



SOIL TEST EQUIPMENTS



Auger Powerhead	85	Linear Shrinkage Mould	93
Auger Hand Operated	85	Munsell Soil Colour Chart	93
Pocket Dial Penetrometer	86	Front Loading Oedometer Test Set	94
Pocket Vane Shear Apparatus Set	86	Automatic Direct / Residual Shear Test Machine	95
Dynamic Cone Penetrometer	87	Triaxial UU Test System Set	96
Speedy Moisture Tester	87	Automatic Soil Compactor	97
Universal Sample Extruder	88	Standard Proctor Mould and Rammer	97
Soil Lathe Device / Trimmer and Extruder	88	Modified Proctor Mould and Rammer	98
Laboratory Mixer	89	Automatic Cbr Test Machine	99-100
Mechanical End-Over-End Shaker	89	Cbr Mould and Accessories	101-102
Semi Automatic Penetrometer for Liquid Limit	90	In-situ CBR Test Apparatus Set	103
Digital Penetrometer for Liquid Limit	90	Sand Replacement Test Set	103
Manual Liquid Limit Device	91	Sand Density Cone Test Set	104
Motorized Liquid Limit Device	91	Plate Bearing Test Set	104
Shrinkage Limit Test Set	92	Constant Head Permeability Set	105
Plastic Limit Test Set	92	Falling Head Permeability Set	106

AUGER POWERHEAD

Product Code

TMS-4800 | Auger Powerhead
TMS-4805 | Single Flute Bit Ø:80x1000 mm
TMS-4806 | Single Flute Bit Ø:100x1000 mm
TMS-4807 | Single Flute Bit Ø:150x1000 mm
TMS-4808 | Single Flute Bit Ø:200x1000 mm

Standards

ASTM D420, D1452 | AASHTO T86, T202 | CNR a. VI n.25



Description

Used in conjunction with sampling tubes to obtain disturbed or undisturbed soil samples. 47.7 cc displacement, 40:1 reduction ratio, 80-100-150-200 mm bit diameter. The Auger should be ordered separately.

P. Code	Dimensions(mm)	Weight (kg)	Power
TMS-4800	150X150X320 mm	12 kg	1600 W
TMS-4805	150x150x1150 mm	1 kg	1600 W
TMS-4806	200x150x1150 mm	2 kg	
TMS-4807	200x150x1150 mm	3 kg	1600 W
TMS-4808	200x150x1150 mm	4 kg	1600 W

HAND OPERATED AUGER SET

Product Code

TMS-4802 | Hand Operated Auger Set
TMS-4804 | Extension Rod for TMS-4802, 1 meter

Standards

ASTM D420, D1452 | AASHTO T86, T202 | CNR a. VI n.25



Description

Hand Auger and Sampling Set for augering down to a depth of 5 meters. The Hand Operated Auger Boring Set consists of a T-Handle with 1 m Rod, 80 mm, 100 mm and 150 mm diameter Auger Heads. Extension rods should be ordered separately

P. Code	Dimensions(mm)	Weight (kg)
TMC-3620	1100x200x200 mm	6 kg

POCKET PENETROMETER

Product Code

TMS-4810 | Pocket Dial Penetrometer, 0-6 kgf/cm²



Description

The Pocket Dial penetrometers are ideal instruments to determine the penetration resistance of cohesive soil, especially when various range measurements are required. Dual scale: 0-6 kgf/cm for 6.35 mm diameter plunger and 0-11 kgf/cm.

Technical Specifications	
Range (kgf/cm ²)	0-6
Plunger Dia.	6.35 - 10 - 15 - 20 - 25
Dimensions(mm)	100x200x60 mm
Weight	0,5 kg

POCKET SHEAR VANE APPARATUS

Product Code

TMS-4325 | Pocket Vane Shear Apparatus Set

Standards

ASTM D 1558 | ASTM D 2573



Description

The Vane Shear Apparatus Set is used for determining resistance of soft clay, silt that are sensitive and cohesive soils at the place.

The Vane Shear Apparatus Set is supplied complete with:

- Standart Vane (0 -10 N /cm²) that is 25 mm
- Sensitive Vane Adaptor - 0 -2 N /cm²
- High capacity vane adaptor 0 - 25 N/ cm² and plastic mould.

Technical Specifications	
Dimensions(mm)	240x200x70 mm
Weight	0,5 kg

DYNAMIC CONE PENETROMETER

Product Code

TMS-4890 | Dynamic Cone Penetrometer (DCP)

Standards

BS 1377:9



Description

The Dynamic Cone Penetrometer is used for the rapid, in situ measurement of structural properties of existing road pavement constructed with unbound materials. The design of the DCP is similar to that described incorporates an 8 kg weight dropping through a height of 575 mm and 60° cone having a diameter of 20 mm. with the standard DCP measurements can be made down to a depth of approximately 850 mm or when extension shafts are used to a recommended maximum depth of 2 m. Readings are usually taken after a set number of blows, changing the number according to the strength of the layer being penetrated. A typical test takes only a few minutes, therefore the instrument provides a very efficient method of obtaining information that would normally require the digging of test pits. The penetration hammer assembly consists of 8 kg hammer hammer shaft, anvil with plastic plate coupling for ruler and handle.

The Dynamic Cone Penetrometer is supplied complete with;

- A hammer assembly,
- Penetration rod,
- 2 piece 60° cone,
- Metal plate coupling for ruler,
- Segmented adaptor for extension rods,
- Segmented upper extension rod,
- Segmented lower extension rod,
- 2 piece 13-17mm AF spanners,
- 3mm AF hex wrench,
- Tommy bar,
- A bottle of adhesive, 10cc,
- Users Manual
- Steel ruler,
- Carrying Case, heavy-duty wooden

SPEEDY MOISTURE TESTER

Product Code

TMS-4900 | Speedy Moisture Tester

Standards

BS 812-109



Description

Field conditions dust, pulp mixture and the soil, sand, clay, aggregate and other granular materials quickly and accurately detect moisture content. Moisture within the sample, as a result of reaction with calcium carbide acetylene gas occurs. The resulting pressure caused by gas, dial indicator is determined as the percent moisture content. Within a few minutes into the issue determines the moisture content of the sample. Precision Scale, measuring spoons and cups, calibration kit, 1 box of calcium carbide reagent, cleaning brush, wooden enclosure with a complete set as. 20 cup capacity Humidity Range: 0-20%.

