



XIEEPL
Enriching Technical Education



**PRODUCT CATALOGUE
FOR GEO-TECHNICAL (SOIL) 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
008	Compaction Factor Apparatus	031	Cylindrical Moulds
009	Kelley Ball Penetration Apparatus	032	Beam Moulds
010	Mortar Mixer	033	Shrinkage Bar Moulds
011	Water bath	034	Aggregate Crushing Value Apparatus
012	Flow Table	035	Aggregate Impact Testing Machine
013	Flow Table - Motorised	036	Sieve Shaker Machine
014	Laboratory Concrete Mixer	037	Bulk Density Apparatus
015	Laboratory Pan Mixer	038	Specific Gravity Of Aggregates
016	Laboratory Cement Autoclave	039	Los Angeles Abrasion Testing
017	Rapid Chloride Penetration Test	040	Elongation Index & Flakiness Index
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
046	Plastic Limit Set	059	Proctor Needles (Spring Type)
047	Shrinkage Limit Set	060	Rapid Moisture Meter
048	Liquid Limit Device	061	Consolidation Test Apparatus
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
058	Pocket Penetrometer	072	General Instruments

MATERIAL TESTING / STRENGTH OF MATERIAL LAB EQUIPMENT

Item No	Item Name	Item No	Item Name
073	Universal Testing Machine	079	Rockwell Cum Brinell Hardness Tester
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
085	Ring & Ball Apparatus	092	Benkelman Beam
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

046 : PLASTIC LIMIT SET



AS PER IS: 2720 (Part- VII) ASTM D 427, BS: 1377 AASHO 190.

Introduction: Moisture contents at which soil has smallest plasticity is called limit. For determination purpose plastic limit is defined as the water content at which a soil will just begin to crumble when rolled into a thread of 3 mm. Dia.

Specifications: The complete set consists of one each:-

1. Glass plate 20 cm x 115 cm having ground ends & one side frosted.
2. Brass or stainless steel rod 3 mm dia x 150 mm long.
3. Flexible spatula.
4. Set of 6 moisture containers.
5. Porcelain basin 150 mm dia.
6. Plastic wash bottle 500 ml.



047 : SHRINKAGE LIMIT SET



AS PER IS: 2720 (Part - VII) ASTM D 427, BS: 1377, AASHO T 92.

Introduction: The apparatus can be used to determine shrinkage limit and to calculate other shrinkage factors like shrinkage ratio, shrinkage index & volumetric shrinkage.

Specifications: The Set consists of one each:-

1. Porcelain evaporating Dish
2. Shrinkage Dish
3. Glass Cup
4. Perspex Plate with three metal prongs
5. Perspex plate,
6. Flexible spatula
7. Glass cylinder 25 ml x 0.5 ml.

Optional : Mercury in bottle of 500 gms



048 : LIQUID LIMIT DEVICE



AS PER IS: 2720 (Part V), 9259, BS: 1377, AS: 89

Introduction: Liquid limit is the water content at which soil passes from zero strength to an infinitesimal strength, hence the true value of liquid limit cannot be determined. For determination purpose liquid limit is that water content at which a part of soil, cut by a groove of standard dimensions, will flow together for a distance of 1.25 cm under an impact of 25 blows in a standard liquid limit apparatus. The soil at the water content has some strength which is about 0.17 N/cm. sq. (17gms/sq.cm.) At this water content soil just passes from liquid state to plastic state.

Specifications: It consists of a brass cup held on an adjustable bracket. The cup can be adjusted for a fall of 1 cm and can be raised and dropped on a rubber base of standard hardness by cam action. Complete with one Casagrande grooving tool, one ASTM Grooving tool and a high gauge block.

NOTE: Also Available LIQUID LIMIT DEVICE (WITH COUNTER) & LIQUID LIMIT DEVICE (MOTORISED)



049 : SOIL CONE PENETROMETER



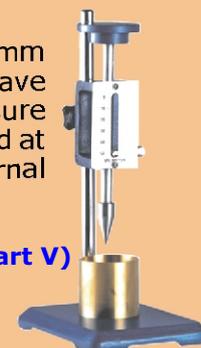
Introduction: Alternative Device to determine the Liquid Limit of soils.

