Soil Test Instruments Products

Serve Real Instruments Co., Ltd

A Professional Instrumentation supplier

Content

Proctor-CBR compactor

Standards: GB/T50123-1999, JTJ051-93

Model: TJS-1

Description

The portable compactor is used to determine the relationship between soil content and dry unit weight thus to define the best water content and the corresponding dry unit weight. It's kind of very common soil testing instrument. It has heavy duty and light duty two types.

Technical specifications

Spec.	Light	Heavy	Light	Heavy
Standards	GB		JTG	
Hammer weight	2.5Kg	4.5Kg	2.5Kg	4.5Kg
Drop height	305mm	457mm	300mm	450mm
Cylinder inner dia.	102mm	152mm	100	152mm
Cylinder height	116mm	116mm	127	120
Hammer dia.	51mm	51mm	50mm	50mm
Drop height error	<1%	<1%	<1%	<1%
Drop mode	Free fall	Free fall	Free fall	Free fall

Automatic mechanical Proctor-CBR Compactor

Standards: JTG E40- TO131, TO134, TO135

Model: TDJS-1

Description

The multi-function Smart Proctor-CBR compactor fully meets the CBR and resilient modulus test specimen making requirements. It's kind of very common soil mechanical testing instrument.

Main Features

- Preset, count, stop, repeat function available on control panel
- Heavy & Light compaction test
- Stable rigid body structure
- Easy use and maintenance
- Modern and reliable design to ensure long working life
- Uniform compaction

Technical Specifications

Rammer weight 2.5/4.5kg, drop height 300/450mm

Test mould dia.: Φ100mm, Φ152mm

Hammer head dia.: Φ50mm

Strike frequency: 14 times / min

Power supply: AC 220V/50Hz

Overall Size: 500 x 380 x1650mm (L x W x H)

Net Weight: 180Kg

Standard configuration

- Main machine
- 4.5kg rammer*1set;
- 2.5kg rammer*1set;
- Umbellate form rammer*1set
- Φ100/152 test mould * 1set
- Φ100/152 test cylinder* 1set

Digital-control Automatic Proctor-CBR compactor

Standards: JTG E40- TO131, TO134, TO135

Model: TSJS-1

Main Features

- Preset, count, stop, repeat function available on digital controller
- Heavy & Light compaction test
- Stable rigid body structure
- Easy use and maintenance
- Modern and reliable design to ensure long working life
- Uniform compaction

Technical Specifications

Rammer weight 2.5/4.5kg, drop height 300/450mm

Test mould dia.: Φ100mm, Φ152mm

Hammer head dia.: Φ50mm

Strike frequency: 30 times / min

Overall Size: 650 x 400 x1320mm (L x W x H)

Power supply: AC 220V/50Hz

Net Weight: 130Kg

Standard configuration

- Main machine
- 4.5kg rammer*1set;
- 2.5kg rammer*1set;
- Umbellate form rammer*1set
- Φ100/152 test mould * 1set
- Φ100/152 test cylinder* 1set

Triple gang consolidation apparatus

Standards: GB4935-1996, SL237-1999, JTG-E40-T0135-93

Model: TGJ-3

Description

The triple gang consolidation apparatus is used to determine the soil compression characteristics, then to calculate the soil unit deposition, compression index, rebound index, and consolidation coefficient. It's kind of very common soil mechanical testing instrument.

Main features

- Compact and robust design
- 3 Lever arm ratio
- Standard porous stone same with permeability test
- Corrosion-proof Copper plated cell

Technical parameters

- Application pressure:

Low pressure: 12.5kPa-800kPa/30cm^2, 12.5kPa-400kPa/50cm^2

Middle pressure: 12.5kPa-1600kPa/30cm^2, 12.5kPa-800kPa/50cm^2

High pressure: 12.5-4000kPa/30cm^2, 12.5-2000kPa/50cm^2

Lever ratio:

12:1, 10:1 for middle and low pressure

20:1, 24:1 for high pressure

- Loading lever ratio: 12:1(low/middle pressure, 20:1, 24:1(high pressure)
- Specimen area: 30cm^2, 50cm^2
- Instrument structure: steel structure

Standard configuration

1. Main machine

2. Consolidation cell, cell spare parts

3. Weights set

Full automatic pneumatic consolidation apparatus

Description

This pneumatic consolidation apparatus is used to test the soil compressive strength in full-automatic mode. It's comprised of consolidation main machine, controller, multi-way communication converter and DAQ system. It can perform slow and fast consolidation test, it's an advanced newly developed soil testing instrument.

