



editlab

Rock Testing Equipment

Sample Preparation

Core Drilling Machine

ELC 201-2

- Heavy duty, pillar type frame with 1500W.
- Varying cutting feeds provided with water-fed swivel head which can be connected to suitable water supply.
- Provision at base for water collection / drainage.
- Core preparation from regular and irregular samples Core size : EX to 100 mm.
- Clamping arrangement to hold specimens with regular/ irregular shapes to the base of machine.
- Two cutting speeds at no load 950/2100RPM.
- Water tank 5ltr. is Standard outfit.

For Voltage Ratings please refer Page No. A 65



ELC 201-2

Ordering Information :

ELC 201-2	Core Drilling Machine
Optional Accessories :	
ELC 20101	Core Drilling Bit 21.46 mm dia (EX size)
ELC 20102	Core Drilling Bit 30.10 mm dia (AX size)
ELC 20103	Core Drilling Bit 35 mm dia
ELC 20104	Core Drilling Bit 42.04 mm dia (BX size)
ELC 20105	Core Drilling Bit 54.74 mm dia (NX size)
ELC 20106	Core Drilling Bit 50 mm dia

Note: HILTI BITS available on request including BITS for 75 & 100 mm dia

Core Cutting & Grinding Machine

ELC 202, ELC 202-2, ELC 202-100 & ELC 202-150

Salient Features :

- Stable Construction
- Feed arrangement for cutting & Polishing
- Cooling water arrangement.
- Two models available
 - Floor mounted
 - Table mounted

This unit is designed for cutting and grinding cylindrical rock specimens upto 150mm size. The outfit includes diamond impregnated cutter (size as per model), a fine diamond impregnated grinding wheel and sample holder.



ELC 202



ELC 202-2

For floor mounted models. water pipe with necessary valve is provided for connecting to a source of water. For table mounted model, a water tank along with coolant pump, pipe & necessary valves is provided.

A V-Vice, to hold the sample to be cut parallel and square to the longitudinal axis is provided. To set correct length of sample, it is to be reversed and held in the same vice. A hand feed arrangement is provided to facilitate the specimen with a uniform and smooth feeding motion in floor mounted model. In table top model, provision is made for both manual & automatic feed.

For Voltage Ratings please refer Page No. A 65

Ordering Information :

ELC 202	Core Cutting & Grinding Machine, 35 to 75 mm dia
ELC 202-2	Core Cutting & Grinding Machine, Table Top Model 35 mm to 150 mm dia
ELC 202-100	Core Cutting & Grinding Machine, 50 to 100 mm dia
ELC 202-150	Core Cutting & Grinding Machine, 75 to 150 mm dia

Polishing & Lapping Machine

ELC 203

Salient Features :

- Compact table model.
- 20 cm dia top and adapter to hold polishing cloth or paste.
- Sample Holders to accommodate upto NX size Cores.
- Continuous water feed arrangement during operation.

This unit is provided with a 1/4 HP, single phase, AC motor. This bench mounted, single spindle lapping machine is ideally suited for the final polishing of mounted rock or concrete specimens. This is a motor driven unit with 450/500 rpm. A swing-in tap, for continuous water supply during operation, is also provided.

For Voltage Ratings please refer Page No. A 65

The equipment consist of the following replaceable parts :

ELC 20302	Sample Holder for Ax size	2 Nos.
ELC 20303	Sample Holder for 38 mm size	2 Nos.
ELC 20304	Sample Holder for Bx size	2 Nos.
ELC 20305	Sample Holder for Nx size	2 Nos.



ELC 203

Ordering Information :

ELC 203	Polishing & Lapping Machine
Optional Accessories :	
ELC 20301	Sample Holder for Ex size
ELC 20306	Abrasive Powder, coarse type
ELC 20307	Abrasive Powder, fine type
ELC 20308	Abrasive Powder, medium type

Note: Sample holders of other sizes can also be provided on request.

Rock Permeability

Miniature High Pressure Permeameter

ELC 205

This equipment is used for determining the permeability characteristics of solidified soils and rock cores.

The equipment consist of the following replaceable parts :

ELC 20501	Mould 50 mm dia x 100 mm high, with Collar	1 No.
ELC 20502	Top Plate	1 No.
ELC 20503	Base Plate with recess for Porous Stone	1 No.
ELC 20504	Pipette 6 mm x 300 mm long	1 No.
ELC 20505	Reservoir Tank. fitted with 7 kg/cm ² Gauge, Valves, Flow Control Regulator & Foot pump	1 No.
ELC 20506	Porous Stone to fit into Base Plate	1 No.



ELC 205

Ordering Information :

ELC 205 Miniature High Pressure Permeameter

The compressor is not supplied as a part of the standard out fit.