Specifications: It will consist of metallic cone with half angle of $15' - 30 \pm 15'$ and 30.50 mm coned length. It will be fixed at the end of a metallic rod with a disc at the top of the rod so as to have a total sliding weight of 148 ± 0.5 gms. The total rod shall pass through two guides. (To ensure vertical movement) fixed to a stand. Suitable provision will be made for clamping the vertical rod at any desired height above the surface of the paste in the trough. A brass trough 50 mm internal diameter and 50 mm depth.

Optional Accessories:

- ◆ Glass Plate: 10mm thick and about 45-50 cm square.
- ◆ Spatula : Flexible with blade about 8 cm long & 2 cm wide
- ◆ Evaporating dish: Made from porcelain material

AS PER IS : 2720 (Part V)



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050 : SEMI AUTOMATIC CONE PENETROMETER



AS PER BS: 1377-2.

Specifications: The Used to determine the moisture content at which clay soils pass from a plastic to a liquid state. Two Versions are available. One the standard one & the other is semi-automatic with timer where the cone is allowed to free fall for a period of 5 seconds including one each of 50 gm. & 100 gm. weight, one penetration cone, preset counter & measuring cup.



051 : SAND POURING CYLINDER (Field Density Test Apparatus)



AS PER IS: 2720 (Part XXVIII) - 1966.

Introduction: Field Density Test Apparatus by Sand Replacement method or Sand Pouring Method. This apparatus is used for the in place determination, of the dry density of compact, fine and medium grained soils and for layers not exceeding 50 cm thickness.

Specifications: The complete apparatus consists one each of: Small sand pouring cylinder 3 liters capacity mounted above a pouring cone and separated as a shutter hole. Cylindrical calibrating container internal dia. 100 mm and internal depth 150 mm fitted with a flange 5cm wide.

Metal tray 30 cm square and 4 cm deep with a 10 cm hole in center

Optional Accessories: Metal tray, 30 cm square and 4 cm deep without hole. Test forms pad of 50



052 : SAND DENSITY CONE APPARATUS



AS PER ASTM D 1556- AASHTO T 191

Introduction: Used to determine the in-situ density of fine grained compacted soil. The test consists in digging a hole into the ground and then collect, dry and weight the sampled soil. The hole is then filled with dry sand from the cone container.

Specifications: The apparatus consist of a double metal cone, one plastic 5 lts jar & a metal tray with centre hole. Size of the cone is 6 1/2".

OPTIONAL: On request 12" (305 mm) Sand Density Cone Apparatus is also supplied at an extra cost.



053 : CORE CUTTER



AS PER IS: : 2720 (Part XXIX) - 1966.

Introduction: Field Density Test Apparatus by core cutter method.

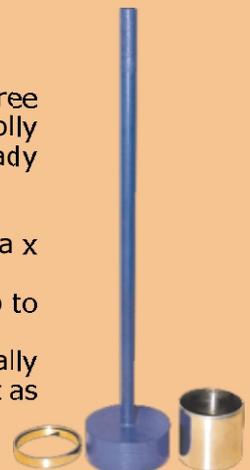
This is used for determination of in situ dry density of natural or compacted fine grained soil, free from aggregates. A cylindrical cutter is used to extract a sample of the soil with the help of a dolly and rammer. From the weight, density and the moisture, and dry density of the soil is ready calculated

Specifications: It consists one each of:

◆ **Core cutter (Cylindrical):** Cylindrical core cutter made up of steel 100 mm internal dia x 127.3 mm Long and wall thickness 3 mm beveled at one end.

◆ **Steel Dolly:** 25 mm high and 100 mm diameter, wall thickness 7.5 mm Fitted with a clip to enable it to be located on top of core cutter.

