resist to the temperature change deformation.
- Volumetric accuracy is assured.
- Plastic handle provides insulation for user's hand.
- A metal orifice assures accurate readings.
- Supplied complete with plastic measuring cup 1 liter capacity.
- The marsh cone funnel made of GI also available (CA-1040-GI).

Humidifier (EIE-110)



- Humidifier (EIE-2602) is used to increase and to control the humidity of any room or chamber.
- **There are two-three types of different humidifiers.**
 - Humidifier (EIE-2602).
 - Humidifier ultra fog (EIE-2602-U).
 - Humidifier fog max (EIE-2602-M).
- It increase small particles of the water and make them part of the atmosphere, which reaches to every corner of the room or chamber.
- Thus it is helpful to achieve 95% RH in close area.
- It takes 0-120 minutes to control the humidity and achieve the required humidity. Salient fetchers of the Humidifier (EIE-2602) is as follows.
 - Double sealed ball bearings.
 - Less power consumption.
 - Noise less, Vibration free.
 - SS construction.
 - Capacity: 5 litres.
 - Single phase, 230 volts operation.
- **Salient fetchers of the Humidifier ultra fog (EIE-2602-U) is as follows**
 - Droplet free humidification.
 - Particle size of 2 ~ 4 microns.
 - Power Supply: Single Phase, 220 ~ 240 VAC / 50 Hz.
 - Operating Temp.: 1 ~ 50 °C.
 - Humidification Capacity: 1.50 to 2 Ltrs./Hr.
 - Power Input: 90 W.
 - Water Connection" 0.5 Inch (< 5 Kg/cm²).
 - Dimensions: 370 X 370 X 1100 mm.
 - Weight: 10 Kgs. (dry).
- **Salient fetchers of the Humidifier fog max (EIE-2602-M) is as follows.**
 - droplet free humidification.
 - Particle Size 5 ~ 10 Microns.
 - Power Supply Single Phase, 220 ~ 240 VAC / 50 Hz.
 - Operating Temp. 1 ~ 50 °C.
 - Humidification Capacity 6 ~ 8 Ltrs./hr.
 - Power Input 90 W. 2 Water Connection 0.5 Inch (< 5 Kg/cm).
 - Area Coverage 600 ~ 800 Sq. Fts.
 - Dimensions 370 X 370 X 480 mm.
 - Weight 9 Kgs. (dry)

Mud Balance (CA-1041)

- The mud balance provides a simple method for the accurate determination of mud density.
- The durable construction makes it ideal for field use.
- Principally the balance consists of a base and graduated arm with cup, lid, knife-edge, rider, built-in spirit level, and counter-weight.
- The constant volume cup is affixed to one end of the graduate arm and the counter weight on the opposite hand.
- A plastic carrying case is provided that holds the balance in working position.

Water Still (EIE-4100/4102)



EIE-4102

Introduction

- EIE Water - Still is ideal for all laboratories where distill water, free from dissolved salts, clear, odorless and Tasteless water is required.

Advantages

- Thermostatic cut-off (Self resetting type) for assured low water detection - with visual indication.
- Unique water level maintaining device improves operational efficiency.
- Compact & user friendly space saving design-occupies less space & can be table or wall mounted.
- Easily open able Boiling Chamber as well as Condenser for easy cleaning.

Construction/standard feature

- Fully stainless steel.
- Single kettle heater with excessive heat, connect - ejection device.
- Press fit boiling chamber with internal gasket & condenser.
- Capacity : 4 liter per hour approximately.
- Size : 25 cm diameter x 40 cm height.
- Supply voltage AC 50 Hz (V) : 220-240.
- Power consumption, approximately (KW) : 1 KW.
- Housing (Enclosure) : Cylindrical shape.
- Material : Fully Stainless Steel Material.

Standard Accessories

- Silicone tubing for distill water output + for flow of water from Condenser to Boiling Chamber.
- PVC tubing for waste water + raw water with tap adapter and a hose clip.
- Flow rate meter plus Hoffman clip for raw water flow monitoring.
- Mounting screws for Water Still and Flow meter.
- Instruction Manual.
- Power cord (Cable)

No of test positions 06-Holes 15-Holes Model Nos. EIE-217 DP6 EIE-217 DP15

Note : All water stills require regular maintenance and due operating care.

No warranty for heaters.

Hot Air Oven (EIE-101)



Standard Model (EIE-101DP)

- Inner Chamber made of mirror Polished Stainless Steel (S.S.304) material & Outer body with CRC Sheet powder coated in attractive shades.