The Speedy Moisture Tester is supplied complete with;

- Vessel with Gauge
- Digital Scale
- Scoop
- Cleaning Brush
- Cleaning Cloth
- Two Steel Pulverizing Balls
- Plastic Case

Technical Specifications	
Capacity	20 Cup
Humidity Range	0-20%
Dimensions	510x380x200 mm
Weight (kg)	8 kg

UNIVERSAL SAMPLE EXTRUDER

Product Code

TMS-4350 | Universal Sample Extruder

Standards

EN 13286-2, 13286-47, 12697-30 | AASHTO T134, T180, T193, T245 | ASTM D698, D1557, D1883, D1559 | BS 1377-4, 1924-2, 598-107



Description

The TMS-4350 Sample Extruder is produced to easily extrude specimens from Marshall, CBR, standard and modified Proctor Moulds. The capacity of the extruder is 50 kN. Supplied complete with a manual hydraulic jack and 2 pcs. adaptor to extrude specimens from 100mm (4 "), 150 mm (6") inner diameter marshall, CBR standard and modified proctor, moulds.

TMS-4350 Technical Specifications	
Screw Travel	90 mm
Ram Travel	130 mm
Dimensions	300x300x500 mm
Weight (kg)	30 kg

SOIL LATHE DEVICE / TRIMMER AND EXTRUDER

Product Code

TMS-4860 | Soil Lathe Device / Trimmer and Extruder
TMS-4862 | Open Wire Saw
TMS-4864 | Wire Saw
TMS-4866 | Trimming Knife



Description

The Soil Lathe Device, Trimmer and Extruder is used to extrude and trim soil samples from 35 mm to 100 mm diameter to reduce samples. It should be used together with Wire Saw. Open Wire Saw, Wire Saw, Trimming Knife, Porcelain Mortar with Pestle.

Technical Specifications	
Specimen Lathe	35x70 mm to 100x200 mm
Specimen Trimming and Extrusion	35x70 mm to 50x200 mm
Dimensions	260 mm

P. Code	Dimensions(mm)	Weight (kg)
TMS-4860	230x300x470 mm	16 kg

LABORATORY MIXER

Product Code

TMM-2430	Laboratory Mixer - 220-240 V 50/60 Hz
TMM-2430/110	Laboratory Mixer - 110 V 60 Hz
TMM-2421	Stainles Steel Bowl 5 Liter Capacity
TMM-2422	Whisk for TMM-2430

Standards

ASTM C109, C305 | AASHTO T106, T162 | EN 196-1, 196-3:2005, 413-2, 459-2, 480-1



Desctription

The Laboratory mixer is has been designed to mix mortars and cement pastes primarily to the requirements of standards. The mixing paddle revolves at a rate of 140 and 285 (r.p.m. clockwise) with a planetary motion of 62 and 125(r.p.m. clockwise) in low speed.

The Laboratory Mixer is supplied complete with;

- Stainles Steel Bowl, 5 L (approx.)
- Whisk for TMM-2430

Technical Specifications	
Dimensions	325x375x550 mm
Weight (kg)	18 kg
Power	400 W

END-OVER-END SHAKER

Product Code

TMS-4870	Mechanical End-Over-End Shaker, 220-240 V 50-60 Hz
TMS-4870/110	Mechanical End-Over-End Shaker, 110 V 60 Hz
TMS-4872	Gas Jar for TMS-4870

Standards

BS 1377:2



Description

The device is used for the determination of the particle density by the gas jar method and the particle size distribution by sedimentation. End-Over-End Shaker is used to rotate two 1 liter gas jars with rubber cover at 50 rpm. The 1 liter capacity gas jar is made of plexiglass and supplied complete with rubber cover. Gas Jar should be ordered separately.

P. Code	Dimensions(mm)	Weight (kg)	Power
TMS-4870	920x740x650 mm	24 kg	180 W
TMS-4872	120x120x270 mm	0,5 kg	

SEMI-AUTO PENETROMETER FOR LIQUID LIMIT

Product Code

TMS-4240	Semi Automatic Penetrometer for Liquid Limit
TMS-4240/110	Semi Automatic Penetrometer for Liquid Limit
TMS-4242	30° Penetration Cone
TMG-0568	Sample Cups, Aluminium, Ø55 mm x h:35 mm

Standards

CEN ISO | TS 17892-12 | BS 1377:2 | NF P94-052-1



TMS-4242



TMG-0568

Description

The Semi-Automatic Liquid Limit Penetrometer test is based on the relationship between the moisture content at which clay soils pass from a plastic to a liquid state. The Soil Penetrometer is consists of steel base, leveling screws, digital penetration measurement gauge 0,01 mm precision, release button, automatic zeroing and spirit level.TMS-4240 is supplied complete with automatic timer unit. Penetration timer unit is used to release the plunger fitted with the needle to start the 5 seconds test.

Semi-Automatic Liquid Limit Penetrometer supplied complete with;

- Automatic Penetration Timer Unit,
- 30° Penetration Cone
- Sample Cups, 3 pcs. Aluminium, Ø55 mm x h:35 mm.

P. Code	Dimensions(mm)	Weight (kg)
TMS-4240	220x300x410 mm	15 kg

DIGITAL PENETROMETER FOR LIQUID LIMIT

Product Code

TMS-4230	Digital Penetrometer for Liquid Limit
TMS-4242	30° Penetration Cone
TMG-0568	Sample Cups, Aluminium, Ø55 mm x h:35 mm

Standards

CEN ISO | TS 17892-12 | BS 1377:2 | NF P94-052-1



Description

The Soil Penetrometer test is based on the relationship between the moisture content at which clay soils pass from a plastic to a liquid state. The Soil Penetrometer is consists of steel base, leveling screws, digital penetration measurement gauge 0,01 mm precision, release button, automatic zeroing and spirit level.

