



# PRODUCT CATALOGUE CEMENT-CONCRETE-AGGREGATE LAB EQUIPMENT





#### **CEMENT-CONCRETE-AGGREGATE LAB EQUIPMENT**

Item No	Item Name	Item No	Item Name			
001	Blaine's Air Permeability Apparatus	024	Tile Flexure Testing Machine			
002	Cement Sampler	025	Cube Moulds			
003	VICAT Needle Apparatus	026	Tile Abrasion Testing Machine			
004	Le-Chatelier Mould	027	Needle Vibrator			
005	Le Chatelier Flask	028	Tensile (Briquette) Strength Tester			
006	VEE BEE Consistometer	029	G.I. Frame Coarse Sieves			
007	Slump Test Apparatus	030	Brass Frame Fine Sieves			
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009	Kelley Ball Penetration Apparatus	032	Beam Moulds			
010	Mortar Mixer	033	Shrinkage Bar Moulds			
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018	Length Comparator	041	Cone Penetrometer For Mortar			
019	Vibrating Table	042	Rebound Hammer			
020	Vibrating Machine / Mould Vibrator	043	Digital Concrete Test Hammer			
021	Flexure Testing Machine	044	Ultrasonic Pulse Velocity Tester			
022	Flexure Testing Machine -Motorised	045	General Instruments			
023	Concrete Permeability Apparatus					

#### **GEOTECH (SOIL) TESTING LAB EQUIPMENT**

Item No	Item Name	Item No	Item Name			
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047	Shrinkage Limit Set	060	Rapid Moisture Meter			
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049	Soil Cone Penetrometer	062	Direct Shear Apparatus			
050	Semi Automatic Cone Penetrometer	063	Soil Permeability Apparatus			
051	Sand Pouring Cylinder	064	Unconfined Compression Test			
052	Sand Density Cone Apparatus	065	Hydraulic Sample Extractor			
053	Core Cutter	066	Triaxial Shear Test Apparatus			
054	Standard Proctor Test Apparatus	067	Swell Test Apparatus			
055	Relative Density Apparatus	068	Point Load Index Tester			
056	Pycnometer	069	CBR Apparatus			
057	Relative Density Bottles	070	Vane Shear Test Apparatus			
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#### MATERIAL TESTING / STRENGTH OF MATERIAL LAB EQUIPMENT

Item No	Item Name	Item No	Item Name		
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074	Compression Testing Machine	080	Vickers Hardness Tester		
075	Charpy, Izod Impact Testing Machine	081	Mechanical Extensometer		
076	Torsion Testing Machine	082	Fatigue Testing Machine		
077	Spring Testing Machine	083	Cantilever & Simply Supported Beam		
078	Poldi Hardness Tester	084	Jominy End Quench Hardenability		

#### **ASPHALT / BITUMEN TESTING LAB EQUIPMENT**

Item No	Item Name	Item No	Item Name		
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086	Automatic Standard Penetrometer	093	Thin Film Oven		
087	Ductility Testing Apparatus	094	Cleveland Flash & Fire Point Apparatus		
088	Bitumen Centrifuge Extractor	095	Pensky Marten Flash Point Apparatus		
089	Bituminous / Asphalt Mixer	096	Saybolt Viscometer		
090	Marshall Stability Test Apparatus	097	Standard Tar Viscometer		
091	Automatic Bituminous Compactor	098	Stripping Value Apparatus		

#### **ENVIRONMENTAL / PUBLIC HEALTH ENGINEERING LAB EQUIPMENT**

Item No	Item Name	Item No	Item Name
099	Muffle Furnace	105	C.O.D Digestion Apparatus
100	Hot Air Oven	106	Laboratory Hot Plate
101	Glass Water Distillation Unit	107	Respirable Dust Sampler
102	Digital Weighing Balance	108	Humidity / Stability Test Chamber
103	BOD Incubator	109	Analytical Testing Instruments
104	Jar Test Apparatus (Flocculator)		

#### **110. SURVEYING LAB EQUIPMENT**

### **001 : BLAINE'S AIR PERMEABILITY APPARATUS**

#### AS PER IS: 4031, 5516, 1727 & 4828, ASTM C-204, BS: 4359 Part II

**Introduction:** The apparatus is used for determining the fineness of cement in terms of specific surface expressed as total surface area in square centimeters per gram of cement. The Blaine apparatus draws a defined volume of air through a prepared bed of cement of defined porosity. This is a variable flow type air permeameter.

Specifications: The apparatus consists one each of permeability cell 12.5mm I.D., Manometer 'U' type mounted on stand with stop cock, Perforated disc, Plunger Rubber stopper, Rubber tube 30cm long. Packet of 12 filter paper discs and a bottle of 100cc dibutylphthalate liquid.

Spares and Accessories: Punch to cut filter paper discs. Non-perforated disc. Suction bulb.

### 002 : CEMENT SAMPLER

#### AS PER IS: 7535- 1986

**Introduction:** Used to sample cement from packages.

Specifications: This is a brass tube approximately 53 cm long and 2.8 cm I.D. with a wooden handle. Total length approximately 73 cm. The tube has the sharp angular edge which conveniently pierces cement bags. An air hole of approximately 3 mm dia is drilled on the tube near handle. Total sample collected at one time is 300 cm3 approximately.

### 003 : VICAT NEEDLE APPARATUS WITH DASHPOT

#### AS PER IS: 4031, 2645, 2542 (Part-I), 1727, 5513 and 712, BS: 12, 146, 915, 1370, 4027, 4246, 4248. AASHO - T 129, E 131.

**Introduction:** This instrument is used for determining the normal consistency and setting times of cement and 'A' Class limes.

**Specifications:** Consist of a metallic frame bearing a movable rod with cap at one end and a VICAT mould 70 mm in dia at the base, 50 mm at the top and 40 mm high and with a glass base plate consistency plunger, initial and final setting needles in a nice jewellery case. With dashpot to facilitate the gentle lowering of the needle.

