

MODEL NO.: DDS-5F FULLY AUTOMATIC PNEUMATIC DIRECT/RESIDUAL SHEAR APPARATUS
 DDS-5FM FULLY AUTOMATIC MECHANICAL DIRECT/RESIDUAL SHEAR APPARATUS

GENERAL DESCRIPTION

This new microprocessor based advanced model, is a stand-alone machine, driven by a high-resolution stepper motor with epicyclic reduction gear with a reduced backlash. Incorporates a pneumatic closed loop system for the automatic application of the axial pressure by a high performance pressure regulator, with the main advantage of eliminating the manual loading of the dead weights.

Excellent quality and high resistance technopolymetric material has been adopted for the carriage of the shear box. It offers excellent resistance to corrosion, wear and tear. The carriage is lightweight and easy to clean.

and is resistant to all chemicals existed in a soil specimen.



ELECTRONIC

The electronic parts of the system is based on our “Automax” unit, this is a microprocessor system that reads and processes the force, axial pressure and displacement readings, manages the motor, the pressure valve, the safety systems and the test steps through closed loop systems. It features a front panel in scratchproof poly carbon with a ten keyboard and a large monochromatic graphic display.

ELECTRONIC TRANSDUCERS SUPPLIED WITH THE SYSTEM

The system is supplied complete with:

- ◆ +/-5KN capacity load cell, bi-directional type (compression and tension), nominal sensitivity 3mv/v, accuracy +/-0.15%F.S.
- ◆ 5KN capacity load cell, bi-directional type (compression and tension), nominal sensitivity 3mv/v, accuracy +/-0.15%F.S.
- ◆ 12.7mm displacement transducer, accuracy 0.003mm, resolution 0.001mm.
- ◆ 25.4mm displacement transducer, same specification as above.

MAIN FEATURE

- ⊙ Automatic application of preset consolidation steps (No Limit).
- ⊙ Automatic management of the test with the possibility to failure (the operator only needs to remove the clamping screws of the shear box).
- ⊙ Sets of heavy and bulky dead weights are not required.
- ⊙ A balance lever arm maintained horizontal is not required.
- ⊙ The vertical force is positively applied to the shear box without any friction.
- ⊙ Easy and immediate set up of the test parameters via the controlling software.
- ⊙ Possibility to set different speeds and travel *(forward and reverse) in the residual shear tests.
- ⊙ Each single step of axial force can be applied:
 - instantaneously (DDS-5F),
 - by means of a linear ramp in a preset time interval.
- ⊙ Different and independent data recording mode for consolidation and failure.
- ⊙ Different protocols of data downloading via RS232 serial port.

SPECIFICATION

- ◆ Display: monochromatic large digital display (240*128 pixel).
- ◆ Motor: high accuracy stepper motor with 1/10.000 resolution.
- ◆ Test velocity: infinitely variable from 0.00001 to 9.99999mm/min (within +/-1%).
- ◆ Maximum horizontal force: 5KN.
- ◆ Maximum vertical force:5kN.
- ◆ Maximum shear cycles:9 (forward and reverse).
- ◆ Maximum travel:20mm.
- ◆ Height of the specimen:20mm.
- ◆ Maximum air pressure supply:10 bar(Only for DDS-5F).
- ◆ Maximum working air pressure: 9 bar.
- ◆ Overall dimensions: 820×500×770mm.

SHEAR BOX ACCESSORIES

All shear box assemblies are constructed of brass and are designed to contain water that surrounds the specimen. They consist of a square box with a rigid walled round or square hole complete with adapter loading pad, retaining plate, 2 porous stones.



1. Loading yoke
2. Tamper
3. Shear box
4. Cutter
5. Outer container
6. Loading cap
7. Porous stone

Code	5-LH3050	05-LH3060	05-LH3061	05-LH3063
Nominal size	50 mm dia.	60 mm sq.	2.416 in. dia.	100mm sq.
Range of specimen size	50-63.5mm dia. or 50-60mm sq.			
Loading pad	05-LH3050/B1	05-LH3060/B1	05-LH3061/B1	05-LH3063/B1
Porous plate**	05-LH3050/B2	05-LH3060/B2	05-LH3061/B2	05-LH3063/B2
Sample cutter*	05-LH3050/B3	05-LH3060/B3	05-LH3061/B3	05-LH3063/B3
Extrusion dolly*	05-LH3050/B4	05-LH3060/B4	05-LH3061/B4	05-LH3063/B4
Filter paper**	05-LH3050/B5	05-LH3060/B5	05-LH3061/B5	05-LH3063/B5
Retaining plate**	05-LH3050/B6	05-LH3060/B6	05-LH3061/B6	05-LH3063/B6
Soilmiller*	05-LH3050/B7	05-LH3060/B7	05-LH3061/B7	05-LH3063/B7

Note. * Not supplied with the shear box. They must be ordered separately.

** Two pieces are supplied with each shear box.

DATA ACQUISITION SYSTEMS

The main interface is composed by 240*128 LCD. The test parameters can be shown and read on the LCD .

Cycle: means times of cyclic shear.

Shear diaplac.(mm):shearing movement.

Rate (mm/min) : shear rate.

Horiz. diaplac.(mm):Horizontal displacement.

SOFTWARE

Acquisition Module.

Standard Consolidation Module.

Standard Shear Module.

Quick Shear Module.

Repeated Shear Module(Optional).

Post processing function(Optional).