◆ **Steel Rammer:** With solid mild steel foot 140 mm dia. And 75 mm height with a concentrically screwed 25 mm dia. Solid mild steel staff. The overall length of the rammer including the foot as well as the staff should be approximately 900 mm. Should weigh approximately 9 Kg.



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054 : COMPACTION TEST APPARATUS (Standard Proctor Apparatus)



AS PER IS: 2720, (Part-VII).

Specifications: The apparatus consists one each of Compaction Mould Gun Metal / Steel, 100 mm I.D. x 127.3 mm height x 1000 cc volume, complete with collar and base plate. Rammer 2.6 kg x 310 mm controlled fall.

HEAVY COMPACTION TEST APPARATUS: Instrument consists one each of: Compaction Mould, gun metal/Steel, 150 mm I.D. x 127.3 mm height volume 2250 cc. complete with collar and base plate. Rammer 4.89 kg x 450 mm controlled fall for heavy compaction test according to IS.

Note: Instead of Gun-metal moulds, steel moulds are available.
Semi-Automatic Compactor Universal Automatic Compactor: also available.



055 : RELATIVE DENSITY APPARATUS



AS PER IS: 2720 (Part XIV).

Introduction: This equipment is used for the determination of the relative density of cohesion less free draining soils .

Specifications: The equipment consists one each of: Vibratory table, with cushioned steel vibrating deck about 75 cm x 75 cm. It has a frequency of approximately 3600 vibrations per minute under a 115 kg load. Amplitude is variable in between 0.65 mm in steps of 0.05 to 0.25 mm, 0.25 to 0.45 mm and 0.45 to 0.65 mm. Suitable for operation on 415 volts, three phase supply. Cylindrical metal unit weight mould, 3000 ml capacity. Guide Sleeve with clamp assembly. Surcharge base plate for mould. Handle for surcharge base plate. Surcharge weight. The total weight together with surcharge base plate and handle is equivalent to 140 kg./sq.cm. for mould. Cylindrical metal unit weight mould, 15000 ml capacity. Surcharge base plate for guide sleeve. Surcharge weight for cylindrical mould of 15000 ml. cap. (Total weight together with the above mould 8 surcharge weight is equivalent to 140 kg / sq.cm.) Dial gauge holder & Calibration bar 75c 300 mm x 3 mm.

Accessories: Dial gauge 0.01 mm x 50 mm travel. Extension piece 25 mm for dial gauge.



056 : PYCNOMETER



AS PER IS: 2386 (PART III).

Introduction: Useful to determine specific gravity of clays, sand and gravel of size smaller than 10 mm.

Specifications: Comprises a 1 kg / 2 lbs glass jar with brass cone, Plastic locking ring and rubber seal.



057 : RELATIVE DENSITY BOTTLES



AS PER BS: 1377-2, ASTM D 854.

Introduction: These bottles are used for relative density measurements.

Specifications: made from borosilicate glass with capillary bored stopper.



058 : POCKET PENETROMETER



AS PER ASTM D 1558 D 2573.

Introduction: This instrument is used to estimate approximate unconfined compressive strength and the estimation for shear strength of soil. Cohesive soils can also be classified in terms of consistency using this Penetrometer. This is a handy and convenient instrument.

Specifications: It consists of a light weight barrel assembly with polished and ground steel loading piston plunger. A direct reading scale is engraved on the piston barrel and indicates load in kg./sq.cm. A maximum load indicator ring is provided on the penetration plunger. The calibrated spring is heat treated and plated for rust resistance. The barrel diameter is 20 mm and the length 150 mm. Supplied in storage box.

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059 : PROCTOR NEEDLES (SPRING TYPE)



AS PER ASTM D 1558 D 2573.

Introduction: Proctor needles are used for quick evaluation of maximum soil density in the field. Standard Compaction curves showing moisture contents versus densities are drawn in laboratory using standard compaction method and penetration of the proctor needles are correlated. Proctor Needles are also known as Proctor Penetrometer.