Digital Liquid Limit Penetrometer supplied complete with;

- 30° Penetration Cone
- Sample Cups, 3 pcs. Aluminium, Ø55 mm x h:35 mm.

P. Code	Dimensions(mm)	Weight (kg)
TMS-4230	220x170x410 mm	8

MANUAL LIQUID LIMIT DEVICE

Product Code

- TMS-4250 | Manual Liquid Limit Device
- TMS-4251 | Brass Cup
- TMS-4252 | Brass Grooving Tool AASHTO
- TMS-4253 | Metal Grooving Tool ASTM
- TMS-4254 | Plastic Grooving Tool ASTM
- TMS-4255 | Plastic Grooving Tool BS

Standards

ASTM D4313 | AASHTO T89 | BS 1377:2



Description

Manual Liquid Limit Device is used to determine the moisture content at which clay soils pass from plastic to liquid state. The Liquid Limit Device consists of an adjustable crank and cam mechanism, a blow counter and a removable brass cup fitted on the base. The device is supplied complete with a brass grooving tool.

P. Code	Dimensions(mm)	Weight (kg)
TMS-4250	200x220x150 mm	2 kg

MOTORIZED LIQUID LIMIT DEVICE

Product Code

- TMS-4260 | Motorized Liquid Limit Device
- TMS-4251 | Brass Cup for TMS-4250 and TMS-4260
- TMS-4252 | Brass Grooving Tool AASHTO
- TMS-4253 | Metal Grooving Tool ASTM
- TMS-4254 | Plastic Grooving Tool ASTM
- TMS-4255 | Plastic Grooving Tool BS

Standards

ASTM D4313 | AASHTO T89 | BS 1377:2



Description

Motorized Liquid Limit Device is used to determine the moisture content at which clay soils pass from plastic to liquid state. The Liquid Limit Device consists of an adjustable crank and cam mechanism, a micro motor, a blow counter and a removable brass cup fitted on the base. The device is supplied complete with a brass grooving tool.

P. Code	Dimensions(mm)	Weight (kg)
TMS-4250	200x220x150 mm	2 kg

SHRINKAGE LIMIT TEST SET

Product Code

- TMS-4380 | Shrinkage Limit Test Set
- TMS-4381 | Shrinkage Prong Plate
- TMG-0104 | Porcelain Dish 120mm dia.
- TMG-0569 | Aluminum Moisture Content Tin - Ø:45 mm h:10 mm
- TMG-0568 | Aluminum Moisture Content Tin - Ø:55 mm h:35 mm
- TMG-0424 | Spatula 120 mm
- TMG-0003 | Graduated Glass Cylinder 25 ml

Standards

ASTM D427 | ASTM T92



Description

Shrinkage Limit Test Set is used to determine the maximum moisture content at which the soil does not shrink after drying the sample.

The TMS-4380 Shrinkage Limit Test Set is supplied complete with:

- Porcelain Dish 120mm dia.
- Prong Plate
- Aluminum Moisture Content Tin - Ø:45 mm h:10 mm, 2 pcs.
- Aluminum Moisture Content Tin - Ø:55 mm h:35 mm
- Spatula 120 mm
- Graduated Glass Cylinder 25 ml
- Carrying Case

P. Code	Dimensions(mm)	Weight (kg)
TMS-4380	350x300x100 mm	2 kg

PLASTIC LIMIT TEST SET

Product Code

- TMS-4370 | Plastic Limit Test Set
- TMG-0992 | Glass Plate - 300x300x5 mm
- TMG-0104 | Porcelain Dish 120mm dia.
- TMG-0570 | Aluminum Moisture Content Tin - Ø:75 mm h:30 mm
- TMS-4372 | Steel Reference Rod Ø 3x100 mm
- TMG-0424 | Spatula 120 mm

Standards

ASTM D4318 | AASHTO T90 | BS 1377:2



Description

Plastic Limit Test Set is determined as the lowest moisture content of a soil that will permit a sample to be rolled into threads of 3 mm diameter without the threads breaking.

The TMS-4370 Plastic Limit Test Set is supplied complete with:

- Glass Plate - 300x300x5 mm
- Porcelain Mixing Dish - Dia. 120 mm
- Moisture Content Tins - Ø:75 mm h:30, 6 pcs.
- Steel Reference Rod
- Spatula 120mm
- Carrying Case

P. Code	Dimensions(mm)	Weight (kg)
TMS-4370	360x360x150 mm	6 kg

LINEAR SHRINKAGE MOULD

Product Code

TMS-4460 | Linear Shrinkage Mould

Standards

BS 1377:2



Description

The Linear Shrinkage Mould is used to produce a specimen of 140 mm long x 12,5 mm radius. Shrinkage test covers the determination of linear shrinkage of soils and indicates the plastic properties of soils with a low clay content.

P. Code	Dimensions(mm)	Weight (kg)
TMS-4460	140x140x14 mm	0,4 kg

HYDROMETER METHOD TEST KIT

Product Code

TMS-4300 | Hydrometer Method Test Kit
TMS-4301 | Heated Glass Water Tank - 600x300x380 mm
TMS-4302 | Mechanical Mixer 10.000 rpm - 220 V 50/60 Hz 1000W
TMS-4303 | Soil Hydrometer / 151H / 0.995 to 1038 g / ml 0.001 Precision
TMG-0008 | Graduated Glass Cylinders 1000 ml
TMG-0612 | Glass Thermometer 110 ° C
TMG-0015 | Beaker 250 ml



MUNSELL SOIL COLOR CHART

Product Code

TMS-4425 | Munsell Soil Colour Chart



Description

The Munsell Soil Chart provides a simple method for soil classification by determining the color of soil specimens. Test set consists of 7 constant hue charts covering a total of 196 colors. The color chart and the diagram are fitted in a pocket size binder. Supplied complete with a Tropical Soil Color Chart.