Accessories: Mild steel base plate 5 inches x 5 inches. Fulcrum mould, brass, 70mm I.D. base dia x 60mm I.D. top dia, 40mm height.

### **004 : LE-CHATELIER MOULD**

### AS PER IS: 269, 712, 5514, 1727, 2645, 4031, 6932(Part-IX), BS: 890, 915, 1370, 4027, 4226 and 4248.

**Introduction:** It is used for the determination of soundness by expansion method of ordinary and rapid hardening Portland cement, low heat Portland cement and class A limes

**Specifications:** It consists of a small split cylinder forming a mould. On either side of the split cylinder, two parallel indicating arms with pointed ends are attached. Supplied complete with two glass plates and a lead weight. Set of Six.

NOTE:













### **005 : LE-CHATELIER FLASK**



#### AS PER IS: 4031 - 1968.

Introduction: Used for finding specific gravity of Hydraulic Cement and Lime.

Specifications: Made from Borosilicate glass. The flask is 243 mm in total height, having a bulb of 90 mm dia of 250ml approximate capacity. The long neck of the flask has at top a funnel of 50 mm dia in which fits a ground glass stopper. The neck has over-all 11 mm I.D. upper portion is graduated from 18 ml to 24 ml with 0.1 ml graduation. Just at the bottom of the neck 1 ml capacity is marked in between there is 17 ml capacity bulb.

### **006 : VEE BEE CONSISTOMETER**

#### AS PER IS: 1199 & BS EN 12350.

Introduction: The instrument is used for workability as well as consistency of fresh concrete. A slump cone and a graduated rod supplied with the instrument helps the operator to find out slump values and Vibration Table with container and acrylic disc is used to find out work- ability of concrete expressed in Vee Bee degrees, which is defined as the time in seconds to complete required vibrating at which the fresh concrete flows out sufficiently to come in contract of the entire face of acrylic disc

Specifications: The equipment consists of: A Vibrating Table size 380 mm long and 260mm wide, resting upon elastic support at a height of about 305 mm above the floor, complete with start/stop Switch, Cord & Plug. A holder is fixed to the base into which a swivel arm is telescoped with funnel & guide sleeve. The swivel arm is also detachable from the Vibrating Table. A graduated rod is fixed on a swivel arm & at its end a plastic disc is screwed. The divisions of scale on the rod record the slump of the concrete in mm. Supplied complete with a sheet metal container with lifting handles which can easily be fixed to the Vibrating Table. A slump cone open at both ends with lifting handles & a Tamping rod of size 16mm dia & 600mm long, rounded at one end. complete with two glass plates and a lead weight. Set of Six.

### **007 : SLUMP TEST APPARATUS**

#### AS PER IS: 1199, 7320 & BS 1881-102

**Introduction:** It is used for the determination of the consistency of freshly mixed concrete, where the maximum size of the aggregate does not exceed 38mm.

**Specifications:** The Apparatus consists of one slump cone with handles and foot pieces. The Slump cone has internal dimensions 20 cm diameter at base 10 cm. top dia. and 30 cm. height. Foot pieces can be fixed to the clamps on the base plate. The base plate has lifting handle for easy transportation. One graduated steel rod 16 mm dia. x 600 mm long, rounded at one end and graduated in mms, is also supplied.



### 008 : COMPACTION FACTOR APPARATUS

#### AS PER IS: 1199, 5515 & BS 1881-103.

**Introduction:** The apparatus is used for determining the workability of fresh concrete, provided the maximum size of the aggregate does not exceed 38mm. The test is particularly useful for concrete mixes of very low workability where true slump values are not reliable.

Specifications: It consists of two rigid conical hoppers and a cylinder mounted on a rigid metal frame. The lower openings of the hoppers are fitted with hinged trap- doors having quick release catches. A circular metal plate is provided to cover the top of the cylinder. Supplied complete with one plasterer's trowel and one tamping rod, 16 mm dia x 600 mm long, one end rounded.









### **009 : KELLEY BALL PENETRATION APPARATUS**

#### AS PER ASTM C-360.

**Introduction:** The apparatus is used to determine the workability of Portland cement concrete. The Kelly Ball test is considered to be simple and much faster than the slump test. Twice the Kelly Ball reading approximately equals the slump.

**Specifications:** It consists of a cylinder with a ball- shaped bottom and handle, together weighing 15 kg. A strip frame guides the handle and serves as a reference for measuring the depth of penetration. The handle is graduated in MM. Penetration can be recorded to the nearest 0.5 mm.

### **010 : MORTAR MIXER**

#### AS PER IS: 4031, 1727, BS 3892.

Introduction: It is used for mixing cement pastes, mortars and pozzolanas.

**Specifications:** The mixer consists of an epicyclical type stainless steel paddle imparting both planetary and revolving motion. Mixer has two speeds. Mixer blade has low speed of 140 + 5 rpm and medium speed of 285 + 10 rpm, while it also has a planetary movement of 62 + 5 rpm in low range and planetary movement of 125 + 10 rpm in medium range. Stainless steel bowl fitted with handle, fitted with lid made of non-absorbing material and not attacked by cement, masonry cement, cement pozzolana mixture or lime pozzolana mixture. The scraper consists of semi rigid rubber blade attached to a handle about 150 mm long. The blade about 75 mm long, 50 mm wide and tapered to a thin edge. Complete with stainless steel bowl of about six liters capacity. Suitable for operation on 220/230 Volts, 50 Hz, AC, single phase.