Specifications: The instrument consists of a needle attached to a spring loaded plunger, the stem of which is calibrated to read 0 to 40 kg division. Long stem is graduated at every 12.5 mm to read depth of penetration and for use with needles of larger areas. The small penetration stem is also graduation in 12.5 mm division and is used with needles of smaller areas. Needle points one each of 0.25, 0.5, 1.0, 1.5, 2.0, 3.5 and 6.0 sq Cm. And one Tommy pin is supplied. Complete as above in a wooden carrying case.

NOTE: PROCTOR NEEDLES (HYDRAULIC TYPE) Also Available.

060 : RAPID MOISTURE METER



AS PER IS: 2720 (PART II)

Introduction: For quick determination of moisture content of materials in powder form viz. Soil, sand, coal, pottery slip, cement etc. Calcium carbide when comes in contact with moisture acetylene gas in generate. This principle is used in rapid moisture meter.

Specifications: The unit consists of a pressure vessel with clamp for sealing cap, rubber sealing gasket, pressure gauge calibrated in percentage moisture content 0-25% X 1% on the wet weight basis, a counter poised balance for weighing sample, a scoop for measuring carbide reagent, a bottle of reagent, one cleaning brush and a set of 4 steel balls (3 of 12.5 mm & 1 of 25 mm dia.) for thorough mixing. Complete in highly polished wooden carrying case with handle.

OPTIONAL: RAPID MOISTURE METER (0-50%) Same as above but pressure gauge calibrated 0-50% x 1%. Spares: Carbide reagent, in bottles of 400 gms each.

NOTE: DIGITAL INFRARED MOISTURE METER IS ALSO AVAILABLE.



061 : CONSOLIDATION APPARATUS



AS PER IS: 2720 (Part-XV), BS 1377. ASDTM D-2435.

Specifications: The standard outfit comprises of the following items. Loading unit, maximum capacity 20 kg/cm sq. having a loading yoke connected to a lever arm with a counter balancing adjustment and having a lever ratio of 1:1, the whole assembly being mounted on a sturdy steel frame stand. The loading unit is so designed that it can be used for consolidation cells of different diameters as well as different diameter floating ring type consolidation cells. Fixed ring type consolidometer (Odometer) cell assembly for testing 60mm dia x 20 mm thick specimen comprising: Fixed ring for specimens 60 mm dia x 20 mm thick with guide ring. Top and Bottom Porous stones for 60 mm dia specimen. Perforated Pressure pad, Channeled base with water inlet and Gasket. Flanged Water Jacket, water reservoir with plastic tube and pinch cock. Set of weights to give a pressure of 10 kg/cm. sq. on 60 mm dia specimen, comprising: 7 Nos. 0.05 kg/sq.cm., 5 Nos. 0.1 kg/sq.cm., 6 Nos. 0.2 kg/sq.cm., 6 Nos. 0.5 kg/sq.cm., and 5 Nos. 1.0 kg/sq.cm. Supplied complete as above but without dial gauge.

Standard Accessories: Dial Gauge 0.002 mm x 10 mm. Extension piece, 40 mm long. Test forms pad of 50 for one Dimensional Consolidation.

Optional Extras: Varying head stand pipe, 50 cms long with mm. scale. Fixed ring type of consolidometer (Odometer) cell assembly for 50 mm. dia x 20 mm thick specimens complete with fixed ring guide ring, pair or porous stones, perforated pressure pad, channeled base, gasket and flanged water jacket.

Set of weights to give a pressure of 10 kg/sq. cm, on 50 cm. dia specimen. Fixed ring type of consolidometer (Odometer) cell assembly for 70 mm dia x 20 mm thick specimens, complete with accessories as above. Set of weights to give a pressure of 10 kg/sq.cm. on 70 mm. dia specimen. Fixed ring type of consolidometer (Odometer) cell assembly for 100 mm dia x 25 mm thick specimens complete with accessories as above. Set of weights to give a pressure of 10 kg/sq.cm. on 100 mm dia specimens.