GMP Model (EIE-101DG)

- Inner Chamber made of mirror polished Stainless Steel (S.S.316) material & Outer body is fabricated from S.S.304 matt finished material.

Salient Features

- Double walled design Thick glass wool insulation to prevent heat loss
- Microprocessor based AUTO-TUNE PID Digital Temp Controller cum indicator.
- Temperature range : 50°C-250°C.
- Temperature Accu : $\pm 0.5^\circ\text{C}$ Temperature display : Digital LED Display.
- Operates on : 230 Volts, 50 Hz, Single phase, AC Supply.
- Special heavy duty stainless steel lock and door hinges.
- Heavy duty stainless steel trays for sample placement.
- Forced air circulation blower for Uniform Temperature Distribution.
- Supplied complete with Calibration certificate, IQ-OQ-PQ Documents and test report.
- Calibration certificate with NPL Traceability for temperature sensor and Digital controller.
- Available in following sizes.

Selection Guide

Inner chamber size (cms) (D x W x H)	Overall dimensions (cms) (D x W x H)	No of trays	Chamber capacity (Liters)	Power consumption (Kw)	Approx Weight (Kgs)	Digital Model Numbers (EIE-103DP)	Digital GMP Model Numbers (EIE-101DG)	Thermostatic Numbers (EIE-101TP)
30 x 30 x 30	52 x 45 x 64	1	27	1.0	45	EIE-101DP27	EIE-101DG27	EIE-101TP27
35 x 35 x 35	57 x 50 x 72	1	64	1.0	52	EIE-101DP64	EIE-101DG64	EIE-101TP64
45 x 45 x 45	67 x 60 x 82	2	92	1.5	72	EIE-101DP92	EIE-101DG92	EIE-101TP92
45 x 45 x 60	67 x 60 x 97	2	121	1.5	78	EIE-101DP121	EIE-101DG121	EIE-101TP121
60 x 60 x 60	82 x 75 x 97	3	216	2.0	110	EIE-101DP216	EIE-101DG216	EIE-101TP216
60 x 60 x 90	82 x 75 x 125	3	324	2.5	148	EIE-101DP324	EIE-101DG324	EIE-101TP324

D: Digital | T: Thermostatic | G: GMP | P: Powder coating Note: Customized sizes are also available

Optional accessories at extra cost

- 21-CFR (PART-11) Compliance dedicated PC Software.
- Data Logger-4/8/16 channels with sensors.
- Audio visual alarm for temperature Overshoot/Uundershoot.
- Timer facility.
- Programmable controller with RAMP Setting facility.

Humidity Oven (EIE-106(d))



Standard Model (EIE-106R)

- Inner Chamber made of mirror Polished Stainless Steel (S.S. 304) material & Outer body with CRC Sheet powder coated in attractive shades.

GMP Model (EIE-106RG)

- Inner chamber made of mirror polished stainless steel (S.S. 316) material & outer body with matt finished S.S. 304 material.

Salient Features

- CE Certified Double wall construction.
- Fulfils storage conditions of 25°C-60% RH, 40°C-75% RH, 30°C-65% RH, 25°C-40% RH, 30°C-35% RH.
- Designed for testing product shelf-life, Packing and Electronic test.
- Specially designed to meet ICH, WHO & USFDA requirements.
- Full size polycarbonate sheet inner door to inspect samples without affecting the control parameters.
- Electrical wiring as per CE Compliances.
- Illuminated working area.
- User friendly and tactfully designed chamber door and locking mechanism.
- Forced air circulation for uniform temperature and RH Distribution.
- Ensures smooth air-flow pattern to improve the Temp & Humidity distribution across the chamber.
- U-Shaped tubular heaters as heating element.

- Unit mounted on castor wheels for easy movement.
- Uniformity module with 4 + 4 RH & Temp Sensors (Optional).
- Password protected door access and monitoring (Optional) GSM module for SMS Alert (Optional).
- Serial port for PC interface with 21-CFR Compliant software (Optional software).
- Standby Humidity control system and Standby refrigeration system (Optional).

Insulation

- 70mm polyurethane insulation (PUF)/ fiberboard to ensure thermal loss

Humidity System

- Non-condensing type Steam injection system & reservoir tank with water level arrangement with indicator.

Cooling System

- Hermetically sealed compressor, which is CFC free and eco-friendly, utilizes the refrigerant (R-134A gas) to maintain chamber temperature within specified range.