Technical specifications

Output pressure:

Middle pressure: 0-4.8KN (0-1600KPa);

High pressure 0-9.6KN (0-3200KPa);

Accuracy: 0-100KPa error ≤ ± 1KPa;

100-3200KPa relative error ≤ ± 1.0%;

Sensitivity: Middle Pressure: ≤ 1KPa

High pressure: ≤ 0.5KPa;

Zero point can be adjusted, loading time: < 1 second;

■High pressure container

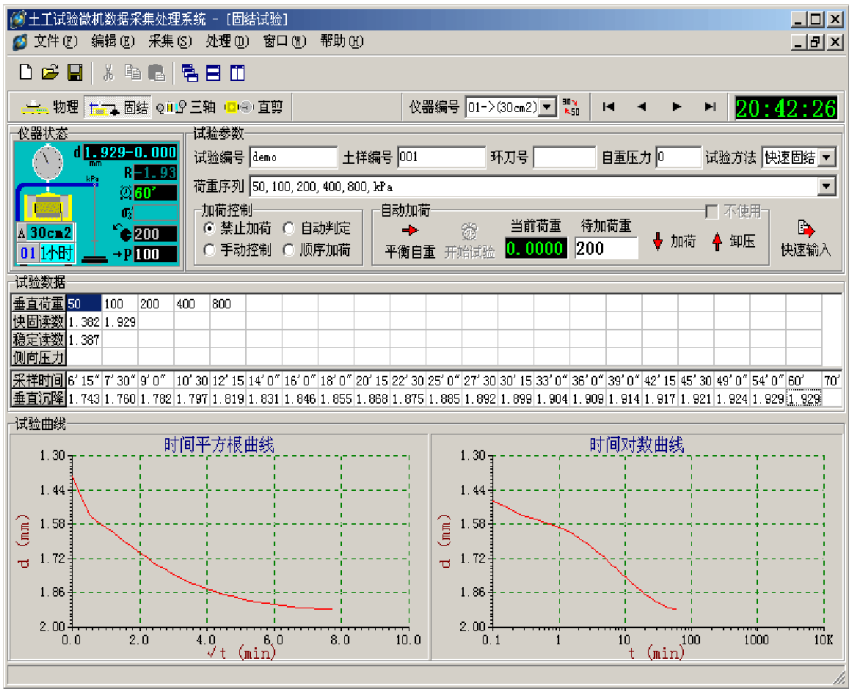
Stainless steel frame structure, small size, light weight; easy sample loading; quick connector for connection , easy accessibility and simple maintenance, easy to use in Field. The unique dual- piston design, small load use small pistons, big piston use large piston, which can both ensure the large and small pressure output pressure sensitivity and precision, it can replace conventional middle-low pressure oedometer. Computer-controlled testing process, simple operation, without human intervention

operations ; control program module can be updated online thus can increase its function, and reduce equipment costs;