NOTE: CONSOLIDATION APPARATUS available in Single Gang, Three Gang & Six Gang. Also Electronic Consolidation Apparatus can also be supplied



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062 : DIRECT SHEAR APPARATUS

AS PER IS: 2720 (Part - VIII), ASTM D- 3080.

Introduction: Information of Shear values plays an important role in the design of sub-structures in determining bearing capacity of soils, design of retaining walls, instability calculation of earth slopes etc. Various Shear Apparatus are available and Direct Shear Apparatus is one of them. In Direct Shear test specimen contained in a box is subjected to a constant normal load and increasing horizontal load is applied to the upper section of the specimen. Shear force and load are directly measured. For determination of the direct shear strength of soils on specimen size 60 x 60 x 25 mm.

Specifications: ♦ **Loading Unit :** with V strips on which shear box housing rests, load yoke with direct & lever system for applying normal load to the capacity of 8 kg/cm sq, fixture for proving ring, bracket for holding dial gauge, & manually operated lead screw for application of shear stress. Complicated counter balancing arrangement has been dispensed with and the unit is provided with pre-calibrated loading yoke.



♦ **Shear Box Assembly for Square Specimen:** Comprising Direct Shear box in two halves for a square specimen size 60 x 60 x 25 mm one pair of plain gripper plates, one pair of perforated gripper plates, one pair of porous stones, one top loading pad. Shear box housing: Accommodates the Direct Shear Box assembly.

♦ **Shear Box Housing:** Suitable to accommodate shear box assembly complete with two ball roller strips.

♦ **Specimen Cutter:** For cutting specimen size 60 x 60 x 25 mm obtained from field or from larger specimen.

♦ **Set of Weights:** To give normal stress of 3 kg/cm sq on specimen comprises of 4 X 0.05, 1 X 0.1, 1 X 0.2, 3 X 0.5 and 1 X 1.0 kg/cm sq.

♦ **Proving Ring:** High sensitivity compression Made of special alloy steel equipped proving Ring capacity 200 kg (2 KN) with dial gauge 0.01 mm x 25 mm.

Optional extras: Additional set of weights to give a normal stress of 5 kg/cm². Soil Sampler for 60 mm x 60 mm specimen and test from pad of 50. Spares: Porous stone for 60 mm x 60 mm size sample available in pairs.

NOTE: Other Models are available with Single Speed, Six Speed, Twelve Speed rate of Strain. Also available in Electronic Version.

063 : SOIL PERMEABILITY APPARATUS

AS PER IS: 2720 (Part XBII) - 1966

Introduction: In soil machines Permeability is one of the important Engineering properties, as it governs rate of settlement of saturated compressible soil layer and rate of flow of equifer. Permeability is that property of soil which permits flow of water through its interconnecting voids. The instrument to measure permeability is called permeameter. The results are used for pumping ground water, for foundation sites excavations, design of dams etc. Tests can be performed on remoulded or undisturbed samples using **constant head or falling head** method.

The apparatus is used for the laboratory determination of permeability of soils using a constant or a variable head. This test is recommended for soils with co-efficient of permeability in the range of 10⁻³ to 10⁻⁷cm/sec. The maximum particle size of the soil which can be tested in the mould is 10 mm.

Specifications: The equipment comprises one each Consists of :

- ♦ Gun metal mould 100 mm dia x 127.3 mm height x 1000 ml volume.
- ♦ Gunmetal mould Extension color: 100 mm dia. x 60 mm high.
- ♦ Gunmetal Drainage base plate with a recess for porous stone and with an outlet valve.
- ♦ Metallic clamping ring.
- ♦ Drainage cap (top plate with a recess for porous stone and fitted with an inlet valve & air release Valve)
- ♦ Gunmetal Dummy plate to serve as a false bottom during compaction.
- ♦ Set of porous stone for base and top plate.
- ♦ Set of three glass stand pipes approx 6 mm, 10 mm and 20 mm dia. mounted on a Wooden base stand.
- ♦ Each glass tube is longer than 1 m & has a serrated end at the bottom. To read water head 2 Nos. Meter scales are fixed between the tubes.
- ♦ Rubber tube with pinch cock is provided.