P. Code	Dimensions(mm)	Weight (kg)
TMS-4425	155x200x35 mm	0,5 kg

HYDROMETER METHOD TEST KIT

Standards

ASTM D422 | AASHTO T88 | UNE 103,102

Description

Hydrometer test kit is used to determine the quantitative such as silt and clay distribution of very fine particles in the ground. A heater and circulation motor allows a homogeneous of water temperature in water tank. Professional type mechanical mixer device is provided with set.

TMS-4300 Hydrometer Test Set consists of the following equipment;

- Heated Glass Water Tank - 600x300x380 mm
- Mechanical mixer 10000 rpm
- Soil hydrometer / 151H / .995 to 1038 g / ml 0.001 Precision
- Graduated Glass Cylinders 1000 ml - 6 pcs
- Glass Thermometer 110 ° C
- Beaker 250 ml

P. Code	Dimensions(mm)	Weight (kg)
TMS-4300	400x900x350 mm	15 kg

FRONT LOADING OEDOMETER TEST SET

Product Code

TMS-4110 | Front Loading Oedometer Test Set
TMS-4111 | Bench for Consolidation, 3 Oedometer Capacity
TMS-4112 | Front Loading Oedometer (Consolidation)
TMS-4113 | Consolidation Cell for High Pressure, Ø 50 mm
TMS-4114 | Consolidation Cell for High Pressure, ASTM Ø 63.5 mm (2.5")
TMS-4115 | Consolidation Cell for High Pressure, BS/EN, Ø 75 mm
TMS-4116 | Calibration Disc for Ø 50 mm Consolidation Cell
TMS-4117 | Calibration Disc for Ø 63,5 mm Consolidation Cell
TMS-4118 | Calibration disc for Ø 75 mm Consolidation Cell
TMS-4119 | Set of Weight for Consolidation - 80 kg (6x10 kg + 2x5 kg + 3x2 kg + 2x1 kg + 3x500 g + 2x250 g)
TMS-4120 | Analog Dial Gauge, 30x0.01 mm

Standards

BS 1377 | ASTM D2435, D3877, D4546 | AASHTO T216

Description

Rigidly manufactured from aluminium alloy casting to provide a high degree of accuracy with any frame distortion under load. The load bridge group is supported in high accuracy self-aligning seat balls. The beam provides three loading ratio: 9:1 10:1 11:1 and the beam assembly is fitted with an adjustable counterbalance weight. Maximum load: 150 kg of slotted weights. The oedometer accepts cells up to 100 cm2.

The TMS-4110 Front Loading Oedometer Test Set is supplied complete with;

- Bench for Consolidation, 3 Oedometer Capacity 1 pcs
- Front Loading Oedometer (Consolidation)
- Consolidation Cell for High Pressure, BS/EN, Ø 75 mm - 3 pcs
- Calibration disc for Ø 75 mm consolidation cell - 3 pcs
- Set of Weight for Consolidation - 80 kg (6x10 kg + 2x5 kg + 3x2 kg + 2x1 kg + 3x500 g + 2x250 g) - 3 set
- Analog Dial Gauge, 30x0.01 mm - 3 pcs

P. Code	Dimensions(mm)	Weight (kg)
TMS-4110	750x800x1500 mm	180 kg



DIRECT RESIDUAL SHEAR TEST MACHINE

Product Code

- TMS-4180 | Automatic Direct / Residual Shear Test Machine, 220 V 50-60 Hz
- TMS-4182-1 | Shear Box Assembly,60x60 mm
- TMS-4182-2 | Specimen Cutter,60x60 mm
- TMS-4182-3 | Extrusion Dolly, 60x60 mm
- TMS-4183-1 | Shear Box Assembly, Ø 60 mm
- TMS-4183-2 | Specimen Cutter, Ø 60 mm
- TMS-4183-3 | Extrusion Dolly Ø 60 mm
- TMS-4184-1 | Shear Box Assembly,100x100 mm
- TMS-4184-2 | Specimen Cutter,100x100 mm
- TMS-4184-3 | Extrusion Dolly 100x100 mm
- TMS-4185-1 | Shear Box Assembly,Ø 100 mm
- TMS-4185-2 | Specimen Cutter,Ø 100 mm
- TMS-4185-3 | Extrusion Dolly Ø 100 mm
- TMS-4186-1 | Shear Box Assembly,Ø 2.5 inch
- TMS-4186-2 | Specimen Cutter,Ø 2.5 inch
- TMS-4186-3 | Extrusion Dolly Ø 2.5 inch
- TMS-4181-6 | Slotted Weight Set,50 kg (4x10 kg + 1x5 kg + 2x2 kg + 1x1 kg)

Technical Specification	
Capacity	5 kN
Speed Range	0.00003 to 15 mm per min
Horizontal Travel	125 mm
Vertical Travel	12,5 mm
Dimensions	230x560x770 mm
Weight (approx)	90 kg
Power	750 W



Standards

TS 1900-2 | ASTM D3080 | BS 1377-7 | AASHTO T236 | NF P094 071-1/2

Description

The System is capable of performing the consolidation and shearing phases of a standard direct shear and residual shear test under full automatic control. The system consists of a computer-controlled unit that utilizes micro-stepper motors to apply the vertical and horizontal loads to the soil specimen. The system is capable of doing a consolidation process at 32 phase automatically. Horizontal shearing can be applied at a specified rate of deformation or at a specified rate of horizontal force change, or at a specified set of force steps of a specified duration. The system is capable of displaying the current status of a test and graphically portraying the progress of the test in real time. The system includes the capability for the operator to alter the test process and conditions at any stage of the test. Shear Box Assembly, Slotted Weight Set and other optional accessories including specimens cutter and extrusion be ordered separately.