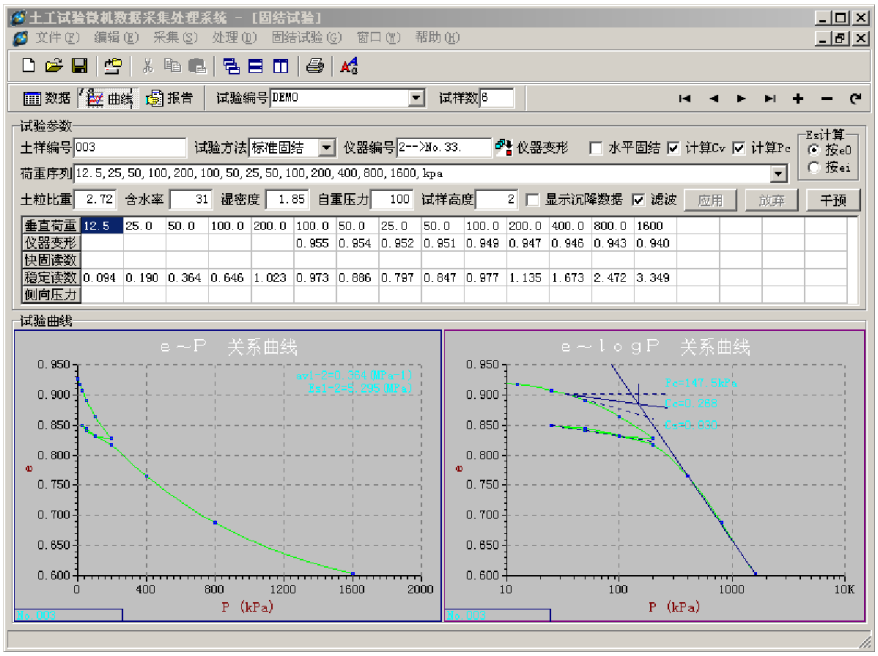
■ Precision Pressure Controller

The Unique patented pressure-keeping controller won't consume extra gas when working, the working time can be extended largely. The pressure-keeping system adopts the imported large flow high degree proportional electric pressure maintaining valve for direct electric-gas transition, superspeed large flow, fast response speed, good linearity, no mechanical movement, high reliability, long tooling life. All the containers will be inflated synchronously, the unique leak-proof design can allow partly gas-leak, which can avoid the fault caused by unstable loading. Automatic zero calibration, balance the container and soil sample; multifunctional keyboard input, easy operation, I can control 2-64 pcs containers synchronously, and it can be used as an independent pressure-maintaining device; the high consolidation apparatus can also do the low pressure test, and with more accurate.

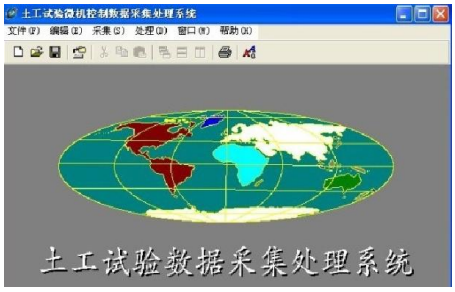
■Consolidation test DAQ interface



■Consolidation process interface



Geotechnical DAQ & Processing system



Description

The system is comprised of computer, DAQ & Process software, DAQ unit, sensors. Every acquisition unit has 8 channels, it's connected with the sensors of displacement, force, pressure etc; then it connect with the computer via RS 232C serial port.

Features

1. Real-time display of testing data and curve, can control the test by operating computer;

2. Can do channel test, sensors parameters calibration;

3. Auto update along with the computer system software;

4. Database management function enable automatic request, transmission, assignment;

5. Strictly comply to relevant international testing standards;

6. Customized setup available, users can revise or create test parameters, report format and standards according to actual request;

1. Portable, small size, less wire, easy installation, high reliability, suitable for field use.

2. Can work independently, any combination, a collection box equals to a data acquisition unit;

3. Connected to computer via RS232 serial port;

4. Data acquisition and processing software based on windows, compatible with existing computer and operating system;

5. The digital dial gauge sensors features intuitive and accurate, and has digital interface, no need for any conversion and calibration, and can be interchangeably.

Directions

1. The tester can be Triaxial testing machine, consolidation machine, direct shear machine, balance etc, but they must have data interface;

2. Every DAQ unit has 8 channels, each channel connect with a sensor, DAQ unit can be connected in tandem;

Unconfined strain controlled compression testing machine

Model: TWCX-1

Description

The unconfined compression tester is used to test the saturated cohesive soil compression strength under no lateral strain, when test, apply a axial pressure on the specimen until it's broken. It's kind of very common soil testing instrument.