Strength Index

Point Load Index Tester

ELC 206-1 & ELC 206-DG

Point Load Index Tester, is used for determining the Diametral Point Load Strength Index of rock cores and irregular lumps which can be tested without any treatment. The Point Load Test is primarily an Index Test for strength classification of rock materials. This instrument is mainly intended for field measurements on rock specimen but it can also be used in the laboratory. The results of the test may also be used to predict the uniaxial compressive strength of rock from correlations. The apparatus is light and portable. It can be used in the laboratory as well as in the field.

Salient Features :

- Rock core specimens can be tested without any preparation.
- The results of the test may also be used to predict the uniaxial compressive strength of rock.
- With this instrument, a wide range of core sizes can be tested.
- The frame has adequate adjustments to align perfectly the loading axis passing through the centre of the bearing plates and loading platens at position of the ram of the hydraulic jack.

Based on type of load measuring device, we have two model available for point load Index Tester

- Analogue
- Digital

The equipment consist of the following replaceable parts :



ELC 206-1



ELC 206-DG

ELC 20601	Digital Indicator with sensor 100 kN capacity with a least count of 0.01 kN (For Digital)
ELC 20602	Load Gauge 0 - 25 kN x 0.25 kN (For Analogue)
ELC 20603	Load Gauge 0 - 100 kN x 0.50 kN (For Analogue)
ELC 20604	Conical Loading Platens
ELC 20606	Loading Frame fitted with Hydraulic Jack, hand operated, capacity 100 kN

Ordering Information :

ELC 206-1	Point Load Index Tester, Analogue
ELC 206-DG	Point Load Index Tester, Digital

Brazilian Test Apparatus

ELC 207

Ref. Standard - IS:10082

The instrument is designed to test specimens from 50 mm dia to 100 mm dia having thickness equal to half of the diameter for determination of Indirect Tensile Strength. A pair of loading jaws, designed so as to contact a disc shaped sample at diametrically opposed surfaces over an arc of contact of about 10 degrees at failure, is supplied. The set of jaws supplied with the equipment is designed for 50 mm dia specimen and therefore it is essential to order jaws for required sizes, if the samples of other diameters are to be tested. A set of plain platens are provided with the jack to enable testing of cube and circular specimens upto 50 mm size for compressive strength.

The equipment consist of the following replaceable parts :

ELC 20701	Loading Frame fitted with hand operated Hydraulic Loading Jack of 200 kN capacity provided with self retracting Piston, pair of plain platens
ELC 20702	Pair of Semi-Circular Jaws for 50 mm dia samples
ELC 20703	Load Gauge 0-200 kN x 1 kN capacity, provided with maximum Load Indicator



ELC 207

Ordering Information :

ELC 207	Brazilian Test Apparatus, 200kN
Optional Accessories :	
ELC 20704	Pair of Jaws for 60 mm dia samples
ELC 20705	Pair of Jaws for 70 mm dia samples
ELC 20706	Pair of Jaws for 80 mm dia samples
ELC 20707	Pair of Jaws for 90 mm dia samples
ELC 20708	Pair of Jaws for 100 mm dia samples

Slake Durability Apparatus

ELC 208

Ref. Standard : IS : 10050

- For determination of resistance offered by rock to weathering and disintegration when subjected to immersion in water.
- Facility to test upto four sets of samples.
- Quick couplings for assembly and removal of drums.



ELC 208

The apparatus consists of a motor on base board capable of driving two or more drums at a speed of 20 rpm. A suitable number of plastic water troughs, each designed to contain a test drum with quick release drive assemblies, permit 1 to 4 drums to be driven at one time. The test drums are supported on water lubricated bearings allowing 40 mm unobstructed clearance below the drum and a trough water level 20 mm below the axis of the drum. Drums are made of brass and comprise 2 mm wire mesh cylinders of 140 mm dia and 100mm length.

The strength, of most rocks, increases considerably with increase of confining pressure. The design engineer needs to carry out triaxial tests at a range of confining pressures, in order to determine the strength at the required confining pressure. To suit individual requirements, a wide range of instruments listed below is offered.

For Voltage Ratings please refer Page No. A 65

The equipment consist of the following replaceable parts :

Base Board with Motor Drive assembly with two drum and tank assemblies.

Ordering Information :

ELC 208 Slake Durability Apparatus

Optional Accessories :

ELC 20801 Pair of Drums & Tank Assemblies including coupling to enable upto 4 test drums to be driven at a time

ELC 20802 Electric timer, 0-30mm

Triaxial Testing of Rocks

Triaxial Cells

ELC 211 & ELC 212

These cells are designed to withstand a lateral pressure of 150 bar (150 kg/cm²). Four no-volume change valves are fitted to the base for measurement of pore pressure, top drainage, bottom drainage and for entry/exit of cell pressure. The cell is nickel plated and completely rust-proof, hardened and ground pedestals and top loading pads with suitable centering arrangements for different sample sizes are provided. The lower pedestals are provided with radial grooves. The top loading pad is provided with spherical seating.