Trays for samples

- Removable perforated trays
- Can withstand heavy load
- Offer better air circulation

Safety Features

- High temperature safety cut off
- Low water level boiler cut off
- Electrical overload cut off
- Time delay for compressor switch ON
- Electrical circuit breaker

Technical Specifications

- | | |
|--|---------------------------------------|
| • Temperature Range : 20°C to 60°C | Humidity Accuracy : $\pm 2\%$ RH |
| • Temperature Accuracy : $\pm 0.2^\circ\text{C}$ | Humidity Uniformity : $\pm 3\%$ RH |
| • Temperature Uniformity : $\pm 1^\circ\text{C}$ | Supply : 230V Ac, 50 Hz, Single Phase |
| • Humidity Range : 40% RH to 95% RH | |

WORKING CHAMBERS W X D X H (cm)	OVERALL DIMENSION W X D X H (cm)	CAPACITY (LITERS)	NOS. OF TRAYS	NET WEIGHTS IN KG	SHIPPING WEIGHT KG
45 X 45 X 45	66 X 74 X 119	92.00	2	115.00	190.00
50 X 50 X 70	71 X 76 X 145	175.00	2	135.00	205.00
60 X 60 X 60	81 X 84 X 135	216.00	3	150.00	225.00
60 X 60 X 90	81 X 84 X 165	3124.00	3	157.00	232.00
60 X 60 X 125	81 X 84 X 201	450.00	4	175.00	250.00
80 X 80 X 125	101 X 104 X 201	800.00	4	220.00	295.00

C.O.D Digestion Apparatus (EIE-217)



Introduction

- Used to monitor and digest the wastewater influent and effluent, industrial process water, blend of chemicals and more. Primarily used by Pollution Control Labs.

Construction Details

- Double walled construction.
- Effective insulation for minimum heat loss.
- Outer cabinet of mild steel material duly powder coated.
- Aluminum Block with holes is used to hold 6 nos COD tubes.
- Aluminum Block is heated to maintain temperature up to 180°C.
- Solid state Digital Temperature Controller, appropriate heater & insulation selection assure uniformity in all the samples.
- Selectable timer up to 120 min/h alarm is provided to set the digestion period (Refluxing).
- After digestion, analyze the sample with titrimetric method.
- Supplied without chemicals and accessories for Titration (Has to be ordered separately).
- Supplied with Glassware.

Technical Specifications

- Temp Range : Above ambient to 180° C or higher.
- Temp Resolution : 0.1° C Display : Digital 12 mm Red LED.
- Control : Digital Electronic Temperature Controller.
- Heater Rating : 750 Watts.
- Sensor : PT-100.
- Timer : Selectable 15, 30, 45, 60, 90 or 120 minutes with alarm.
- Hole Size : 40mm Diameter x 80mm Depth.
- Glass Tube : 38mm diameter, 06 no (2 x 3 rows).
- Sample Volume : 20 ml Each.
- Overall size : 21 x 12 x 11".
- Net weight : 21 kilograms.

Optional Accessories

- Spare COD Tube.
- Spare Air condenser.
- COD Tube Stand (for 6 tubes).
- Air Condenser Stand (for 6 tubes).
- S.S. Bath with inlet and outlet for Tap water-facilitates rapid cooling of Glassware.

No of test positions	06-Holes	15-Holes
Model Nos.	EIE-217 DP6	EIE-217 DP15

D: Digital | P: Powder Coated | S: Stainless Steel

B.O.D. Incubator (EIE-202)



Standard Model (EIE-202DP)

- Inner Chamber made of mirror Polished Stainless Steel (S.S.-304) material & Outer body with CRC Sheet powder coated in attractive shades.

GMP Model (EIE -202DG)

- Inner Chamber made of mirror Polished Stainless Steel (S.S.-316) material & Outer body with Matt finished S.S.-304 Material.

Applications

- Used for Media Preparation & Culture growth at temperatures of 22.5°C ($\pm 2.5^\circ\text{C}$) & 32.5°C ($\pm 2.5^\circ\text{C}$) in Microbiology or ARD labs across the world.