Technical specifications

Max. capacity: 0.6KN

Specimen size: 39.1×80mm

Plate rise speed: 2.4mm.min

Platen max. travel: 30mm

Electric lime soil unconfined compression machine

Standards: JTJ051-93

Model: TWCX-2

Description

The unconfined compression machine is used to determine the lime soil (grain size no bigger than 5mm) compression strength characteristics, can be driven both by electric or manual. It's kind of very common soil testing instrument.

Technical parameters

1. Max loading: 5KN

2. Unit pressure <2.5MPa

2. Specimen size: φ50×50mm, φ50×100mm

4. Test rate: 1mm/min

5. Net weight: 16kg

Standard configurations

1. Main machine

2. Proving ring, 1pc

3. Dial gauge, 2pcs

California bearing ratio tester(CBR)tester

Standards: GB/T50123-1999, JTJ051-93

Model: TCBR-1

Description

The CBR tester is suitable to test the California bearing ratio of various kinds of compacted soil and mixture (grain dia. Less than 40mm) specimen thus to evaluate the road base bearing ability. It's comprised of main machine, proving ring, penetration rod, loading plate, dial gauge, swell increment. It features compact structure, powerful, easy in operation.

Specifications

Maximum load: 30KN, 50KN

Loading speed: 1.0mm/min

Penetration rod: Φ50mm x 100mm

Working platform: Φ170mm

Platform travel: 50mm

Test mould: Φ152mm x 170mm

Overall size: 310 x 310 x 930mm (L * W * H)

Weight: 100Kg

Standard configuration

Load frame

Dial gauge

Proving ring

Swelling accessories*9sets

Portable hardness meter

Model: TYD-1

Description

This apparatus is mainly used to test the soil hardness, thus to know the soil tightness degree in different depth. It features easy in operation, direct in result, durable in use.

Main technical specifications

1. Measuring depth: 0-200mm

2. Probe area: 1cm^2

3. Spring loading: 0.25kN, 0.75kN, 0.50kN

4. Recording paper: one loading for 60 times using

5. Overall size: 624 x 185 x 157mm (L * W * H)

6. Instrument weight: 5kg

Variable speed direct shear apparatus

Standards: JTJ051-93, GB/T 50123-1999

Model: TZJ-3

Description

This shear apparatus is used to test the soil shear strength, it has two or three speed steps. The specimens are tested under different vertical pressure and applied shear force, thus to obtain the broken shear force.

Technical specifications

Vertical loading: 400KPa, 300KPa, 200KPa, 100KPa, 50KPa

Horizontal loading: 1.2KN

Lever ratio: 1:12

Specimen area: 30cm^2

Shear speed: Two speed: 0.8mm/min. 2.4mm/min

Three speed: 0.02mm/min. 0.8mm/min. 2.4mm/min

Power: Two speed: <55W; Three speed: <70W

Power supply: 220V±10% 50Hz

Instrument size: 850 x 550 x 1100mm (L x W x H)

Net weight: 40Kg

Intelligent Four-gang Shear test machine

Standards: JTJ051-93, GB/T 50123-1999

Model: TZJ-5

Description

This direct shear testing machine can perform soil shear test for four specimens at one time, the shear speed is stepless adjustable. It's high efficiency soil testing machine.

Main features

1. Stable and rigid structure, high efficiency
2. Stepless adjustable speed
3. Smart controller for test
4. RS232 port available

Technical parameters

1. Soil specimen area: 30cm²(φ 61.8mm)
2. Specimen height: 20mm

3. Vertical pressure: 0-100/200/300/400kPa

3. Lever ratio: 1:12

4. Horizontal shear force: Max. 1.2KN

5. Overall size: 680 x 740 x 1050mm

6. Net weight: 200kg

7. Power supply: AC 220V±10%, 50Hz

Standard configuration

1. Main machine

2. Proving ring, 4pcs

3. Controller,1set

4. Weight sets, 1set

10/30/60KN Manual Triaxial test apparatus(16 steps speed-regulation)

Standards: GB/T24107.1-2009

Model: TSZ-A

Description

The strain-controlled Triaxial test apparatus is mainly used in normal geotechnical lab and college teaching. It is used to perform soil triaxial shear test (φ 39.1mm) under specific confining pressure. It can perform UU, CU, and CD test. It's kind of widely used soil mechanical testing instrument.