### 011 : WATER BATH (With 6 & 12 Holes & Thermostatic Controlled)

#### **General Description: -**

Heating Chamber: - Double walled Inside S. Steel 304 grade Outer M.S. Powder Coated with 6/12 holes of 3" diameter & set of S.S. Concentric rings. Fitted With: - Immersion Heater "M" type. Lid: - Made of S. S. 304 grade having 6 / 12 holes of 3" (75mm) diameter. **CONSTRUCTION:-** The body is fabricated out of MS Sheet 20 Gauge duly Powder Coated. Inner Chamber made of S. Steel or Alum. as per requirement. CONTROL PANEL: - Consist of: -Temperature Controller i.e. Thermostat Mains Switch Mains & Temperature Indicators **TECHNICAL DETAIL:-**Maximum Temperature: - 100°C. Continuos Working Temperature:  $-98\pm1^{\circ}$ C or  $100\pm1^{\circ}$ C as per available quality of water. Temperature Sensor: - Bi- Metallic copper or S. Steel Capillary. Maximum Load: - 1.5 K.W. 2.0 K.W. as per size requirement. **DIMENSION:-** Inside Chamber Size: - 12" X 10" X 4" (6 Holes), 17" X 12" X 4" (12 Holes) DIGITAL TEMPERATURE INDICATING WATER BATH: Same as above but with digital display indicating temperature controller.













### 012 : FLOW TABLE

### A) FLOW TABLE: AS PER IS: 6932 (Part VIII), ASTM C 230, BS 4551:1

**Introduction:** This is used for determining the workability of building Limes.

**Specifications:** The flow table consists of a 30 cm. dia ground and polished steel plate with three inscribed annular circles. 7, 11 and 19 cm. dia. The table top is arranged for a free fall of 12.5 mm by a cam action. Supplied complete with one brass conical mould, 65 mm I.D. at base and 40 mm I.D. at top, height of the mould 90 mm.

B) FLOW TABLE: AS PER IS: AS PER IS: 1199-1959, ASTM C - 124, AASHO T-120. Introduction: It is used for determining the flow of Cement Concrete.

**Specifications:** Consists of a steel table top 76.2 cm (30 inch. dia.), finely machined. The integral cast ribs are designed for support and strength. The stand is fabricated out of cast iron and is of study construction. Holes for mounting in foundations are drilled in the base plate. The ground and hardened steel cam is designed to lift and drop the table by 12.5 mm. The hand wheel makes it simple to operate the table. Supplied with one conical mould with handles, 12cm height having 17 cm. top internal diameter and 25 cm. I.D. at the base. Complete with a tamping rod 16 mm dia x 600 mm long one end rounded.

C) FLOW TABLE: AS PER IS: AS PER IS: 5512.

**Introduction:** This is used for measuring the consistency of Pozzolanas and also Cement Mortar and Hydrated Lime.

**Specifications:** It consists of a machined brass table top 250±2.5mm dia mounted on a rigid stand. The table top is reinforced with equally disposed ribs and allowed to conical brass mould 100mm I.D. top dia and 50mm high.

**Accessories:** Mild steel plate 25mm thick and 25cm square for fixing to the underside of the base.

### 013 : FLOW TABLE (MOTORISED)

FLOW TABLE: AS PER IS: AS PER IS: 1199-1959, ASTM C - 124, AASHO T-120.

**Introduction:** It is used for determining the flow of Cement Concrete. **Specifications:** Consists of a steel table top 76.2 cm (30" dia), finely machined. The integral cast ribs are designed for support and strength. The stand is fabricated out of cast iron and is of study construction. Holes for mounting in foundations are drilled in the base plate. The ground and hardened steel cam is designed to lift and drop the table by 12.5 mm. The hand wheel makes it simple to operate the table. Supplied with one conical mould with handles, 12 cm. height having 17 cm. top internal diameters and 25 cm. I.D. at the base. Complete with a tamping rod 16 mm. dia x 600 mm long one end rounded.

Electrically operated, to raise and drop the table top, approx. 15 times in 15 seconds. Suitable for operation on 230 V, 50 Hz, A.C. supply

### **014 : LABORATORY CONCRETE MIXER**

**Introduction:** A concrete Mixer is a laboratory type electrically operated device designed to remove the burden- some work of hand mixing. Uniform thoroughly mixed batches can be produced in field or laboratory. It is used that homogenously combines cement, aggregate such as sand or gravel & warm to form concrete. The counter balanced drum is easy to tilt 1.5 to 2cu.ft. mix. The total drum volume is however 3 cu.ft.

**Specifications:** Mounted on a sturdy rubber tired stand and the drum is mounted for end discharge and equipped with end towing pole. The vessel is rotated at 20-22 RPM with the help of motor & pulley arrangement. Equipped with ½HP electric motor. The vessel can be tilted to any angle by hand wheel & counter weight. This facilitates mixing & discharge. Blades are provided inside the vessel to mix the material uniformly. Suitable for operation on 220/230 volts A.C. single phase.

#### NOTE:













### 015 : LABORATORY PAN MIXER (MOTORISED)

**Introduction:** The Concrete Mixer has been designed for mixing small quantities of concrete used in preparation of concrete cubes, for testing in laboratories.

**Specifications:** This muli-flow mixer absorbs less air during mixing, requires shorter mixing time and grants a perfect homogeneity in mixtures having a low water and cement ratio. The pan is easily removable by means of a trolley. The blades are hardened against wear. The Concrete Mixer developed is transportable on wheels. The design of mixing paddles ensure uniform & efficient mixing of cement & aggregate 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 drum is driven off the ribbed base. The lid with mixing paddles clears off the top of the drum to provide maximum access to the operator. Mixing Capacity: 65 liters. Pan Size: 24" dia x 14" depth (Volume 65 liters Approx), Motor : 2 HP, 3-phase , 440 V A.C. **Note:** Also Available in: Different Capacities (30, Lit, 40 Lit, 56 Lit, etc).

### **016 : LABORATORY CEMENT AUTOCLAVE**

#### AS PER IS: 4031-1968, IS: 1624-1960

**Introduction:** The Autoclave is suitable for conducting accelerated soundness tests on cements or the autoclave expansion test requiring constant steam pressure with the correspondent constant pressure.