Selection Guide

Inner chamber size (cms) (D x W x H)	Overall dimensions (cms) (D x W x H)	No of trays	Chamber capacity (Liters)	Power consumption (Kw)	Approx Weight (Kgs)	Digital Model Numbers (EIE-201DP)	Digital GMP Model Numbers (EIE-201DG)
30 x 30 x 30	52 x 45 x 64	1	27	1.0	45	EIE-201DP27	EIE-201DG27
35 x 35 x 35	57 x 50 x 72	1	64	1.0	52	EIE-201DP64	EIE-201DG64
45 x 45 x 45	67 x 60 x 82	2	92	1.5	72	EIE-201DP92	EIE-201DG92
45 x 45 x 60	67 x 60 x 97	2	121	1.5	78	EIE-201DP121	EIE-201DG121
60 x 60 x 60	82 x 75 x 97	3	216	2.0	110	EIE-201DP216	EIE-201DG216
60 x 60 x 90	82 x 75 x 125	3	324	2.5	148	EIE-201DP324	EIE-201DG324

D: Digital | P: Powder coating | G: GMP

Technical Specifications

- Construction : Double walled.
- Interior : S.S.-304 Grade mirror polished Stainless steel material.
- Exterior : Powder coated mild steel material.
- Thermal Insulation : PUF insulation.
- Insulation thickness : 70 mm Temperature Range : 5°C to 60°C.
- Illumination : Fluorescent Tube light.
- Fluorescent light watts : 11 Watts.
- Heating source : U-shaped S.S. Tubular heaters.
- Refrigeration : CFC free EMERSON compressor utilizing R-134a ecofriendly refrigerant.
- Observation : Inner transparent acrylic door for quick viewing and retrieval.
- Door lock : Ergonomic and secured key lockable door lock.
- Feet on : Castor wheels (For easy mobility).
- Electrical : 230 Volt, 15A, 50 Hz, AC Supply.
- Supplied complete with Calibration certificate, IQ-OQ-PQ Documents and test report.
- Calibration certificate with NPL Traceability for temperature sensor and Digital controller.

Trays for samples

- Removable Perforated/S.S. Bar trays.
- Can withstand heavy load.
- Offer better air circulation.

Safety Features

- High temperature safety cut off (Thermostat).
- Electrical overload cut off (Fuse 10 Amp).
- Time delay for compressor switch ON.

Optional accessories at extra cost

- 21-CFR Compliance software with PC Communication.
- Highly advanced HMI & PLC Control system.
- GSM Alert through SIM Card.
- Data logger with 4 temperature sensors.
- Spare PT-100 Sensor for validation purpose.
- Standby Refrigeration System.
- On-Site Validation (mapping) for 24 hours on Empty, Half and Full load condition.

Hot Plate (EIE-210 RO)



Round Hot Plate with Digital Controller Selection Guide

Top plate dimensions (Dia CM)	Power consumption (Kw)	C.I. TOP/Powder coated Body (EIE-210CPD)	S.S. TOP/Powder coated body (EIE-210SPD)	S.S. TOP/S.S. Body (GMP MODEL) (EIE-210GD)
20 cm	2.0	EIE-210CPD20	EIE-210SPD20	EIE-210GD20
23 cm	2.0	EIE-210CPD23	EIE-210SPD23	EIE-210GD23
30 cm	2.0	EIE-210CPD30	EIE-210SPD30	EIE-210GD30

D: Digital | C: C.I. Top Plate | P: Powder Coated | G: GMP

Round Hot Plate with Energy Regulator Selection Guide

Top plate dimensions (Dia CM)	Power consumption (Kw)	C.I. TOP/Powder coated Body (EIE-210CPD)	S.S. TOP/Powder coated body (EIE-210SPD)	S.S. TOP/S.S. Body (GMP MODEL) (EIE-210GD)
20 cm	2.0	EIE-210CPE20	EIE-210SPE20	EIE-210GE20
23 cm	2.0	EIE-210CPE23	EIE-210SPE23	EIE-210GE23
30 cm	2.0	EIE-210CPE30	EIE-210SPE30	EIE-210GE30

D: Digital | C: C.I. Top Plate | P: Powder Coated | G: GMP

Muffle Furnace (EIE-1501/EIE-1502/EIE-1502-H)



Standard Model (EIE-108DP)

- Inner Chamber made of Ceramic material with Muffle pattern for heating elements & Outer body is fabricated from CRC Sheet, Powder coated in attractive shades'.

GMP Model (EIE-108DG)

- Inner Chamber made of Ceramic material with Refractory pattern for heating elements & Outer body is fabricated from S.S.304 matt finished material.

Applications

- Particle size distribution.