TRIAXIAL TEST SYSTEM

Product Code

- TMS-4700 | Triaxial UU Test System Set
- TMS-4630 | Multi Speed Universal Electromechanic Test Machine
- TMS-4624 | Triaxial Cell for 38 and 50 mm Samples
- TMS-4625 | Triaxial Cell for 70 and 100 mm Samples
- TMS-4710 | Oil and Water Constant Pressure System
- TMS-4716 | De-Airring Water Tank with Hose
- TMS-4765 | Block for Pressure Measurement
- TMG-0916 | Pressure Transducer - 2000 kPa

Standards

ASTM D2850, D4767, D7181 | AASHTO T-297 | BS 1377-7, BS 1377-8

Description

The Triaxial UU Test System determining the mechanical properties of soils is a very important step to design foundations, embankments and other soil structures. The Triaxial UU Test System provides automated triaxial compression tests on cylindrical undisturbed and remolded soil samples. The stress-strain relation of undisturbed soil specimen can be investigated by subjecting the soil sample to different stress levels and drainage conditions with Triaxial Test System. De-Airring Water Tank, Block for Pressure Measurement, Pressure Transducer, Oil and Water Constant Pressure System should be ordered separately.

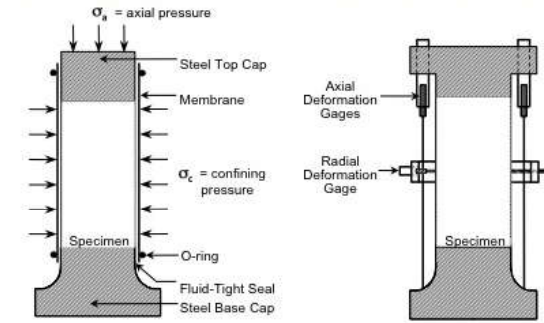
The TMS-4700 Triaxial UU Test System is supplied complete with:

- TMS-4630 | Multi Speed Universal Electromechanic Test Machine
- TMS-4624 | Triaxial Cell for 38 and 50 mm Samples
- TMS-4625 | Triaxial Cell for 70 and 100 mm Samples
- TMS-4701 | Software for Triaxial UU Test System

Technical Specification	
Maximum Load Capacity	50 kN
Infinitesimal Testing Speed	0,00001 - 6 mm/min
Speed Accuracy	± 0,5%
Vertical Daylight	0 - 790 mm
Distance Between Columns	360 mm
Base Diameter	158 mm
Software for Triaxial	Software for Triaxial UU Test System
Dimensions	430x380x1180 mm
Weight (approx)	105 kg



Specimen Preparation & Loading Typical Specimen Instrumentation



AUTOMATIC SOIL COMPACTOR

Product Code

- TMS-4165 | Automatic Soil Compactor - 220-240 V 50-60 Hz
- TMS-4165/110 | Automatic Soil Compactor - 110 V 60 Hz
- TMS-4166 | Compaction Rammer Face Ø 50.8 mm ASTM Standard
- TMS-4167 | Compaction Rammer Face Ø 50 mm EN/BS Standard

Standards

ASTM D558, D559, D560, D698, D1557, D1883 | EN 13286 2, 13286-47 | BS 1377:4 AASHTO T99, T134, T135, T136, T180, T193; NLT 107/98, 108/91, 111/87



Description

The Automatic Soil Compactor is designed to perform fast and accurate compaction of soil samples automatically to by international standards. The machine is designed to allow the hammer to drop the required height into the soil in the mould which rotates circularly to distribute the blows uniformly over the surface of the specimen in the mould. The drop height is adjustable to for EN Standard 300 mm and 450 mm, for ASTM Standard 305 mm and 457 mm. The compaction rammer is circular faced and interchangeable to for EN Standard 50 mm or for ASTM Standard 50.8 mm diameter. Compaction rammer weight is adjustable to 2.5 kg or 4.5 kg according to reference standard. The number of blows per layer can be set at the beginning of the compaction process by the digital counter according to the standard by user.

P. Code	Dimensions(mm)	Weight (kg)	Power
TMS-4165	430x250x1500 mm	140 kg	370 W

STANDARD PROCTOR MOULD AND RAMMER

Product Code

- TMS-4445 | Standard Proctor Mould ASTM
- TMS-4446 | A Type Standard Proctor Mould EN
- TMS-4447 | Standard Proctor Mould BS

- TMS-4450 | Standard Proctor Rammer ASTM
- TMS-4449 | A Type Standard Proctor Rammer EN
- TMS-4448 | 2,5 kg Standard Proctor Rammer BS

Standards

ASTM D 698 , D 1557, D 558 | AASHTO T 99, T180, T 134 | EN 12386-2, 13286-4 | BS 1377:4,1924:2



Description

Standard Proctor Moulds are used for determining the moisture content and density of compacted soil. These are made of plated steel for corossion , includes collar, mould body and base plate. Standard Proctor Rammers are used to compact the soil sample in the Proctor. Different models are available conforming to the international standards.

P. Code	Internal Dia.(mm)	Body (mm)	Volume (cm³)	Weight (kg)
TMS-4445	101.6 ± 0.4 mm	116.4 ± 0.5 mm	944.0 ± 14	6,8 kg
TMS-4446	101.6 ± 0.4 mm	120 ± 1 mm	942	5 kg
TMS-4447	101.6 ± 0.4 mm	115,5± 0,5 mm	1	5,2 kg

P. Code	Internal Dia.(mm)	Body (mm)	Volume (g)	Weight (kg)
TMS-4450	50.8 mm	304.8± 1 mm	2495 ± 23 g	4.5 kg
TMS-4449	50 ± 0.5 mm	305± 3 mm	2500 ± 20 g	4.5 kg
TMS-4448	50 ± 0.5 mm	300± 3	2500 ± 25 g	4.5 kg

MODIFIED PROCTOR MOULD AND RAMMER

Product Code

- TMS-4435 | Modified Proctor Mould ASTM
- TMS-4436 | B Type Modified Proctor Mould EN
- TMS-4437 | Modified Proctor Mould BS

- TMS-4440 | Modified Proctor Rammer ASTM
- TMS-4439 | B Type Modified Rammer Mould EN
- TMS-4438 | 4,5 kg Modified Proctor Rammer BS

Standards

ASTM D 698 , D 1557, D 558 | AASHTO T 99, T180, T 134 | EN 12386-2, 13286-4 | BS 1377:4,1924:2



Description

Modified Moulds are used for determining the moisture content and density of compacted soil. These are made of plated steel for corossion , includes collar, mould body and base plate. Modified Proctor Rammers are used to compact the soil sample in the Proctor. Different models are available conforming to the international standards.