**Specifications:** It consists of a stainless steel cylinder with a welded heat insulated voer, mounted on a sturdy supporting frame, enclosed in a heat insulated metal housing, attractively finished. The attached control unit encloses a sensitive pressure regulator and pressure gauge, power switches and pilot lights for controlling the electric heating units. Inside Chamber Dimensions - 10.5cm diameter x 40.5cm height suitable for operation on 230 V, 50Hz, Single Phase, A.C. supply. Supplied complete with Test bar holder, special rack to hold specimens above water level in the autoclave and in a vertical position to expose them in the same manner.

**Note:** Ordinary Laboratory Cement Autoclave with Mild Steel Chambers is also available

### **017 : RAPID CHLORIDE PENETRATION TEST APPARATUS**

#### AS PER ASTM - 1202 - 05.

**Introduction:** Concretes incorporating fly ash or silica fume are less permeable to deleterious elements and thus are more durable than conventional concretes. The Rapid Chloride-ion Permeability Test (RCPT) is designed to assess the resistance of concrete to the penetration of chloride ions, an indicator of its permeability.

**Specifications:** It will hold the concrete specimen of 100mm dia 50mm thick. It will be provided with rubber gasket and washers for achieving leak proof. Stainless steel bolts with washers and nuts will be provided to hold the specimen rigidly. The power supply will be applied to each cell through banana sockets and the current will be distributed through the brass mesh. Each cell will be provided with openings in top for pouring chemicals and the temperature sensors. The openings can be closed with lids.

### **018 : LENGTH COMPARATOR**

#### AS PER IS: 1199 - 1959 and 4031 - 1968

**Introduction:** It is used to measure the drying shrinkage of concrete autoclave expansion of Portland cement and potential expansive reactivity of cement aggregate combinations in mortar bars during storage, on self drying. **Specifications:** The instrument consists of a channeled base over which two vertical pillars

**Specifications:** The instrument consists of a channeled base over which two vertical pillars are fixed. An adjustable cross plate is at the top. A dial gauge, reading to .002mm x 12mm. can be fixed to the top cross's plate. The plunger end of the dial gauge can be located upon a 6.5mm. dia ball or other reference point cemented in the specimen.

On the base there is a similar recessed seating in which can be placed a second ball or reference point in the specimen. Complete with a stainless steel standardization bar with insulated grip and with 6.5mm dia. balls mounted in the ends. The unit can be supplied with a .0001 inch x  $\frac{1}{2}$  inch dial gauge at extra cost if indicated at the time of placing the order.













**019: VIBRATING TABLE** 

**Introduction:** Vibrating Table used for compacting concrete cubes & cylinders. **Specifications:** It is designed to carry a load of 140 kg. The apparatus consists of a motor fitted with a variable pitch pulley housed in a cabinet. The vibrations are imparted by means of off-balance masses rotating on a shaft of a vibrator clamped to the underside of the table top. The table top is 50cm x 50cm. and has stops along its edges to prevent moulds from walking off the table during vibration. A cross arm adjustable on a vertical rod at the center of the table is provided to hold the moulds while operating the table. The variable pitch pulley arrangement permits the frequency to be varied stepless between a maximum of 3600 vibrations down to 2600 vibrations per minute. A speed regulation handle is provided for increasing or decreasing the frequency. A switch is provided for starting the motor. Suitable for operation on 220-240 volts, 1 phase, 50 cycles, A.C. Supply.

**Note:** available Sizes of Vibrating Tables size 50cm x 50cm, size 75cm x 75cm, Size 100cm x 100cm.

### 020: VIBRATING MACHINE / MOULD / MORTAR CUBE VIBRATOR

### AS PER IS: 4031 - 1968 and 1344 - 1959, BS: 12

Introduction: Concrete moulds are easily cast by using a tamping bar or a vibrating table.

Specifications: The machine consists of a vibrating frame assembly and an electric motor mounted on a sturdy base. The complete frame assembly consists of a vice to hold a 7.06cm cube mould and two studs threaded at top and a hopper to feed the sample in the mould. This assembly is supported on four springs and has an in built rotating shaft which rotates eccentrically and thus imparts vibrations to the entire frame. A balance weight is an integral bottom part of the frame. The centre of gravity of the assembly is brought to

The centre of the eccentric shaft or within a distance of 25mm below it. The electric motor drives the shaft of the frame and thus imparts required vibrations to the mould. The frequency of vibration is 12000± 400 vibration per minute. Supplied complete with on 7.06cm cube mould with loose base plate, a time switch 0-5mins x1min and certificate of vibration from a standard laboratory

### 021 : FLEXURE TESTING MACHINE (HAND OPERATED)

### AS PER IS: 516 BS 1881, ASTM C78

Introduction: Flexural tests of concrete beam have their own importance in concrete Road Constructions as well as Buildings constructions. Normally concrete beams of sizes 10 cm x 10 cm x 50 cm or 15 cm x 15 cm x 70 cm are tested for flexural strength.

**Specifications:** The machine consists of a hand operated load frame. The lower platen has two rollers, the distance between which is adjustable. For 150mm x 150mm x 700mm beam, the centre to centre distance between the rollers is 600 mm, while it is 400mm for beams of size 100mm x 100mm x 500mm. The upper platen has also a pair of rollers whose distance is adjustable. It is 200 mm center to center for 150mm x 150mm x 700mm size beam and 133mm for 100mm x 100mm x 500 mm size beam. A pressure gauge to indicate load is fixed on the load frame. A small pumping unit is attached to the load frame. Total capacity of the machine is 100 KN and a 150 mm dia pressure gauge - 100 KN x 1 KN is fitted on the machine. Since this is a hand operated light weight machine, it is useful for field laboratory also.

#### NOTE:

Since research and development is an on going activity, the specifications mentioned herein are subject to change without notice. Photographs / Illustrations are only indicative in nature and will change with the exact model / specifications of the client.