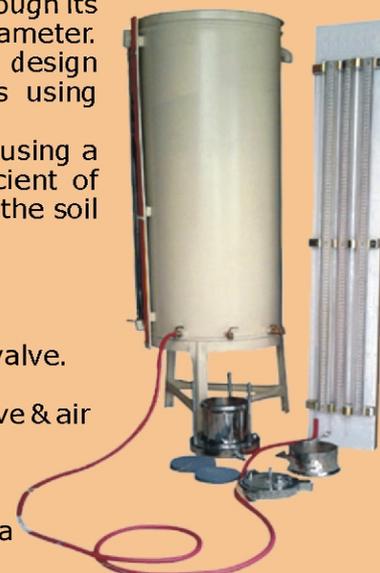
Accessories :-

- ♦ Over head tank made of G.I. Sheet with six outlets at bottom and inlet port on top.
- ♦ Rammer 2.6 kg x 310mm controlled fall.

Note: UNIVERSAL OR COMBINATION PERMEAMETER is also available.

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064 : UNCONFINED COMPRESSION TEST APPARATUS



AS PER IS: 2720 (Part X), ASTM T - 208.

Introduction: This is an Electrically operated (Motorized) instrument for determining the unconfined compression strength of soil specimens of diameter ranging from 38 mm to 100 mm. Load on the sample is applied gradually by an Electrically operated load frame and loads are measured on a sensitive proving ring attached to the load frame. In this choice of three constant rates of strain.

Specifications: It consists of: Screw operated load frame, bench type, capacity 5000 kgf (50KN) with a gear box and motor drive giving 1.25, 1.5, 2.5 mm/min. rates of strain, a pair of cone seating, adaptor for proving ring and stain dial gauge bracket. Supplied with one pair of male/ female coning tools for 38 mm dia samples but without proving ring and dial gauge. Suitable for operation on 230 volts, single phase A.C. Supply.

Accessories: Coning tools in pairs (male & female) for samples having diameter 38, 50, 75 & 100 mm.

NOTE: same as above but having only one rate of strain 1.25 mm/min. or with the following rates of strains: 1.5 mm/min, 2.0 mm/min and 3.0 mm/min.



065 : SAMPLE EXTRACTOR FRAME: HYDRAULIC TYPE



AS PER IS: 2720 (PART II)

Introduction: Extractor Frame is used for taking out soil samples compacted or undisturbed, from 100 & 150 mm dia cylinders such as core cutters, Proctor moulds, CBR moulds etc..

Specifications: It consists of a 5 Ton capacity hand operated, hydraulic jack mounted on a suitable frame. Two plungers, one for 100 mm dia and the other of 150 mm dia moulds are supplied. One thrust plate for 150mm dia and one for 100 mm dia specimens are also supplied. Height of thrust plate is adjustable.

Optional Accessories: Set of Plungers adaptors and thrust plates for 38, 50 & 75 mm dia specimen.

Note: EXTRACTOR FRAME UNIVERSAL (HAND OPERATED) Also Available.



066 : TRIAXIAL SHEAR TEST APPARATUS



AS PER IS: 2720 (Part - XII).

Introduction: It is used to determine shear strength parameters i.e. angle of shearing resistance and cohesion of a given soil sample. Triaxial Cells are manufactured from carefully selected material. The cells are manufactured to accommodate different sizes of specimen. Universal Triaxial Cell accommodates samples of diameters 38 mm to 100 mm.

Specifications: ♦ **Load Frame:** Hand operated load frame capacity 5000 kgs, having Single speed of strain 1.25 mm/min screw jack type, mounted on a rigid frame. operation on 220/230 Volts, single phase A.C. Supply

♦ **Triaxial Cell:** Stationary bush type suitable to accommodate soil specimen of 38 mm diam x 76 mm long, in perpex chamber, suitable to with stand fluid pressure of 10 kg/cm sq, with no volume change type klinger valve at base.