P. Code	Description	Internal Dia.(mm)	Body (mm)	Volume (cm³)	Weight (kg)
TMS-4435	Modified Proctor Mould ASTM	152.4 ± 0.7 mm	116.4 ± 0.5 mm	2124 ± 25	10 kg
TMS-4436	B Type Modified Proctor Mould EN	150 ± 1 mm	120 ± 1 mm	2120	9,8 kg
TMS-4437	Modified Proctor Mould BS	152 ± 0.5 mm	127 ± 1 mm	2303	7,5 kg

P. Code	Description	Internal Dia.(mm)	Body (mm)	Volume (cm³)	Weight (kg)
TMS-4440	Modified Proctor Compaction Rammer ASTM	50.8 mm	457 ± 1.3 mm	4540 ± 10	8 kg
TMS-4439	B Type Modified Proctor Compaction Rammer EN	50 ± 0.5 mm	457 ± 3 mm	4500 ± 40	8 kg
TMS-4438	4.5 kg Compaction Rammer BS	50 ± 0.5 mm	450 ± 4 mm	4500 ± 50	8 kg

AUTOMATIC CBR TEST MACHINE

Product Code	
TMS-4601	Automatic Cbr Test Machine 50 kN - 220-240 V 50-60 Hz
TMS-4601/110	Automatic Cbr Test Machine 50 kN - 110 V 60 Hz
TMS-4164	Linear Potentiometric Displacement Transducer, 25x0.001 mm
TMS-4470	CBR Mould 6"

Standards	
ASTM D1883 BS 1377:4	

Technical Specification	
Capacity	50 kN
Platen Speed	0.625 to 5 mm/min
Dimensions	400x560x1100 mm
Weight (approx)	95 kg
Power	370 W

Description

The Automatic Cbr Test Machine is used to determine the maximum load and flow values of bituminous mixtures. Capacity is 50 kN. The machine comprises compact two column frame with adjustable upper cross beam. Platen speed is 0.625 to 5 mm/min. For safety, the up and down travel of the lower platen is limited the use of limit switches. Rapid adjustment of the platen is controlled using the up and down buttons on the front panel of the machine. The measuring system consists of a 50 kN capacity strain gauge load cell fitted to the upper cross beam to read stability values and the 25 x 0.001 mm linear potentiometric displacement transducer fitted to the breaking head. The Cbr machine is supplied complete with Cbr compaction mould.

Data acquisition and processing: by TCM readout unit featuring;

- Large graphic touch screen display 240 X 128 pixel,
- Effective resolution 16 bit ,
- Effective sampling rate 40 Hz ,
- Communication port

The Automatic Cbr Test Machine is supplied complete with;

- TMS-4601 | Automatic Cbr Load Frame
- TMS-4602 | Penetration Piston
- TMG-0906 | Load Cell, 50 kN
- TMG-0926 | Linear Potentiometric Displacement Transducer with Bracket, 25 x 0.001 mm
- TMS-4603 | Data acquisition and processing: by TCM LCD Display Unit Featuring
- TMS-4604 | PC Software
- TMS-4605 | Connection Cable



AUTOMATIC CBR TEST MACHINE

TCM304 LCD Graphic Display Data Acquisition and Control Unit

TCM304 LCD Graphic Display Data Acquisition and Control Unit is produced to control the machine and processing of data from load-cells, pressure transducers or displacement transducers which are fitted to the machine. TCM304 LCD Graphic Display are controlled from the front panel consisting of a 240x120 pixel LCD display and function keys. One analog channel for load cell and one analog channel for displacement transducer exists. TCM304 LCD Graphic Display are controlled with function keys on the front panel. One analog channel for load cell and one analog channel for displacement transducer exists.

MAIN FEATURES

- Automatically calculates flow and stability values
- 240*120 pixel blue-white graphic LCD display.
- High resolution 65.000 points.
- Backlight function.
- Capability of contrast calibration by light.
- 21 key touch membrane keyboard.
- Two analogical and two digital channels, use for load cell or pressure transducer etc.
- Standalone full automatic testing capacity.
- Can make manual tests if requested.
- A sample type and dimension can be entered respect to the standards,
- Load-Time, Tensile-Time, Test Results and Sample reports observable and printable.
- One RS232 serial port for connecting either PC or printer for data transmission.
- Comes with Connection cable and software.
- Large permanent memory up to 256 test results.
- Language select, English – Turkish.



Data Acquisition & PC Software

CBR Test Software is developed for both EN 13286-47, BS 1377:4, ASTM D1883, AASHTO T193, NF P94-078 and UNI CNR 10009 standards CBR Tests. The Cbr Software includes control of machine, acquisition of load and displacement data, saving them and reports. The Software accepts specimen diameter and height as an input parameter. It automatically calculates correction factor coming from the standarts respect to specimen size. The stability value is calculated regarding to this factor. The software continuously updates load and displacement until the end of test. When the test is completed, the sharpest slope of the graph is calculated. The point that this line crosses displacement axis is commented as an offset. This offset is subtracted from the displacement value at peak point and called as flow. Graphical outputs and reports can be saved as a MS Excel worksheet



CBR MOULD & ACCESSORIES - ASTM

Standards

ASTM D1883 | AASHTO T193

Description

Cbr Mould and Accessories is used for the laboratory evaluation of sub-grade and subbase coarse materials in road construction.