### **AS PER IS: 2514**

### 022 : FLEXURE TESTING MACHINE (ELECTRICALLY OPERATED)

#### AS PER IS: 516 BS 1881, ASTM C78

**Specifications:** The machine consists of a Electrically operated Motorised load frame. The lower platen has two rollers, the distance between which is adjustable. For 150mm x 150mm x 700mm beam, the center to center distance between the rollers is 600 mm, while it is 400mm for beams of size 100mm x 100mm x 500mm. The upper platen has also a pair of rollers whose distance is adjustable. It is 200 mm center to center for 150mm x 150mm x 700mm size beam and 133mm for 100mm x 100mm x 500 mm size beam. A pressure gauge to indicate load is fixed on the load frame. A small pumping unit is attached to the load frame. Total capacity of the machine is 100 KN and a 150 mm dia pressure gauge - 100 KN x 1 KN is fitted on the machine. A separate electrically cum hand operated pumping unit housed in a cabinet is supplied. The pressure gauge 0-100 KN x 1 KN, On/off switch and a slow/fast level to control rate of loading are fitted on the front panel of the pumping unit. A facility for hand operation is provided. A micro switch and relay fitted inside the pressure gauge protects the unit from over loading.

### 023 : CONCRETE PERMEABILITY APPARATUS

#### **AS PER IS: 3085**

**Specifications:** It The concrete permeability apparatus comprises of a brass/gunmetal cell of squares cross-section mounted on a stand and a pressure chamber is connected to the cell through copper tubing and T-connector mounted on the stand with sleeve packed valve and rubber hose pipe with end connections. The cell assembly consists of one base plate, one metal funnel and one top plate, The pressure chamber is fitted with a pressure regulator which helps in regulating the pressure from 0-15kg/cm sq. gauge is for indicating the pressure in the cell. A foot pump and a pressure tube is supplied to develop pressure in the chamber. The apparatus is supplied with a measuring cylinder 500 cc to measure percolated quantity of water. Pressure can also be applied by a pressure air line or by a compressor

**Optional Accessories :** Air Compressor.

NOTE: Concrete Permeability Tester For Three Specimens Of 100mm Dia X 100mm

### 024 : TILE FLEXURE TESTING MACHINE

#### AS PER IS: 654, 1257 & 1706.

**Introduction:** It is essential to determine the flexural strength of manmade cement concrete Tiles for effective quality control. Standard size tiles, wet or dry is loaded in the mid – span using rollers of specified dimensions and their average breaking loads found out. The loading is by using lever arm, and lead shots

**Specifications:** Unit for finding flexural strength of clay roofing tiles and Cement Concrete flooring tiles. Flexural load is applied on the tiles using lead shots. The machine consists of a stand on which two 40 mm dia bearing rollers or 12 mm dia rollers are placed at centre distance of 150 mm, 200 mm, 250 mm, or 270 mm as the case may be. The third upper roller applies centrally flexural load by means of lever arrangement. Lead shot contained in an upper vessel start flowing into lower container at a rate of 45 to 55 kg per minute or 200 kg per minute there by, starting loading the specimen. Arrangement is made such that loading automatically stops when specimen breaks. Supplied without lead shots.

Accessory: Lead shots supplied in packs of 20 kgs

#### NOTE:









### 025 : CUBE MOULDS

### AS PER IS: 4031, 516, 10082, 10086.

Specifications: These are available in different sizes and are made according to Indian and British Standards. For the metric size cube moulds, the faces are machined flat to  $\pm 0.02$ mm accuracy and finished to within 0.2mm. For the inch size moulds, the faces are machined flat to  $\pm 0.01$  inches and finished to within 0.01 in. All moulds are supplied complete with base plate.

#### **Available Sizes are:-**

Size 50mm x 50mm x 50mm Size 70.7mm x 70.7mm x 70.7mm Size 100mm x 100mm x 100mm Size 150mm x 150mm x 150mm Size 200mm x 200mm x 200mm Size 300mm x 300mm x 300mm

### 026: TILE ABRASION TESTING MACHINE

#### AS PER IS: 654, 1237 & 1706

Specifications: This is used for determination of resistance to wear for cement concrete flooring tiles. Tiles specimen of size 7.06 cm x 7.06 cm is pressed tace-wise under specific load on a grinding path and abrasive powder is evenly spread on the rotating grinding path and after specific number of revolutions of the grinding disc the second parallel side of the tile is subjected to wear for similar number of rotations. The wear of the tile is measured on a thickness gauge specifically made for the purpose. The machine consists of a disc rotating at a speed of 30 rpm in a circular tray. A bracket is provided to hold the specimen. A counter balance lever loads the specimen. Load applied is 30 kgf. A funnel is fitted to evenly spread abrasive powder on the grinding path. A preset counter automatically stops the machine after 22 revolutions. This counter is re-adjustable. The machine works on 440 volts AC, three phase electrical supply. On request machine to operate on 230 Volts AC supply can also be supplied.

OPTIONAL ACCESSORIES: a) THICKNESS GAUGE: A specially designed unit comprises of a plane plate with "L" shaped border and an adjustable stand with a Dial Gauge 0.01 x 25 mm to check the thickness of abrassed tile specimen of size 7.06 x 7.06 cm. b) ABRASIVE CHARGE: Aluminum Oxide White, of Grit Size 60 for carrying out Abrasion Tests of Cement Tiles as per Indian Standards. C) TILE CUTTING MACHINE

#### **027 : NEEDLE VIBRATOR**

Specifications: Consists Needle Vibrator with a 25 mm dia x 350 mm long needle, a one meter long flexible shaft and a motor drive with a swivel head and on/off switch. Wired for 230V, Single Phase, 50 Hz. **Optional Accessories :** 

2/3 meters long flexible shaft without needle.

5 m long flexible shaft without needle, but with a 2 HP motor.

Needle 20 / 40 mm diameter x 350mm long. NOTE: The Vibrator can also be fitted with Petrol/kerosene or Diesel Engine for field use

### **028 : TENSILE (BRIQUETTE) STRENGTH TESTER**

Introduction: Used for making tensile strength test on cement briquettes (AS PER IS: 269 - 1950, BS 12.).