ELC 211

Ordering Information :

ELC 211 Triaxial Cell For testing of samples of BX & NX

ELC 212 Triaxial Cell For testing samples of 75 mm, 100 mm, 150 mm

Hoek Cell

New

ELC 211 (EX, AX, BX, NX & 38)



ELC 211-AX

Hoek Cells are designed for Testing Triaxial strengths of Rock or Concrete samples upto a Pressure of 70MPa. These are designed to accept sample of EX, AX, BX, NX and 38mm Sizes.

Tests carried out on a series of samples under different confining pressures allow the user to determine:

- Strength & Elastic properties
- Shear strength at different confining pressures
- Angle of Shearing Resistance & Cohesion
- Modulus of Elasticity & Poisson's Ratio

Testing of Samples with Hoek Cells is much simpler & convenient as compared to conventional Cells. Cell comprises a Steel body having top & bottom caps screwed on to the main body. A urethane rubber sleeve incorporating U-shaped seals to form a pressurization chamber for the hydraulic fluid is mounted within the cell.

Plunger & Spherical seat - duly hardened & ground are provided for self alignment & application of axial load

Features:

- Suitable for Triaxial Testing of Rock & Concrete
- Pressure upto 70MPa
- Available in five standard sizes
- Simple to use as compared to conventional Cells

Model No.	Nominal Conventional Size	Specimen dia	Wt
ELC 211-EX	EX	22mm	9 kg
ELC 211-AX	AX	30mm	9 kg
ELC 211-BX	BX	42mm	12 kg
ELC 211-NX	NX	55mm	15 kg
ELC 211-38	-	38mm	12 kg

Ordering Information :

ELC 211 - EX	Hoek Cell for Triaxial Testing of Rock Samples of exact EX size
ELC 211 - AX	Hoek Cell for Triaxial Testing of Rock Samples of exact AX size
ELC 211 - BX	Hoek Cell for Triaxial Testing of Rock Samples of exact BX size
ELC 211 - NX	Hoek Cell for Triaxial Testing of Rock Samples of exact NX size
ELC 211 - 38	Hoek Cell for Triaxial Testing of Rock Samples of exact dia 38 mm

Constant Pressure System for Rocks

ELC 213 & ELC 213-1

The apparatus is designed to provide confining pressure upto 160 Bar to triaxial cells.

The system consists of an oil pump, continuously driven by an electric motor during the entire period of operation to maintain the desired pressure.

The unit provides continuous variable pressure upto 160 Bar, which can be increased or decreased, simply by turning a control knob.



ELC 213

Supplied complete with pressure gauge, flow valves and connecting pressure hose.

Range : 0-160 kg/cm².
Steps of Pressure : 1 kg/cm².
Accuracy : ±1% of Indicated Load.

For Voltage Ratings please refer Page No. A 65

Ordering Information :

ELC 213	Constant Pressure System for Rocks - 160 kg/cm ²
ELC 213-1	Constant Pressure System for Rocks - 600 kg/cm ²

Constituents Triaxial Test outfits:

Cat No.	ELC 215	ELC 216
Samples Dia	BX & NX	75 dia x 150 (H), 100 dia x 200 (H) & 150 dia x 150 (H)
Triaxial Cell	ELC 211	ELC 212
Load Frame	ELC 066	ELC 066
Constant Pressure System	ELC 213	ELC 213
Triaxial Electronic System	ELC 214	ELC 214

Note: Triaxial Cell for 150f x 300 (H) Can be Supplied on request.

Ordering Information :

ELC-215	Triaxial Testing Outfit for BX & NX samples- 160kg/cm ²
ELC-216	Triaxial Testing Outfit for 75, 100 & 150 mm dia samples- 160kg/cm ²
ELC 218	Triaxial Testing Outfit - 600 kg/cm ² capacity

Electronic Kit for Rock Triaxial Test

ELC 214

This double channel electronic outfit is designed for direct reading of load and pore pressure in rock samples.

This plug-in transducer module system facilitates easy installation and quick observation of readings.

The equipment consist of the following replaceable parts :

ELC 21401 Load Cell

Capacity : 500 kN
 Resolution : 0.1 kN
 Load Cell Excitation : 7.5 V DC
 Sensing Element : Strain gauges in full bridge configuration

ELC 21402 Pore Pressure Transducer

Capacity : 200 bar
 Resolution : 0.1 bar
 Pressure Cell Excitation : 7.5 V DC
 Sensing Element : Strain gauges in full bridge configuration

ELC 21403 Digital Indicator

Mode of Display : Micro controller multi line alpha numeric VFD display for all simultaneous channel (No need for channel selection)

Suitable for operation on 220 V, 50 Hz, single phase, AC supply.



