



Automatic Shear Testing Machine

Standards: [ASTM D3080](#), [BS 1377-7](#), [AASHTO T 236](#),
[CEN-ISO/TS 17892-10](#), [NF P94-071](#)



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Description

The shear test covers the determination of the consolidated drained shear strength of a soil material in direct shear. The NG-Shear DGEN machine is controlled by a microprocessor system that reads and processes horizontal force and displacement readings, manages the motor and the safety controls through a closed-loop system assuring the following important features:

- Automatic test running
- Test speed closed-loop control
- Large monochromatic graphic display, 240x128 pixels to view data recording in real time
- Different calibration functions (linear and polynomial)
- Language selection
- Travel and cycles programmable by 10 button membrane keyboard with 4 interactive specific icons
- Continuous monitoring and display of horizontal force, vertical and horizontal displacement



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- Maximum horizontal displacement (20 mm) controlled by mechanical and optical safety switch
- Different recording modes: linear, exponential (square root), logarithmic, etc.
- High-capacity data memory (up to 1000 lines of data)
- RAM with battery back-up with clock/calendar, operating also when the unit is switched off.

The microprocessor control system, therefore, allows the machine to work as an automatic stand-alone unit: the test measurements (force and displacements) are directly displayed and stored in memory according to pre-set recording modes. The PC is only temporarily required to download the test data via the RS 232 port once the test is completed. The data can be processed by the Direct and residual shear Geo-Analysis templates. See accessories.

The design of the horizontal loading system provides straight-rigid alignment of the loading ram, shear box, and loading measurement system, to increase the stiffness of transmission of the horizontal force along the shearing plane. Excellent quality and high-resistance technopolymeric material has been adopted for the carriage of the shear box. It offers excellent resistance to corrosion, wear and tear and it is resistant to all chemicals found in a soil specimen. The carriage is lightweight and easy to clean.

The machine is supplied without a load cell, transducer for horizontal and vertical displacement, shear box assembly, and weights. All these items have to be ordered separately. See accessories. The machine can also be fit with a mechanical (analogical) measurement system. Other versions of shear testing machines available: Digital shear testing machine, Automatic shear testing machine, large shear testing machine for 300x300 mm square samples, and bromhead ring shear apparatus.

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Main Features

- Microprocessor-controlled drive system
- Large 240x120 pixel display
- Test speed, travel and cycles (up to 9) programmable by the keyboard
- Rapid approach and automatic positioning
- Infinitely variable speed from 0.0001 to 11.00000 mm/min
- Possibility to set different speeds and travel (forward and reverse) in the residual shear test
- Three analog channels: one for load cell, and two for displacement transducers, 130000 points resolution
- Different protocol of data downloading to PC through RS 232 serial port
- Standard load ring and dial gauges also usable for manual recording

Specifications

NG-Shear DGEN	
Speed Range	Adjustable from 0.00001 to 11.00000 mm/min
Maximum Shear Force	5000 N
Maximum Vertical Load	500 N or 5000 N using a 10:1 lever ratio device
Horizontal Travel	Pre-set via firmware up to 20 mm
Cycles	Up to 9 (forward and reverse)
Specimen Sizes	60 and 100 mm square, 50; 60; 63.5, and 100 mm diameter
Overall Dimensions	95 x 39 x 118 cm
Approximate Weight	120 kg