

Triaxial Test Apparatus

Make: LabTek

Model: SUN-SL-003

Origin: India

Standards: ASTM D2850, D4767, D7181; AASHTO T-297; BS 1377-7, BS 1377-8

Determining the mechanical properties of soils is a very important step to design foundations, embankments and other soil structures. Building constructions, excavations, tunnelling and similar applications have several effects on the subsoil structures and these effects are successfully simulated with Triaxial Tests where the stress-strain relation of undisturbed soil specimen are investigated by subjecting the soil sample to different stress levels and drainage conditions.

The Triaxial Test System provides automated triaxial compression tests on cylindrical undisturbed and remolded soil samples. Unconsolidated undrained (UU), consolidated drained (CD) and consolidated undrained (CU) compression tests can be automatically run, controlled and reported using this apparatus.

This test is performed in two stages as below.

Stage 1: The vertical stress which is applied, forms the major principal stress. The perpendicular confining pressure forms the minor principal stress.

Stage 2: The axial deviator stress is applied to the sample, which brings shear stresses. This deviator stress is applied along axial direction till the failure happens in soil. Limiting shear stress value in which the soil fails along a plane is called as shear strength of soil.

Triaxial Test System for UU Test supplied complete with:

- Multi Speed Electromechanic Load Frame
- Load Cell, 5 kN
- Triaxial Cell for 38 and 50 mm Samples
- Triaxial Cell for 70 and 100 mm Samples
- Block for Pressure Measurement and De-Airing
- Pressure Transducer - 2000 kPa
- Oil and Water Constant Pressure System
- De-Airing Water Tank, 7 L. and Hose
- TCM Readout Unit Featuring Software to Perform UU Triaxial Tests
- TCM Readout Unit Featuring Software to Perform UU Triaxial Tests (S4708)
- TCM Readout Unit Featuring Software to Perform CU - CD Triaxial Tests (S4709)

Multi Speed Electromechanic Test Machine
 Maximum Load Capacity: 5 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
 Dimensions: 570x620x1180 mm
 Weight (approx): 105 kg



Sample Dia.	38 mm	50 mm	70 mm	100 mm	UU TEST	CU, CD TEST
Base Adaptor	SUN-SL-003A/38-01	SUN-SL-003A/50-01	SUN-SL-003A/70-01	SUN-SL-003A/100-01	YES	YES
Porous Top Cap	SUN-SL-003/38-02	SUN-SL-003A/50-02	SUN-SL-003A/70-02	SUN-SL-003A/100-02	YES	YES
Nylon Tubing for Drainage	SUN-SL-003/38-03	SUN-SL-003A/50-03	SUN-SL-003A/70-03	SUN-SL-003A/100-03	---	YES
Pair of Porous Discs	SUN-SL-003/38-04	SUN-SL-003A/50-04	SUN-SL-003A/70-04	SUN-SL-003A/100-04	---	YES
Rubber Membrane	SUN-SL-003/38-05	SUN-SL-003A/50-05	SUN-SL-003A/70-05	SUN-SL-003A/100-05	YES	YES
Membrane Placing Tool (Stracher)	SUN-SL-003/38-06	SUN-SL-003A/50-06	SUN-SL-003A/70-06	SUN-SL-003A/100-06	YES	YES
O Ring(10 pcs.)	SUN-SL-003/38-07	SUN-SL-003A/50-07	SUN-SL-003A/70-07	SUN-SL-003A/100-07	YES	YES
O Ring Placing Tool	SUN-SL-003/38-08	SUN-SL-003A/50-08	SUN-SL-003A/70-08	SUN-SL-003A/100-08	YES	YES
Lateral Filter Paper(50 pcs.)	SUN-SL-003/38-09	SUN-SL-003A/50-09	SUN-SL-003A/70-09	SUN-SL-003A/100-09	---	YES
Filter Paper Discs(100 pcs.)	SUN-SL-003/38-10	SUN-SL-003A/50-10	SUN-SL-003A/70-10	SUN-SL-003A/100-10	---	YES
Plastic Discs (.2pcs)	SUN-SL-003/38-11	SUN-SL-003A/50-11	SUN-SL-003A/70-11	SUN-SL-003A/100-11	YES	---

Triaxial Software is a modular software that when a new test wanted to do, it directs the user step by step. First the software wants to input initial measurements such as diameter, heigth, sample weighth etc. On this stage the user decides CU or CD test will be done and enters cell pressure increment steps, back pressure differential pressure and effective stress that will be used on consolidation.

The CU-CD triaxial test is a complicated test needs load data, displacement data 3 pressure data from triaxial cell and volume change data. Load data and displacement data are transfered and recorded through TCM304 Unit to the software. 3 pressure data from triaxial cell and volume change data transfered and recorded through the unilogger to the software.

On the shear stage deviator stress, pore pressure, σ' versus σ'^3 and s' versus t' graphs are drawn. 4 different test specimen can be configured in same file. All the results are used for drawing mohr circles. The data is evaluated with respect to specimen shear end condition.