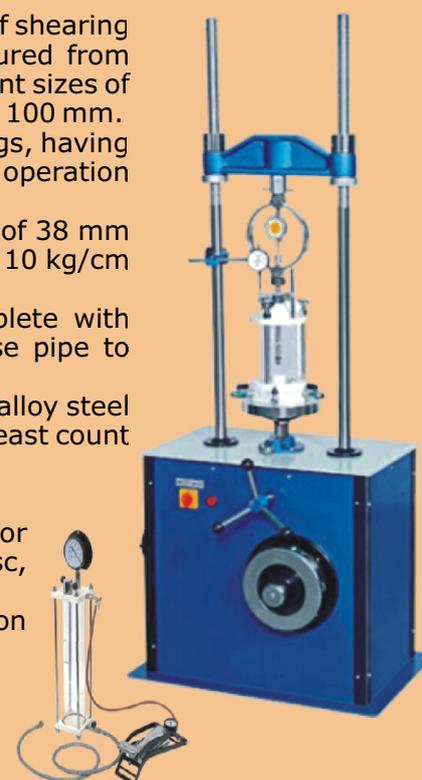
♦ **Lateral Pressure Assembly:** Pressure chamber with foot pump. Complete with pressure gauge 0-10 kg/cm sq, shredder valve, foot pump and rubber hose pipe to connect with Triaxial cell.

♦ **Proving Ring:** High sensitive proving ring capacity 250 kgs made of special alloy steel to give maximum repeatability as stipulated in I.S. 4169 fitted with dial gauge least count 0.002 mm is Supplied.

♦ **Dial Gauge :** For strain measurement 0.01 mm x 25 mm travel

♦ Complete with 12 nos rubber membranes, 4 nos sealing ring, mould for preparation of sample, sheath stretcher, pair of porous stone, pair of plain disc, loading pad and drainage tube.

NOTE: Available in Single Speed, Six Speed & 30 Speed. Also Digital Version available.



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067 : SWELL TEST APPARATUS



KEEPL

AS PER IS: 2720.

Introduction: Remolded Compacted soil, when soaked in water, absorbs water and swells. Swell Test Apparatus is designed to determine the swelling pressure developed by soil specimens molded to desired densities at known moisture content.

Specifications: The outfit comprises the following.

- ◆ One loading unit Hand operated 5 Ton capacity with two rates of travel.
- ◆ One Gun metal mould, 100 mm dia x 127.3 cm height X 1000 cc volume with base plate and collar.
- ◆ One perforated swell plate 100 mm dia X 16 mm thick.
- ◆ One spacer 100 mm dia X 12.7 mm thick.
- ◆ Two porous stone of 100 mm dia X 12.7 mm thick.
- ◆ One load transfer bar.
- ◆ One steel ball & one soaking tank, 250 mm dia x 210 mm high.
- ◆ Dial gauge 0.01 mm X 25 mm travel.
- ◆ Proving ring of 2.5 KN capacity with calibration chart and carrying case.

Optional Accessories: Metal tray, 30 cm square & 4 cm deep without hole. Test forms pad of 50



068 : POINT LOAD INDEX TESTER



KEEPL

AS PER IS: 8764, 1978.

Introduction: Used for testing rock, aggregate and core samples as well as out crop specimen in their original shape. Very useful for rock classification. This is a portable instrument and is useful in the field also. Uniaxial compressive strength for rock specimen can also be predicted approximately.

Specifications: The instrument comprises of:-

- ◆ **Loading Frame:** A pillar type load frame on the base of which at the centre is fixed a 10 Ton (100 KN) capacity hydraulic jack with a conical platen at the top of jack.