Salient Features

- Ceramic fiber wool insulation to reduce weight and size of furnace.
- Less heat up time is Nominal heat-loss resulting in power saving.
- Built in vent port for removal of noxious gases etc.
- Provision of hole with cover in the furnace door to insert temp sensor for calibration purpose.
- Construction : CRC sheet-attractively powder coated.
- Max Temperature : 1200°C
- Working Temperature : 1150°C.
- Temperature control : Dual display microprocessor based Digital temperature indicator cum controller.
- Temperature Sensor: K-type sensor.
- Heating elements : KANTHAL A-1 wire in coil form placed in the Elements ribs & easily replaceable.
- Circuit Wiring : As per CE Norms.
- Operation on : 220/230 Volts, Single phase, AC Supply.
- Available in following sizes.

Selection Guide

Inner chamber size (mm) (H x W x D)	Power consumption (Kw)	Approximate Weight (Kgs)	Digital Model Numbers (EIE-108DP)	Digital GMP Model Numbers (EIE-108DG)
225 x 100 x 100 (9" x 4" x 4")	1.5	60	EIE-108DP 2.25	EIE-108DG 2.25
250 x 125 x 125 (10" x 5" x 5")	2.0	71	EIE-108DP4	EIE-108DG4
300 x 150 x 150 (12" x 6" x 6")	3.0	82	EIE-108DP7	EIE-108DG7
300 x 200 x 200 (12" x 8" x 8")	5.0	115	EIE-108DP12	EIE-108DG12
450 x 225 x 225 (18" x 9" x 9")	6.0	125	EIE-108DP23	EIE-108DG23

D: Digital | C: C.I. Top Plate | P: Powder Coated | G: GMP

Accelerated Carbonation Chamber



Applications

It is used for testing the durability of concretes under an environment of constant temperature, humidity and CO₂ concentration, which is a special apparatus for carbonation test of concretes.

Salient Features

- Double wall construction.
- Interior fabricated from high grade stainless steel (S.S.304).
- Exterior body made of Mild steel material - which is duly. powder coated in attractive shades.
- Double walled metal door with sponge - type silicon gasket for air-tight sealing.
- Chamber illumination is accomplished by Fluorescent light with door switch.
- Cord wire duly tested and inspected with stress factor as per CE standard.
- Electric Motor located at the back side of unit, protected with safety cover to avoid accident.
- Standard motor of reputed Make.
- User friendly and tactfully designed chamber door and locking mechanism.
- Aesthetic outer appearance and high quality.

Air Circulation

Temperature is maintained by a quiet running blower circulation air throughout the chamber. Forced air circulated vertically down and re circulated throughout the chamber for uniform temperature and humidity.

Humidity

- Humidity created by steam injection method. The boiler tank is fitted in the back side of the chamber for better servicing, Electromagnetic switch for controlling the wet heater from burning off if water level is not adequate. Float valve provided to control water level in the. boiler tank.

Heating & Cooling System

- Long lasting SS tubular heaters used as heating element. The stainless steel fins provided to ensure better heat transfer.
- Hermetically sealed compressor CFC free compressor (134 A gas) coupled with evaporation coil and condenser.

Control

- Microprocessor based Digital Auto-Tune PID temperature and direct RH digital controller. Humidity directly measured in % RH by electronic sensor.

Technical Specifications

- | | |
|---------------------------------|---|
| • Construction | : Sandwich type. |
| • Inner chamber | : Stainless steel S.S.-304 Grade. |
| • Exterior body | : Mild steel. |
| • Paint | : Powder coating in attractive shades. |
| • Thermal insulation | : 75mm to prevent thermal loss. |
| • Chamber Dimension | : 600 mm X 600mm X 600mm. |
| • Chamber Volume | : 200 liter. |
| • Optimum Performance | : with 150 kg of Concrete load. |
| • Temperature range | : 5°C above Ambient to 60°C. |
| • Humidity range | : Ambient to 80% RH
(Maximum carbonation takes place between 40% RH to 80% RH). |
| • CO ₂ Concentration | : Atmosphere concentration to 4.5% with accuracy 0.01%. (Maximum solubility of CO ₂ in water is 4%). |
| • Controller | : Digital PID Temp & RH Controller. |

Safety Features

- High temperature safety cut off.
- Low water level boiler cut off.
- Electrical overload cut off.
- Time delay for compressor switch ON.
- Electrical circuit breaker.

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CONCRETE



The concrete is the strength in imagination. It is the unique and ultimate example of calculation in mixing. Selection and mixing of right ingredients in right quantity results in to practical miracle.

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