P. Code	Description	Dimensions (mm)	Weight (kg)
TMS-4640	CBR Mould ASTM / AASHTO, plated steel mould body with 6" (152.4 mm) dia. x 7" (177.8 mm) height, supplied complete with extension collar and perforated base plate	200x200x450 mm	8,5 kg
TMS-4641	CBR Solid Base Plate ASTM - Plated Steel	200x200x100 mm	2 kg
TMS-4642	Perforated Base Plate - Plated Steel	200x200x100 mm	2 kg
TMS-4643	Spacer Disc with T handle ASTM, 150.8 mm dia. x 61.4 mm height"	200x200x300 mm	7 kg
TMS-4644	Annular Surcharge Weight ASTM, 2.27 kg	200x200x100 mm	2.3 kg
TMS-4645	Slotted Surcharge Weight ASTM, 2.27 kg	200x200x100 mm	2.3 kg
TMS-4646	Straightedge 300x30x5 mm	300x30x5 mm	1 kg
TMS-4647	Filter Paper for CBR Test No:5 x 150 mm dia. ASTM (Pack of 100)	200x200x20 mm	0,2 kg
TMS-4648	Filter screen, 144 mm dia. 150 µm mesh ASTM	150x150x20 mm	1 kg

CBR MOULD & ACCESSORIES - BS

Standards

BS 1377:4, 1924:2 | EN 13286-4

P. Code	Description	Dimensions (mm)	Weight (kg)
TMS-4650	CBR Type Mould BS (modified proctor) / Vibrating Hammer Mould BS, EN, TS-1900-1 internal dia.: 152 mm, internal height: 127 mm, supplied complete with extension collar and solid base plate	200x200x450 mm	8,5 kg
TMS-4651	Compaction plug with T handle BS, 150 mm dia. x 50 mm height	200x200x300 mm	7,5 kg
TMS-4652	Annular Surcharge Weight BS/EN, 2 kg	200x200x100 mm	2,3 kg
TMS-4653	Split Surcharge Weight BS/EN, 2 kg	200x200x100 mm	2,3 kg
TMS-4654	CBR Perforated Base Plate BS	200x200x100 mm	2 kg
TMS-4655	Filter Paper for CBR Test No:1 x 150 mm dia. BS (Pack of 100)	200x200x20 mm	0,2 kg
TMS-4656	C- Spanner for TMS-4650, 2 pcs	200x300x100 mm	1 kg
TMS-4657	Assembly tool for Base Plate for TMS-4650	350x30x15 mm	1 kg
TMS-4646	Straightedge 300x30x5 mm	300x30x5 mm	1 kg

CBR MOULD & ACCESSORIES - EN

Standards

EN 13286-4

Description

Cbr Mould and Accessories is used for the laboratory evaluation of sub-grade and subbase coarse materials in road construction.



P. Code	Description	Dimensions (mm)	Weight (kg)
TMS-4660	B type Proctor Compaction Mould EN (modified), internal dia.: 150±1 mm, internal height: 120±1 mm, supplied complete with extension collar and solid base plate	200x200x180 mm	9 kg
TMS-4652	Annular Surcharge Weight BS/EN, 2 kg	200x200x100 mm	2,3 kg
TMS-4653	Split Surcharge Weight BS/EN, 2 kg	200x200x100 mm	2,3 kg
TMS-4661	CBR Perforated Base Plate EN	200x200x100 mm	2 kg
TMS-4662	Filter papers for CBR test, coarse, 148 mm dia.	200x200x20 mm	0.2 kg
TMS-4646	Straightedge 300x30x5 mm	300x30x5 mm	1 kg

SWEEL TEST EQUIPMENTS

Standards

EN 13286-47 | ASTM D1183 | AASHTO T193 | BS 1377:4, 1924:2

Description

Swell test equipment is used to monitor the swelling by placing it on top of the soil sample.



P. Code	Description	Dimensions (mm)	Weight (kg)
TMS-4671	Adjustable Stem and Perforated Plate for CBR Swelling Test	180x180x160 mm	2,5 kg
TMS-4672	Tripod for CBR Swelling Test	200x200x300 mm	1 kg
TMS-4673	Analog Gauge 30 mm travel x 0.01 mm division	150x100x80 mm	0,5 kg
TMS-4674	CBR Soaking Tank (6 pcs. CBR Mould Capacity)	600x600x400 mm	6 kg

IN-SITU CBR TEST APPARATUS SET

Product Code

TMS-4170 | In-situ CBR Test Apparatus Set
TMS-4171 | In-situ Test Frame
TMS-4172 | Load Ring 50 kN capacity
TMS-4173 | Penetration piston
TMS-4174 | Dial Gauge 30 mm travel x 0.01 mm with Holder
TMS-4175 | Set of extension rods (2 pcs. 102 mm, 1 pcs. 305 mm and 1 pcs. 610 mm length)
TMS-4176 | Datum bar assembly with two stands

Standards

ASTM D883 | D3668 | BS 1377:4, 1924 | AASHTO T193 | CNR UNI 10009 | NF P94-078



Description

In-situ CBR Test Apparatus is used to determine quickly and efficiently the bearing capacity of soils on road constructions, foundations, road subgrades. Load is applied through a mechanical jack and handwheel. Upper beam can be adjusted in height.

The In-situ CBR Test Apparatus Set is supplied complete with:

- Field Cbr Test Frame
- Load Ring 50 kN capacity
- Penetration piston
- Dial Gauge 30 mm travel x 0.01 mm with Holder
- Set of extension rods (2 pcs. 102 mm, 1 pcs. 305 mm and 1 pcs. 610 mm length)
- Datum bar assembly with two stands
- Sloted Surcharge Weight 2.27 kg, 2 pcs
- Anular Surcharge Weight 4.54 kg
- Anular Surcharge Weight 9.08 kg
- Vehicle bracket and wooden carrying case

IN-SITU CBR TEST APPARATUS SET

Product Code

TMS-4130 | Sand Replacement Test Set 100 mm
TMS-4131 | Sand Pouring Cylinder for TMS-4130
TMS-4132 | Calibration Container for TMS-4130
TMS-4133 | Metal Tray for TMS-4130

TMS-4134 | Sand Replacement Test Set 150 mm
TMS-4135 | Sand Pouring Cylinder for TMS-4134
TMS-4136 | Calibration Container for TMS-4134
TMS-4137 | Metal Tray for TMS-4134

TMS-4138 | Sand Replacement Test Set 200 mm
TMS-4139 | Sand Pouring Cylinder for TMS-4138
TMS-4140 | Calibration Container for TMS-4138
TMS-4142 | Metal Tray for TMS-4138

Standards

BS 1377:9, 1924:2



Description

Sand Replacement Test Set is 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 than filled with dry sand from the cone container.