Specifications: The instrument employs a friction -free, accurate, double lever system, the load being applied by means of sliding weight on the top lever. The capacity of the unit is 900 kgs. After fixing the briguette in the jaws, the machine is switched on. The sliding weight slides over the calibrated lever thus applying tension to the specimen. A micro-switch fitted instantly stops the machine on failure of the briquette and on failure the tensile load is accurately read to 0.5kg, by means of a marker provided on the sliding weight. The machine can be made opera table for subsequent test only after the sliding weight to its zero position. Suitable for operation on 230 volts, 50 cycles, single phase, A.C. supply. Complete with one brass briquette mould and one base plate.

HAND OPERATED: Specifications: The Instrument is suitable for tensile tests up to 1200 Lbs or 540 kg. It is hand operated, with automatic loading by lead shots. Two calibrated scales 100 Lbs x 1 lb. and 50 kg x 0.5 kg are engraved. Supplied complete with one brass briquette mould with base plate, lead shots 15 kgs, weights to weigh 50 kg, 100 kg, 150 kg & 200 kg. Spares: Lead shots & Briquette mould brass with base plate













### 029 : COARSE SIEVES (G.I. Frame Sieves)

Specifications: The G.I. Frames sieves manufactured normally in sizes 300 mm dia or AS PER IS: 460-1962. 450 mm dia have a steel perforated sheet having accurately punched square holes. **Available Sizes are:-**

125, 106, 100, 90, 80, 75, 63, 53, 50, 45, 40, 37.5, 31.5, 26.5, 25, 22.4, 20, 19, 16, 13.2, 12.5, 11.2, 10, 9.5, 8, 6.7, 6.3, 5.6 and 4.75, 2.36, 1.18 mm Lid and Pan (receiver), G.I. for 300 mm or 450 mm dia sieves

### 030 : FINE SIEVES (Brass Frame Sieves)

Specifications: Normally brass sieves are manufactured in 200cm dia and frame is spun brass, joint less. The Sieve cloth used is standard SS or phosper bronze wire mesh. Available Sizes are:- Lid and Pan (receiver), G.I. for 300 mm or 450 mm dia sieves

(BS 410)	(IS 460 part I, 1985)	ASTM E 11 micron	(Aperture)		(BS 410)	(IS 460 part I, 1985)	ASTM E 11 micron	(Aperture )
-	4.75 micron	4	4750		52	300 micron	50	300
4	4.00 micron	5	4000	1	60	250 micron	60	250
5	3.35 micron	6	3350	1]	72	212 micron	70	210
6	2.80 micron	7	2800		85	180 micron	80	180
7	2.36 micron	8	2400		100	150 micron	100	150
8	2.00 micron	10	2000		120	125 micron	120	125
10	1.70 micron	12	1680		150	106 micron	140	106
12	1.40 micron	14	1400		170	90 micron	170	90
14	1.18 micron	16	1200		200	75 micron	200	75
16	1.00 micron	18	1000		240	63 micron	230	63
18	850 micron	20	850		300	53 micron	270	53
25	600 micron	30	600		350	45 micron	325	45
30	500 micron	35	500	11	400	38 micron	400	38
36	425 micron	40	425	11	500	25 micron	-	25
44	355 micron	45	355	1 1	Lid and Pa	n of brass fo	or 200 mm	dia sieves

AS PER IS: 460-1962.

### **031 : CYLINDRICAL MOULDS**

Specifications: The mould is split vertically into two parts. The mean internal diameter is within  $\pm 0.2$  mm and height is within  $\pm 1$  mm. The ends are machined to  $\pm 0.05$ . The base plate and top plate are machined flat to  $\pm 0.03$  mm.

**Available Sizes are:-**

15 cm dia x 30 cm height. 10 cm dia x 20 cm height.

30 cm dia x 60 cm height

#### 032 : BEAM MOULDS

#### AS PER IS: 4031, 516, 10082, 10086

Specifications: Made of cast iron. The moulds are made of 4 plates assembled together. Each mould is supplied complete with base plate. Faces are machined flat to ±0.2mm and finished in size to 0.2mm.

#### **Available Sizes are:-**

Size 40mm x 40mm x 160mm Size 150mm x 150mmx 700mm Size 150mm x 150mm x 760mm Size 100mm x 100mm x 500mm Size 150mm x 150mm x 750mm

### **033 : SHRINKAGE BAR MOULDS**

### AS PER IS: 4031, 10086, ASTM C 227

**Specifications:** The mould, which has 25mm x 25mm x 250mm. effective gauge length is made of mild steel and has accurately machined faces. The parts of the moulds are tight fitting and firmly held together when assembled. Supplied complete with base plate and four stainless steel smooth reference pins.

Also available with: Single Gang, Two Gang, Three Gang and Four Gang



AS PER IS: 4031, 516, 10082, 10086













### 09



### **034 : AGGREGATE CRUSHING VALUE TEST APPARATUS**

### AS PER IS: 9376, 2386 (Part - IV).

**Introduction:** For measuring of resistance of aggregate to crushing.

Specifications: Consists of M.S. Cylindrical container 150mm ±0.5 mm dia. X 130 mm to 140 mm high with base plate 200 to 230 mm square X 6 mm thick. A plunger of 148 mm ±0.5 mm dia X 100 to 115 mm high. Supplied complete with tamping rod, 16 mm dia X 600 mm long, one end rounded. One Cylindrical metal measure 115 mm ±0.5 mm dia. and 180 mm  $\pm 0.5$  mm height fitted with handle.

Optional:- Also available on special request Aggregate Crushing Value apparatus having 75 mm dia or 300 mm dia cylinder size can be supplied

### **035 : AGGREGATE IMPACT TESTING MACHINE**

### AS PER IS: 9377, 2386 (Part - IV).

**Introduction:** The For determining the aggregate impact value of coarse aggregate. Specifications: The instrument consists of a circular base with two vertical guides. Consists of base weight between 20-30 kg with a lower surface of not less than 30 cms and support columns to from a rigid frame work around the quick release trigger mechanism to ensure an effective free fall of the hammer during test. The free fall can be adjusted through  $380 \pm 5.0$  mm. The hammer is provided with a locking arrangement. A metal hammer of weight 13.75 ±0.25 kg, the lower end of in cylindrical shape, 100 mm in diameter and 5 cm long with a 2 mm chamfer at the lower edge and case hardened. Complete with a cylindrical cup, 102 mm dia X 50 mm depth, one cylindrical metal measure 75 mm dia X 50 mm deep and a tamping rod of circular cross section 10 mm in diameter and 230 mm long, rounded at one end. Supplied with automatic blow counter.