Technical Specifications

Specification	TSZ-A1	TSZ-A2	TSZ-A6
Specimen size	Φ39.1 x 80mm	Φ39.1 x 80mm, Φ61.8mm x 125mm	Φ39.1 x 80mm, Φ61.8 x 125mm, Φ101 x 200mm
Axial Loading	Max. 10KN	Max. 30KN	Max. 60KN
Strain-controlled rate	0.016-1.6mm/min, 6 steps regulation	0.0024-4.5mm/min	0.0024-4.5mm/min, 16 steps regulation
Working table travel	Max. 50mm	0-90mm	0-100mm
Confining pressure	0-1MPa	0-2MPa	0-2MPa
Back pressure	0-0.6MPa	0-0.8MPa	0-1MPa
Pore pressure	0-1MPa	0-2MPa	0-2MPa
Volume change	0-25ml/0.1ml	0-50ml/0.1ml	0-100ml/0.1ml
Axial displacement	0-30mm	0-30mm	0-30mm
Power supply	AC 220V±10% 50Hz	AC 220V±10% 50Hz	AC 220V±10% 50Hz
Size	350 x 300 x 1100mm, 500 x 500 x 925mm	500 x 430 x 1200m 500 x 500 x 925mm	650 x 530 x 1200m 500 x 500 x 925mm
Net Weight	170Kg	175kg	240kg

10/30/60KN Automatic Strain-controlled Triaxial apparatus(stepless speed-regulation)

Standards: GB/T24107.1-2009

Model: TSZ-B

Description

This strain-controlled triaxial apparatus axial loading speed is stepless adjustable. It is used to perform It can perform UU, CU, and CD test.

Technical Specifications

Specification	TSZ-B1	TSZ-B2	TSZ-B6
Specimen size	Φ39.1 x 80mm	Φ39.1 x 80mm, Φ61.8mm x 125mm	Φ39.1 x 80mm, Φ61.8 x 125mm, Φ101 x 200mm
Axial Loading	Max. 10KN	Max. 30KN	Max. 60KN
Strain-controlled rate	0.0001-4.8mm/min, stepless regulation	0.0001-4.8mm/min, stepless regulation	0.0001-4.8mm/min, stepless regulation
Working table travel	Max. 50mm	0-90mm	0-100mm
Confining pressure	0-1MPa	0-2MPa	0-2MPa
Back pressure	0-0.6MPa	0-0.8MPa	0-1MPa
Pore pressure	0-1MPa	0-2MPa	0-2MPa
Volume change	0-25ml/0.1ml	0-50ml/0.1ml	0-100ml/0.2ml
Axial displacement	0-30mm	0-30mm	0-30mm
Power supply	AC 220V±10% 50Hz	AC 220V±10% 50Hz	AC 220V±10% 50Hz
Size	350 x 300 x 1100mm, 500 x 500 x 925mm	500 x 430 x 1200m 500 x 500 x 925mm	650 x 530 x 1200m 500 x 500 x 925mm
Net Weight	170Kg	175kg	240kg

Full automatic Triaxial Apparatus(stepless speed-regulation, DAQ system)

GB/T24107.1-2009

Model: TSZ-C

Description

The full automatic series triaxial test apparatus adding a DAQ system based on the TSZ-B series, it's kind of advanced soil mechanical testing instrument for general geotechnical laboratory and teaching use.

Main Features

1. DAQ system available, free communication with computer and integration controller

2. Multifunctional, can do (UU, CU, CD shear test) with standard configurations, if equipped with necessary accessories, can do K0 consolidation test, static pressure coefficient test, multiple stress path triaxial test, stretch test, resilience modulus test, CBR test; if equipped with consolidation modules, it also can do grating loading / continuous loading consolidation test; if equipped with vibration module, it can perform full automatic vibration triaxial test.

