

Automatic Soil Consolidation Testing Equipment

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Design & manufacture materials
Testing Equipment.



- *The computer will control the pneumatic pressure weight system without the necessity for pressure-adding counterpoises to automatically change the experimented object weights.*
- *According to the value reading from experiment requirements, the computer will execute the automatic operation without any further management and also accessible for auto-stop and instrument nullification.*
- *It is featured with the complete reporting capability permanently available for storage and it is suitable for academic research and engineering quality.*

If you used to experience with the tests for soil consolidation, then you must be inconveniently impressed by the chores of regular reading for registering and the counterpoises adding during stage alternation. Such laborious testing equipment has been taken for granted for its adoption in soil consolidation experiments.

With the advancement of computer technology and industry rudimental components, this equipment is mainly framed with computers and programs. Meanwhile, it can also automatically control newly designed indirect pneumatic pressure soil consolidation testing machine with pistons as the power source to replace the counterpoises. The computer-controlling pneumatic pressure system will be the locomotion to thrust pistons. This innovated alternation also downsizes the machine structures considerably. The computer-controlling pneumatic system program, according to the experiment requirements for soil consolidation tests, will control the pneumatic pressure system to output the proper pressure exerting on the tested objects. On the tested objects, they will naturally receive the identical pressure. Their feedback signals, after the programmed calculation, will amend the output commands to make the tested objects comply with the requirements of consolidation experiments.

As for the detecting components, the sagging value caused by consolidation against the tested objects, it can be adopted with the Linear Variable Differential Transformer to detect. The weight of tested objects will be detected with electronic weight components with the contact pressure of 0.05 kg / sq.cm. The weights of each consolidation stage will be respectively 0.125, 0.25, 0.5, 1.0, 2.0, 4.0, 8.0, 16.0, 32.0 kg / sq.cm, totally 9 stages. The pressure addition of each weight on initial point and terminal point will be determined by operator's key-in before experimenting.

If the operator is not familiar with the consolidation tests, it will cause the input of irrational figures and the parameters will, referring to the input figures, amend them and display the information in the computer screen after the amendment. After the permission of operator, the program will, according to this information, automatically operate the consolidation instruments. Also, the program is available operating the stage alternation and pressure addition. The sagging value caused by the weight against the objects will be read and stored into the memory temporarily. After finishing the experiment, it will be stored into disk. The reading duration for each consolidation stage is respectively 4, 10, 20, 40, 90, 180, 360, 900, 1800, 3600, 7200, 14400, 28800, 43200, 86400 seconds, also complying with the requirements of consolidation tests. At least, it is available that the whole process is automatically executed by computer, except the preparation of tested objects, tested object placement onto instruments, and the basic information input. The operator can estimate the completeness durations for experiments to reach for the tested objects on due time.

System Specification:

Measuring Capability and Component Specification:

Control Interface Circuit: It can automatically control pneumatic pressure consolidation testing machines.

Calibration Accuracy: Within + / - 1%

Analogy-Digit Converter: 14 Bit.

Sag Measuring Gauge: 0-10 mm LVDT, 0.0006 mm; auxiliary for a 0-5 VDC output signal amplifier

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