### 036 : SIEVE SHAKER MACHINE (GYRATORY TYPE)

### AS PER IS: 4031, 516, 10082, 10086

Specifications: Carries up to 7 sieves of 150mm or 200mm diameter. The shaker is driven by a ¼ HP motor through a reduction gear immersed in oil. The sieve table dies not rotate but is inclined from the vertical axis and the direction of inclination changes progressively in clockwise direction. If the stop-pin below the table is removed, the shaker can have a rotary motion. In addition to this gyratory motion of the table, there is an upward and downward movement ensuring that each square cm of the sieve is utilized. Pair of rods and a holder are supplied. The holder can be fixed on the top of the upper most sieves, and thus the sieve set is firmly held. Suitable for operation form 230 volts, 50 cycles phase, A.C. Supply.

Accessories:-Adaptor for 30cm diameter sieves. Time switch 0-60 mins in 5 mins graduation.

### **037 : CYLINDRICAL METAL MEASURE / BULK DENSITY APPARATUS**

#### AS PER IS: 1199, IS 10079, BS 1881

Specifications: The Made from thick walled Mild steel. Stout and rigid to retain form and Precision machined for true measurements. Complete with handles for easy carriage. It comprises of set of three measures 3, 15 & 30 liters. Complete with one tamping rod, round, 16 mm dia and 600 mm long, one end rounded. **OPTIONAL:** Also available Cylindrical metal two measures 10, 20 liters

NOTE:











### Since research and development is an on going activity, the specifications mentioned herein are subject to change without notice. Photographs / Illustrations are only indicative in nature and will change with the exact model / specifications of the client. 11

### **038 : SPECIFIC GRAVITY & WATER ABROSPTION OF AGGREGATES**

### AS PER IS: 2386 (Part - III).

**Introduction:** This set is used for specific gravity, apparent specific gravity and water absorption of aggregates.

Specifications: The outfit comprises of .

Digital Electronic balance, provision is made in this balance to suspend density basket under

material pan. This balance is mounted on an angle iron frame stand. 1 No. Density Basket. 1 No.

Air tight container of capacity similar to that of density basket 1 No.

G.I. Tray of area not less than 650cm sq. 2 Nos.

Absorbent clothe 75cm x 45cm.

### **039: LOS ANGELES ABRASION TESTING MACHINE**

#### AS PER IS: 2386 (Part -IV) ASTM: C 131, AASHO T96.

**Specifications:** It Consists of a hollow steel cylinder, closed at both ends, having an inside diameter of 700 mm and inside length of 500 mm. The cylinder mounted on a sturdy frame on ball bearings. The opening will be closed dust tight with a removable bolted cover in place. A detachable shelf which extends throughout the drum catches the abrasive charge and does not allow it to fall on the cover. The drum is rotated at a speed of 30-33 RPM by an electric motor through a heavy duty reduction gear. Fitted with revolution counter and push button starter. Supplied complete with a tray for collection of the material.

Abrasive Charge Consists of set of 12 Nos. cast iron spheres or steel spheres (Hardened steel balls) approximately 48 mm diameter each weigh between 390-445 gm. Complete as above. Suitable for operation on 440 volts, 3 phase, 50 cycles, A.C. Supply.

NOTE: DIGITAL LOS ANGELES ABRASION TESTING MACHINE ALSO **AVAILABLE** 

### 040 : ELONGATION INDEX (LENGTH GAUGE) & FLAKINESS INDEX (THICKNESS GAUGE)

#### AS PER IS: 2386 (Part-I)

**LENGTH** GAUGE: Aggregate particles are considered elongated when their length is more than 1.8 of the nominal size. It consists of a hard wood base with vertically mounted metal studs as specified in the IS.

THICKNESS GAUGE: Also The aggregate particles are to be considered flaky, if their thickness is less than 0.6 of their nominal size. It consists of a frame with sliding panel with accurate slots of different standard width and length, the complete assembly is chrome plated or powder coated

### **041 : CONE PENETROMETER FOR MORTAR**

#### AS PER IS: 2250 - 1965

**Introduction:** For determining the consistency of masonry mortar.

Specifications: Consists of a movable bearing rod to which a cone 145mm. long and 75 mm dia at a base is fixed. The bearing rod passes freely through a bracket which is provided with release mechanism. A dial graduated in mm with rack and pinion is provided for measuring the penetration. Complete with a conical container 150 mm ID x 180 mm deep and a platform.

NOTE:















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### 042 : CONCRETE TEST HAMMER (REBOUND HAMMER)

**Introduction:** The concrete test hammer is an instrument which is easy to use, for quick and approximate measurement of the resistance to pressure of manufactured concrete products. The principles on which it works are based on the rebound impact of a hammer on a piston which rests against the surface of the concrete products. The Greater the resistance of the concrete, greater is the rebounded impact. By reading this rebound impact on a scale and relating it to curves on graphs supplied with the instrument, the resistance to compression in MPa or PSI can be found, with  $\pm$  20% of actual

**Specifications:** Consists of a barrel in which is housed a hammer mass attached to an impact spring which slides on a guide bar. A plunger is a attached to the guide bar which is pressed against the surface to be tested. As the piston is pressed against the surface to be tested, on reaching the compressive strength, the hammer mass is released and rebounds to a certain extent (according to the strength of the surface) which is indicated by a rider on a calibrated scale. A lock button fixed on the body of the hammer locks the rider in place and the rider can be recared to zero position by using the same button. The equivalent compressive strength can be computed from the chart supplied. Each hammer is calibrated against at standard test hammer, and is suitable for specimen of compressive strengths 100 - 700 kg/cm The instrument, complete with a grinding stone for polishing the test surface, is supplied in carrying case

### 043 : DIGITAL CONCRETE TEST HAMMER (REBOUND HAMMER)

#### **Main Features:**

Test procedure conforming to EN 12504-2 & ASTM C805.