- ◆ **Conical platen:** is fixed to the top plate of the frame at its centre. The distance between two conical platen is fixed to the top plate of the frame at its centre. The distance between two conical platens is adjustable by vertical movement of the upper plate of the load frame. Loading jack with integral hand operated pump.

- ◆ **Load / Pressure gauge** 0-2500 kgf x 25 kgf & 0-10000 kgf x 50 kgf.



069 : CALIFORNIA BEARING RATIO (CBR) APPARATUS



KEEPL

AS PER IS: 2720 (Part - XVI).

Introduction: The C.B.R. Method is used for finding the relative bearing ratio and expansion characteristics of soil of base, sub-base and sub-grade for the design of roads, pavements and runways. Test can be made on all types of soils including sand, gravel, crushed stone etc.

Specifications: The equipment consists one each of the following:

- ◆ **Load Frame:** Motorised, Electrically operated, capacity 50 KN (5000 kg) with The lead screw of the load frame has a single constant rate of travel of 1.25mm/minute.

- ◆ **Mould:** made from Gun metal / Brass, 150 mm internal dia x 175 mm high, with perforated base plate and extension collar 50 mm high, tie rods and wing nut.

- ◆ **Penetration piston:** face dia 50 mm, 100 mm long with adjustable bracket for penetration dial gauge.

- ◆ **Circular metal space disc:** 148 mm dia x 47.7 mm high with detachable handle.

- ◆ **Annular metal weight:** 2.5 kg, 147 mm dia with 53 mm dia central hole.

- ◆ **Slotted metal weight:** 2.5 kg, 147 mm dia with 53 dia slot. (Or 5 kg is also available)

- ◆ **Perforated plate:** made of Gun-metal/Brass, 148mm dia with adjustable stem & lock nut.

- ◆ **Metal tripod:** for dial gauge.

- ◆ **Cutting collar:** for obtaining sample from field.

- ◆ **Rammer:** 2.6 kg weight with drop of 310 mm, controlled drop through guide.

- ◆ **Rammer:** 4.89 kg with drop of 450 mm, controlled drop through guide.

- ◆ **Proving ring:** high sensitivity, capacity 1000kg with calibration chart & carrying case. Dial gauge graduated 0.0002mm, range 5mm. (other capacities are also available)

- ◆ **Strain dial gauge:** least count 0.01 mm x 25 mm travel.

NOTE: Hand operated & Field Type CBR also available. Motorized Electronic Model also available



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.

070 : VANE SHEAR APPARATUS

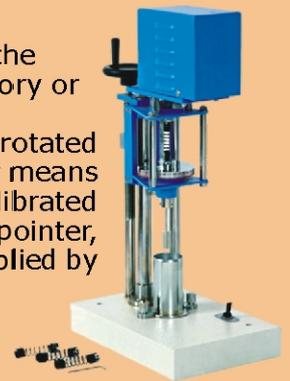


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AS PER IS: 2720 (Part XXX) - 1968.

Introduction: Soft and sensitive soils whose shear strength is less than 15 KN/m², the results are dependent on operator's skill. Vane Shear Test can be conducted in a laboratory or in the field.

Specifications: Consists of a torque head adjustable in height by mean of a lead screw rotated by a drive wheel to enable the vane to be lowered in to the specimen. Rotation of vane is by means of a hand wheel which operates a worm gear arrangement turning the upper end of a calibrated torsion spring. The vane shaft is attached through the hollow upper shaft to a resettable pointer, which indicates the angle of torque on a dial graduated in degrees. The dial reading multiplied by spring factor gives the torque. A container should also supplied with set of springs one each approx. 2 kg-cm, 4 kg-cm and 8 kg-cm in a wooden carrying case preferably electrically operated, rate of rotation is 1/16 RPM. Suitable for operation on 230V, 50 Hz, 1- supply.



071 : SIEVE SHAKER MACHINE (GYRATORY TYPE)



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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 does 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.



72 : GENERAL INSTRUMENTS



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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
- ☞ 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

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- ☞ Construction Material Testing Lab
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