ELC 214

Ordering Information :

ELC 214	Electronic Kit for Rock Triaxial Test
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Unconfined

Unconfined Compression Tester for Rocks

ELC 217-S2

Ref. Standard : ASTM 2938

This equipment is used for determining unconfined compressive strength of intact rock core specimens. The rock sample is cut to length and the ends are machined flat. The specimen is placed in a loading frame and if required heated to the desired test temperature. Axial load is continuously increased on the specimen until peak load and failure are obtained.

The equipment consist of the following replaceable parts :

- EL C065** Load Frame, 200 kN Capacity 12 speed
- EL C275** Proving Ring, 100 kN
- ELC 072** Dial Gauge 25 mm travel, 0.01 mm least count.
- ELC -21701** Platen Set as per ASTM 2938 requirements

Ordering Information :

ELC 217-S2	Unconfined Compression Tester for Rocks
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Optional Accessories :

ELC 276	Proving Ring 200kN
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In-Situ Stress

For measuring in-situ rock stress close to the surface of excavation. The method consists of cutting a slot, thereby relieving the stresses perpendicular to the slot, resulting in the deformation of the slot, which is measured. Flat Jack is then embedded in the slot and grouted. Hydraulic Pressure is applied through the flat jack until the displacements which took place on slot cutting are reduced and finally cancelled. By measuring the cancellation pressure in two mutually perpendicular directions, the in-situ stress close to the rock surface can be assessed approximately.

Flat Jack Outfit

ELC 220

The equipment consist of the following replaceable parts :

- | | | |
|------------------|---|--------|
| ELC 22001 | Flat Jack 30 cm x 30 cm | 1 No. |
| ELC 22002 | Hydraulic Pump hand operated, with 15 cm dial Pressure Gauge of 70 kg/cm ² capacity with flexible Pressure Pipe of 1 m length | 1 No. |
| ELC 22003 | Deformeter consisting of a Dial Gauge having 10mm travel and 0.002 mm least count, and two interchangeable Stems for 150mm and 250mm gauge length | 1 Set. |
| ELC 22004 | Standard Bar | 1 No. |
| ELC 22005 | Reference Pins | 6 No. |

Flat Jacks of other sizes and capacities can also be manufactured on request.

Ordering Information :

ELC 220	Flat Jack Outfit
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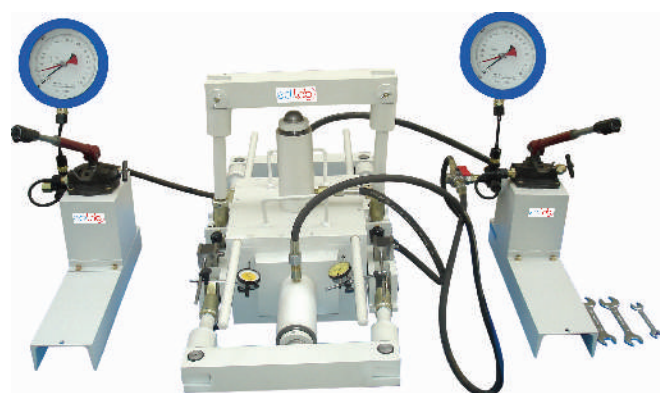
Rock Direct Shear

Direct Shear Apparatus, Hand operated for Rocks

ELC 221

Ref. Standard : ASTM D-5607-95

The equipment is used for Direct Shear Laboratory Test in Rock Samples. The test measures peak & residual Direct Shear Strength as a function of stress normal to the sheared plane. The equipment can be used for testing Core, Lump specimens.



ELC 221

The equipment consist of the following replaceable parts :

ELC 22101	Shear Box Size (300mm x 300mm x 100mm)	1 No.
ELC 22102	Jack Capacity 100kN	3 Nos.
	a) One jack for normal Load	
	b) One jack for Shear Load	
	c) One jack to return the sample to original position	
ELC 072	Dial Gauges, 25mm x 0.01mm	6 Nos.
	a) 2 Nos for measurement of Shear Displacement	
	b) 4 Nos for normal displacement & consolidation of sample	
ELC 475	Hand operated Hydraulic Pump	2 Nos.
ELC 303-LG100H-AN	Load Gauge 0-100kN x 0.5kN	2 Nos.
ELC 47502	Flexible hose pipe 2 meter	3 Nos.
ELC 22103	Moulds for Casting the samples (Wooden)	2 Nos.

Ordering Information :

ELC 221	Direct Shear Apparatus, hand operated for Rocks
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