Allows to generate customized test procedure.

Storage capacity 2 Mb; Saves, displays and downloads data to PC via USB port

Integrated rechargeable lithium ion battery & battery charger

Measurement and indication of the exact instrument tilting angle by triaxial inclinometer Multiple correlations between rebound index & compressive strength selectable by the user These correlations can be also customized.

#### Specifications:

Impact energy: 2.207 Nm Measuring range: from 10 to 100 N/mm2 High-contrast graphic display 128x64 pixel and 6 keys membrane keyboard Results are displayed as numerical and graphical format. USB port and PC software

### **044 : ULTRASONIC PULSE VELOCITY TESTER**

### AS PER IS: EN 12504-4, ASTM C597

**Introduction:** The UPV tester is used for quality control and inspection of concrete. It measures the transit time of ultrasonic pulses through concrete for inspection of new and old structures, slabs, columns, walls, fire damaged areas, precast and prestressed beams, cylinders and other concrete forms. Combined with an oscilloscope can identify honey combs, voids, cracks and other non homogeneous conditions in concrete.

#### **Specifications:**

Microprocessor incorporated. Battery operated by internal rechargeable battery & External charger. 14 working hours using I Hz pulse rate. USB / RS 232 output for PC or printer. Connectable to oscilloscope. Transit time measurement from 0.1 to 1999.9 microseconds. Pulse rate 1, 2, 5, 10 per second, selectable. Resolution 0.1 microseconds. Transmitter output 1200 V. Frequency range 24 to 150 kHz. Receiver input impedance 1 M

#### NOTE:

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### **45 : GENERAL INSTRUMENTS**





**CEMENT SPATULA** AS PER IS: 4031, 269, BS: 12.



**AS PER IS: 516** 



**DENSITY BASKET** AS PER IS: 2386 (PART III)



**CONCRETE THERMOMETER** 

VACUUM DESICCATOR

LABORATORY HOT PLATE

WATER BATH



**GAUGING TROWEL** AS PER IS: 4031, BS: 12.



LATERAL EXTENSOMETER



**ENAMEL TRAY** 



SCOOPS



VACUUM PUMP



**MUFFLE FURNACE** 











TROWEL (FLEXIBLE SPATULA) AS PER IS: 4031 and ASTM: C 190.



LONGITUDINAL COMPRESSOMETER



**MIXING TRAY (G.I.)** 



WEIGHING BALANCE



**MOISTURE TINS** 



**SPECIFIC GRAVITY BOTTLE** 

What

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WHATMAN'S FILTER PAPER

**INCUBATOR** 





SAND ABSORPTION **CONE & TAMPER** 



**LENGTH COMPARATOR** AS PER IS: 1199-1959 & 4031-1968



**DIGITAL PLATFORM** WEIGHING BALANCE



**MORTAR AND PESTLE** 



HOT AIR OVEN



**DIGITAL ULTRASONIC PULSE VELOCITY TESTER** 



HYGROMETER (DRY & WET BULB THERMOMETER)

#### NOTE:

### **OUR OTHER PRODUCT RANGE**



#### **Mechanical Engineering Department**

- Fluid Mechanics Lab
- ∽ Hydraulic Machinery
- Thermal Engineering Lab
- Refrigeration & Air Conditioning Lab
- 🗢 Heat Transfer Lab
- ∽ Theory Of Machine Lab
- Control Engineering Lab
- ∽ Instrumentation Lab
- ∽ Mechatronics Lab
- ∽ Vibration Lab
- Metallurgy Lab
- Metrology & Quality Control
- Oil, Petroleum & Paint Testing
- Manufacturing Process Lab

#### **Automobile Engineering Department:**

- ☞ IC Engine Test Rig Lab
- Auto Electrical & Electronics System
- Automobile Engine Systems
- Automobile Transmission Systems
- ∽ Autotronics
- Automobile Air Conditioning
- Automobile Systems and Body Engineering
- ∽ Vehicle Layout and Transmission System

### **Electrical Engineering Department:**

- Electrical AC Machine Lab
- DC Machine & Transformer Lab
- High Voltage Lab
- ☞ Test & Measuring Instruments

#### **Electronics & Telecom. Engineering**

- Analog Electronic Lab
- Digital Electronic Lab
- Microprocessor & Micro-controller Lab
- Analog Communication LAB
- Digital Communication LAB
- Fiber Optic and Laser Communication Lab
- ∽ Audio & Video Engineering Lab
- Consumer Electronics Lab
- Antennas, Microwaves and Radar Lab
- Computer Hardware Lab
- Computer Communication Network Lab
- Mobile Communication
- ☞ Wireless Communication and Networks Lab
- Satellite Communication and Network Lab
- Power Electronics Lab
- Instrumentation and Measurements Lab
- Automobile and Mechatronics Lab
- C Bio-Medical Instrumentation Lab
- Robotics Lab
- ∽ Control Theory Lab

### **Technical Training Academy or Courses**

- ∽ PLC , SCADA, HMI Automation Training
  ∽ Embedded System Training
- Robotics Automation Training

#### **PUNE TEST HOUSE\***

- Construction Material Testing Lab
- ☞ \* Up-comming Project















## **Enriching Technical Education**

we are one of the pioneers in the field of Manufacturing of various Civil, Mechanical, Automobile, Electronics, Electrical, Instrumentation, Engineering equipment. We take a great pleasure to introduce ourselves as an organization in Manufacturing of sophisticated technical training test rigs/ Demonstration kits to various Diploma & Degree Engineering colleges as well as research Institutes all over India. Also we do setup Civil material testing lab.

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