P. Code	Dimensions(mm)	Weight (kg)
TMC-3430	300x300x450 mm	8 kg
TMC-3434	300x300x500 mm	15 kg
TMC-3438	500x500x660 mm	26 kg

IN-SITU CBR TEST APPARATUS SET

Product Code

TMS-4145 | Sand Density Cone Test Set 6,5"
TMS-4146 | Double Cone
TMS-4147 | Metaş Tray for TMS-4145
TMS-4148 | Plastic Sand Jar 5 liter

Standards

ASTM D1556 | AASHTO T181, T191



Description

Sand Density Cone Test Set is used to determine the in-situ density of fine grained compacted soil. Includes double cone, plastic sand jar and metal tray with flanged hole.

P. Code	Dimensions(mm)	Weight (kg)
TMC-4145	300x300x550 mm	3,5 kg

PLATE LOADING TEST SET

Product Code

TMS-4220 | Plate Bearing Test Set 200 kN Capacity
TMS-4222 | Plate Bearing Test Set 500 kN Capacity

Standards

ASTM D 1194 | ASTM D 1195 | ASTM D 1196 | BS 1377



Description

Plate Bearing Test Set is performed for the determination of the bearing capacity of a soil in-situ on road constructions, foundations, road subgrades, airport and highway pavements. A wide range of plate bearing test equipment are available, together with many accessories according to the different Standards and specific enduser needs. All test sets supplied complete with 1,5 m long flexiable hose with quick release coupling.

The TMS-4220 Plate Bearing Test Set 200 kN is supplied complete with:

- 200 kN Capacity Piston Assembly
- Hydraulic Hand Pump,
- Pressure Transducer,
- Datum Bar - 2.4 m long , 3 pcs.
- 25 mm travel x 0.01 mm digital dial gauges with dial supports,
- 300 mm and 450 mm dia. loading plates,

The TMS-4222 Plate Bearing Test Set 500 kN is supplied complete with:

- 500 kN Capacity Piston Assembly
- Hydraulic Hand Pump,
- Pressure Transducer,
- Datum Bar - 2.4 m long , 3 pcs.
- 25 mm travel x 0.01 mm digital dial gauges with dial supports,
- 600 mm and 760 mm dia. loading plates

P. Code	Dimensions(mm)	Weight (kg)
TMC-4220	650x350x600 mm	130 kg
TMC-4222	850x850x130 mm	150 kg

CONSTANT HEAD PERMEABILITY SET

Product Code

- TMS-4390 | Constant Head Permeability Set for Ø 75 mm cell
- TMS-4391 | Constant Head Permeability Set for Ø 114 mm cell
- TMS-4392 | Constant Head Permeability Cell, 75 mm dia.
- TMS-4393 | Constant Head Permeability Cell, 114 mm dia.
- TMS-4394 | Wooden Stand with 3 Manometer Tubes
- TMS-4395 | Constant Level Water Tank, 7 Liter

Standards

BS 1377 | ASTM 46-47

Desctription

Constant Head Permeability Sets are used to determine the permeability of granular, gravel and sand soils. The specimen is formed in an acrylic permeability cell, and water is passed through it from a constant level tank. The permeability cell has pressure points at different levels which are connected to the manometer tubes fixed on a stand with graduated scale. Two constant head permeability cells are available: 75 mm and 114 mm diameter. Constant Level Water Tank Should be ordered separately.

- The TMS-4390 Constant Head Permeability Set is supplied complete with;
- TMS-4392 | Constant Head Permeability Cell, 75 mm dia.
 - TMS-4394 | Wooden Stand 1500 mm with 3 Manometer Tubes 1000 mm long
 - TMS-4396 | 3 m Hose

- The TMS-4391 Constant Head Permeability Set is supplied complete with;
- TMS-4393 | Constant Head Permeability Cell, 114 mm dia.
 - TMS-4394 | Wooden Stand 1500 mm with 3 Manometer Tubes 1000 mm long
 - TMS-4396 | 3 m Hose

P. Code	Dimensions(mm)	Weight (kg)
TMC-4390	220x70x1500 mm	9,5 kg

P. Code	Dimensions(mm)	Weight (kg)
TMC-4391	220x70x1500 mm	13 kg



FALLING HEAD PERMEABILITY SET

Product Code

- TMS-4401 | Falling Head Permeability Cell 100 mm dia.
- TMS-4402 | Wooden Stand with 4 Manometer Tubes
- TMS-4403 | Soaking Reservoir Tank
- TMS-4404 | 3 m Hose
- TMS-4405 | De-Airing tank with in -let and a flow outlet Connection
- TMS-4406 | Single Stage Vacuum Pump

Standards

BS 1377 | ASTM 46-47

Desctription

The Falling Head Permeability Set is used to study the behaviour of soil, particularly fine grained soils such as clay-like or silty soils, with respect to water flow. The Falling Head Permeability Cell is produced from plated steel with an inside diameter of 100 mm. The Wooden Stand is fitted with 4 glass Manometer Tubes of each 1500 mm long with inside diameters of about 21 mm, 12 mm, 5 mm and 3.5 mm. All tubes have connection valves. The Soaking Reservoir Tank is produced from plated steel with an over-flow tube and is used for containing the permeability cell during the test. De-Airing tank with in -let and a flow outlet Connection and Single Stage Vacuum Pump Should be ordered separately.

The TMS-4400 Constant Head Permeability Set is supplied complete with;

- TMS-4401 | Falling Head Permeability Cell 100 mm dia.
- TMS-4402 | Wooden Stand with 4 Manometer Tubes
- TMS-4403 | Soaking Reservoir Tank
- TMS-4404 | 3 m Hose

P. Code	Dimensions(mm)	Weight (kg)
TMC-4390	240x100x1500 mm	14 kg