3. Fully automatic, high efficiency and labor saving

4. Test process and data management can be reached through computer

Technical Specifications

Specification	**TSZ-C1**	**TSZ-C2**	**TSZ-C6**
Specimen size	Φ39.1 x 80mm	Φ39.1 x 80mm, Φ61.8mm x 125mm	Φ39.1 x 80mm, Φ61.8 x 125mm, Φ101 x 200mm
Axial Loading	Max. 10KN	Max. 30KN	Max. 60KN
Strain-controlled rate	0.0001mm/min-2.4mm/min 0.0001mm/min-4.8mm/min stepless regulation	0.0001mm/min-2.4mm/min 0.0001mm/min-4.8mm/min stepless regulation	0.0001mm/min-2.4mm/min, 0.0001mm/min-4.8mm/min stepless regulation
Working table travel	Max. 50mm	0-90mm	0-100mm
Confining pressure	0-2MPa	0-2MPa	0-2MPa

Back pressure	0-2MPa	0-2MPa	0-2MPa
Pore pressure	0-2MPa	0-2MPa	0-2MPa
Volume change	0-50ml/0.1ml	0-50ml/0.1ml	0-100ml/0.2ml
Axial displacement	0-30mm	0-30mm	0-30mm
Power supply	AC 220V±10% 50Hz	AC 220V±10% 50Hz	AC 220V±10% 50Hz
Size	350 x 300 x 1100mm, 500 x 500 x 925mm	500 x 430 x 1200m 500 x 500 x 925mm	650 x 530 x 1200m 500 x 500 x 925mm
Net Weight	170Kg	175kg	240kg

Dutch dynamic cone penetration apparatus

Technical specification

Spec.	Light	Heavy
Rammer weight	10kg±10g	63.5kg
Drop distance	500mm	500mm
Max penetration depth	600mm	600mm
Penetration taper	60°	60°
Penetration taper max diameter	ϕ40mm	ϕ40mm

Digital liquid plastic apparatus

Standards: JTG E40-2007, ASTM D4318-05

Model: TYSX-1

Description

The digital liquid plastic apparatus is used to test the cohesive soil liquid & plastic limit. It's kind of very common soil testing instrument.

Main features:

1. Digital display, auto timing, buzzing function, automatic cone control
2. Precise displacement sensor
3. Compact structure, nice appearance
4. Light in weight, easy operation

Technical Specifications

Cone weight: 76±0.1g, 100±0.1g

Indication accuracy: 0.01mm

Time-delay: 5±0.5s

Measuring range: 0-25mm

Weight: 3.9Kg

Power supply: 380V 50Hz

Size: 220 x 130 x 300mm (L * W * H)

Manual/Motorized Disc liquid limit apparatus (Casagrande)

Standards: ASTM D4318; AASHTO T89

Model: TYX-1

Description

The liquid limit device is used to determine the moisture content at which clay soils pass from a plastic to a liquid state by Casagrande way. Thus for soil classification, providing soil consistency and plastic index needed for design and construction. It's kind of very common soil testing instrument.

Technical Specification

1. Electric motor as power

2. Falling frequency of the disc: 120hit/min. Infall frequency of the disc:120 strikes/min

3. Strike counter Build-in

New Standard motorized relative density apparatus

Standards: SL237-1999, JTJ051-93

Model: TMD-2

Description

The relative density apparatus is used to determine the relative density of non-cohesive soil, the grain diameter should no bigger than 5mm, and the 2-5mm dia. grain weight should not over 15% of total mass. The equipment is mainly comprised of main machine, controller, transmission device, measuring cylinder, vibration hammer.

Technical parameters

Test mould: 250ml volume, Inner dia. 5cm, Height: 12.7cm(including shielding cylinder)

Hammer weight: 1.25kg,

Drop height: 15cm

Hammer diameter: 5cm

Hit frequency: 32times/min

Timing range: 0-15min

Power supply: 120W, AC 220V, 50Hz

Weight: approx. 40kg

In-situ Non-nuclear density meter

Model: TMD-3

Description

The non-nuclear density apparatus is used to test the density and humidity of the following: Dike and filler, underpass, basement and foundation, backfill, conduit, rubbish. It's kind of very common field geotechnical instrument.

