

## Soil Shear Strength Triaxial Testing Equipment

Ye Chance

Design & manufacture materials  
Testing Equipment.

- All-round programmed automation control instrument
- Automatic nullification and stop system
- Thorough experimental report capability
- Experimental data available stored in disks for permanent storage.
- Suitable for academic research and engineering quality



This system is composed of computers, programs, electrical control valves, and pneumatic automation soil triaxial experimental machine of traditionally triaxial cell. The most remarkable distinction from the conventional instruments is that it is equipped with computer programs and automatic propelling system, an all-around automatic instrument available for the accordance with experiment requirements or the particular experiment process regulated by the operator including the electrical valves and the automatic adjustment for axial difference compressors, together with add-or-release pressure. In order to simplify the operation process, the operator can establish various experiment processes within the program library and the establishment for this mentioned database is adopted with the inquiry manners. The operator can use the introductory texts displayed on the screen to reply the experiment parameters inquired by the program one by one. The complete experiment parameters will be registered within the database. Whatever the experiment manner is established, it can be coded or nominated for reference. Before the experiment, it is simply required for the input of experiment manner codes and the program will automatically read the experiment parameters registered within the database till the termination of experiment. Thus, this system is accessible to fulfill all the demands of existent or particular experiment requirements. Meanwhile, it also automatically executes the triaxial experiments against each process, such as saturation, compress or axial difference pressures. It is quite important for the statistic and diagrams of figures and therefore, within the charting program, it is adopted with self-identification linear or curve graphic program functions.

### System Requirements:

Operation: Computer Automatic Operation.

Display: Computer Screen

Detect Component (Thorough Electronic):

Linear Variable Differential Transformer: 0-50 mm.

Confined pressure Manometer: 0-200 PSI(14.06 kg/sq.cm).

Measuring pressure for Pore Water Pressure and Back Pressure: 0-200 PSI(14.06 kg/sq.cm).

Axial load capacity: 0 - 2000 kg.

### The Resolution for Each Component:

Linear Variable Differential Transformer:0.003 mm.

Confined pressure Manometer:0.012 PSI.

Measuring Gauge for Pore Water Pressure and Anti-Water Pressure: 0.012 PSI.

Axial strain Manometer: 0.12 kgf.

### Electronic Signal Processor for Each Amplifier:

Each measuring component is equipped with an independent amplifier. The output signal is 5VDC during the full load, while the output signal is 0VDC during null load.

Calibration Accuracy: +/- 1%

Computer: 2.0GHz Celeron CPU, 256 MB RAM, 17" CRT Color Screen, 1.44 MB 3.5" Floppy Disk, Hard Disk of 40 GB, 52X CD-ROM, Color Ink-Injection Printer.

Control Circuit: Including Computer Interface and Control Circuits and Components necessarily required by Peripheral Electromechanical Systems.

Valve & Pipeline: Pressure Endurable up to 8 kg/sq.cm above.

Safety Circuit: The system is equipped with safety circuits to accept the computer inspection accessibly, for the purpose of

maintaining the system safety.

Computer-Controlled Automatic Triaxial Load Frame (This device is equipped with computer automatic operation for triaxial experiment.)

Maximum Load: 5,000 kgf.

Pressure Increase Velocity: 1.0 -110 mm/min

Power Supply: 220 VAC., Single or Triple Phase.

Software: The program is read with the dialog box convenient for operation and also equipped with inspection functions within system. It will thoroughly execute blow automatic experiment operations: 'UUU' ; 'SUU' ; 'SCU' ; 'UUD' ; 'SUD' ; 'SCD'.

After finishing the experiments, it can automatically store the information available for list printing, data analysis and graphic depicting. The graphics depicted include Mole Circular Analysis, Stress Path, Axial Stress Shift, Pore Water Pressure, Axial Stress Shift and Axis-Difference Stress. It is also capable of the solution for unexpected situations, such as: The high-pressured water will be drained after power failure. The program will automatically execute the initiation, execution, and the completeness for experiments, together with the nullification for instruments.

Graphic Program: Minimum Square Root Approximation Linear and Curve Simulated Program.

Report Output: Computer Screen and Printer.

Instrument Enclosure: Stand Type. It can accommodate the overall circuits of triaxial experiment instrument, along with its control components, internal pipelines and computer system.

**Optional Equipment:**

Triaxial Cell: Pressure Endurable, 10 kg/sq.cm above, applicable to computer control.

Air Compressor: 220 VAC, 60 Hz., available for compressed air of 7 kg/sq.cm



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