Features

1. Totally replace the nuclear, sand replacement, drying method, no nuclear.

2. Easy operation, even non-professional operator can use it.

3. No special requirement on transport.

4. Friendly user interface, easy in operation.

5. Fast, reliable, portable, stable, accurate, good repeatability

6 Adopt high reliable point to point RF technology.

7. Testing results can be displayed within 2-3 mins.

8. English language menu, easy for operation.

Technical specifications

1. Moisture range: standard compacted soil field range

2. Dry density accuracy: ≤3% of standard test

3. Humidity range: standard compacted soil field range

4.Humidity measuring accuracy: ≤2% of standard test

5.Operation ambient temperature: 0-50℃

6. Operation ambient humidity: 5-90%

7. Power supply: 12V, 4.0Ah plumbic acid rechargeable battery

8. Battery continuous working period: 24hours for one complete charging.

9. Control console Overall size: 343mmx305mmx152mm

10. Net weight: 5kgs of controller, 1.8kg of accessories

Cohesive soil Shrinkage apparatus

Standards: JTJ051-93, T0121-93, SL237-026-1999

Model: TSS-1

Description

The shrinkage apparatus is used to determine the minimum water content, linearity shrinkage rate, volume shrinkage and shrinkage rate of cohesive soil during its water losing process. It's kind of common soil testing instrument.

Specifications

Perforated plate area / void area ratio < 2:1

Micrometer block dia.: Φ10mm x 4mm

Cutting edge dia.: Φ61.8mm x 20mm, (Specimen area: 30cm2 x 2cm)

Size: 110 x 105 x 125mm

Weight:1Kg

Expansion apparatus

Standards: JTJ051--93

Model: TPZ-1

Description

The expansion apparatus is used to measure the cohesive soil swell increment and water content after swelling stopped. It's kind common soil testing instrument.

Technical Specifications

Cutting edge size: Φ61.8mm x 20mm

Horizontal adjustment: base adjusting screw

Guide ring: prevent swelling

Dial gauge: 0mm-10mm (should be ordered separately)

Weight: 2.5Kg

150KN/300kN Electric Demoulding device

Model: DTM-150/300

Application

The electric extruder is used to extrude asphalt mixture, lime stone compacted specimen from the compacted specimen. It features fast extruding, safe & reliable and easy in use.

Specimen module size

Soil specimen: Φ102mm×116mm, Φ152mm×116mm, Asphalt mixture specimen: Φ101.6mm×87mm, Inorganic binder stabilizing material specimen: Φ50mm× 50mm, Φ100mm×100mm, Φ150mm×150mm.

Maximum axial loading: 150KN/300KN

Max travel: 250mm

Lifting speed: 170mm/min.

Power supply: 380V 50Hz

Input power: 1100W

Light duty Soil grinding machine

Model: TFS-1

Application

This machine is used to grind different type of soil to prepare soil sample before studying. It features light-in-weight, compact structure, high efficiency, reliable and stable performance.

Technical data

1. Power supply: 220V±10%, AC, 3Phase,50Hz

2. Capacity: 180W

2. Rotation rate: 1400rpm

3. Inner dia. Of grinding cell: 102mm

4. Aperture size of sieves: 0.5, 1.0, 1.5mm

5. Grinded fineness: 30-200 mesh

6. Overall size: 290*190*300mm (L*W*H)

7. Net Weight: 18kg

Grinding efficiency

Type	Water content	Rated Fineness
Cohesive soil	<4%	>95%
Sandy soil	<6%	Over 96.7% grain diameter <0.5mm

Features

The tool bit gap can be adjusted according to the required fineness.

Stainless steel Vacuum saturation device

Description

This device is used for soil sample saturation work, it comprised of vacuum tank and the vacuum pump. The tank is made of 1Cr18Ni9Ti stainless steel.

Technical specifications

Tank size: 300*300mm

Weight: 38kg