

ELITE SERIES DIRECT SHEAR

Automated Direct Shear Apparatus



HM-5760.3F



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Automated Direct Shear Apparatus

ASTM: D3080; AASHTO: T236, BS:1377:7

The Humboldt HM-5760 Direct/residual shear apparatus, utilizes pneumatic loading to apply vertical loads to a soil sample—eliminating the need for loading weights used in dead weight-type systems.

The HM-5760 is a microprocessor-based machine featuring a stepper-motor drive system and a 7" touch-screen display that allows the operator to control and monitor all test functions. Like all Humboldt Elite series machines, the HM-5760 is built with durable, high-quality components and features the use of a stepper motor, precision gears and gear box to ensure smooth and reliable operation, as well as precise results.

The HM-5760 is built around Humboldt's integral, 4-channel data logger with touch-screen control, which allows the HM-5760 to be used as a standalone device capable of full test control and data logging. It can also be controlled by a networked computer at any location with access to the network.

In stand-alone mode, the HM-5760 direct shear machine provides a 7" (178mm) touch-screen controller, giving you finger-tip control of your testing processes, as well as providing real-time, visual views of your data in both tabular and graphic formats. The waterproof, touch screen provides colorful, at-a-glance monitoring of testing functions without the use of a computer. Operators can see all the data in several formats at the machine while the test is running. Data can then

be viewed simultaneously or downloaded later to a computer in the lab, in the next room or at a different location, while also providing report generation capabilities from within Humboldt's NEXT software or our enhanced HM-5700SW Direct Shear Reporting Software.

When operated from a networked computer the NEXT software provides robust machine and test control, and report generation. It also provides the ability to control and monitor multiple machines from a single computer.

The HM-5760 is supplied complete with (2) 2,000 lbf (10kN) capacity load cells; 1" (25.4mm) horizontal strain transducer, and a 0.4" (10.2mm) vertical strain transducer. Humboldt's HM-5700SW NEXT Direct Shear software module is also included.

Shear box assemblies and related accessories are not included and should be ordered separately.

Humboldt's exclusive, counter-balance device for ASTM D3080 compliance is included with the HM-5760.

Automated Direct Shear **HM-5760.3F**

Shipping wt. 168 lb (76kg)

HM-5760.3F Specifications:

Horiz. movement	1" (25mm) Maximum
Horiz. shear force	2000 lbf (10kN)
Vertical load	2000 lbf (10kN)
Data Channels	4
Speed Range	0.00001 to 0.49999 in./min. 0.00001 to 12.9999 mm/min.
Dimensions (L x D x H)	30" x 15.5" x 22" (760 x 394 x 558mm)
Voltage	110/220V 50/60Hz - 6.5amps

Pneumatic Direct Shear System Requirements

AC Supply	110/220 VAC 50/60 Hz 5 Amp
Air Supply	Clean and dry (air filter, water trap), minimum: 100psi (700kps) continuous air supply 4.2CFM (0.12m ³ /min)*

* Larger compressor may be required if used with additional equipment or larger-sized labs.

NOTES

Counter-balance device for ASTM D3080 compliance. Not available anywhere else. Also available as a retrofit kit. HM-2560A.1



Controller Specifications:	
Display (Resistive Touch)	7" (178mm) VGA (480 x 800)
Real-time test data	Graphic and tabulation
Processor	Dual 32-bit ARM
RAM	64MB
Memory, non-volatile	4GB
Analog to digital converter	24 bit
Data acquisition	4 Channels
Logging Rate	effective rate of 320 readings per second
Multi-test storage	1000
Points per test	3000
USB port (front)	export data, import/export calibration data
USB port (back)	provides external power for wireless access point
Ethernet connection	for network connectivity
24-bit differential analog to digital converter	4
Ambient temperature sensor	1
Firmware Update	Flash drive



Typical Test Setup for HM-5760

Description	Part #
Fully-Automatic Pneumatic Direct Shear (includes (2) 2,000 lbf (10kN) capacity load cells; 1" (25.4mm) horizontal strain transducer, and a 0.4" (10.2mm) vertical strain transducer)	HM-5760.3F
NEXT Direct Shear software module (included with HM-5760)	HM-5700SW
Shear box assembly (specify size)	HM-2751.XX(S/D)
Shear box cutter (specify size)	HM-2702.XX(S/D)
Dolly/tamper (specify size)	HM-2703.XX(S/D)
* XX Requires a sample size designation, see page 125 for choices	
Additional Items Required	
PC computer	not supplied
Direct Shear/Consolidation Installation Kit	HM-4168
Desiccant Dryer, Silica Gel	HM-4222
Filter/Regulator	HM-4223

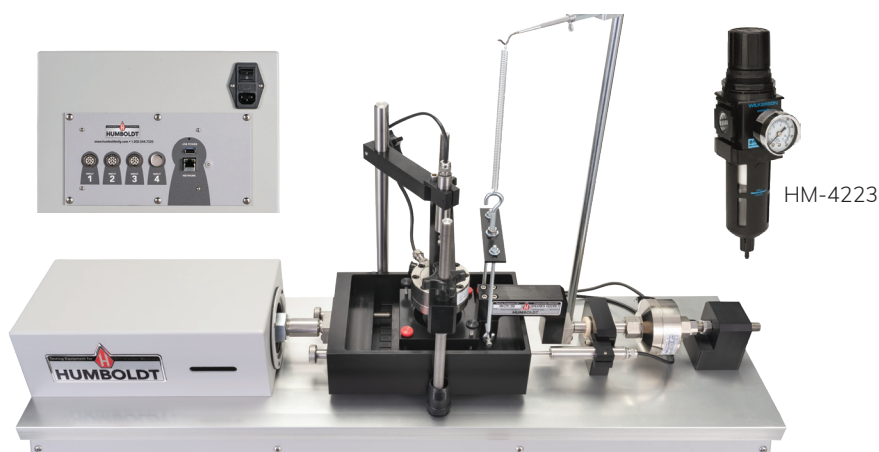
Computer Control

NEXT software and the enhanced Direct Shear module, HM-5700SW, is included with the HM-5760 pneumatic direct-shear machine. This software provides robust machine control, data acquisition and report generation for those using a computer to control direct shear testing operations.

In addition, operators have the ability to view and control testing operations from a PC in the lab, in the next room or at a different location, while also providing report generating capabilities using the direct shear test-specific software module.

So, whether you are controlling a single direct-shear machine, controlling multiple machines or even a complete geotechnical lab, Humboldt's NEXT software, in conjunction with Humboldt's HM-5760 Direct-shear machine, provides a complete solution for acquisition, recording and presentation of direct-shear testing data in tabular and graphic chart formats.

- Machine control, and data acquisition via a networked computer
- Provides the ability to use Humboldt's Next Software's, advanced test-specific modules
- Real-time graphical chart and numerical display of tests via computer display
- Effective sampling rate of 320 readings per second
- Stores 1000 tests with up to 3000 points per test



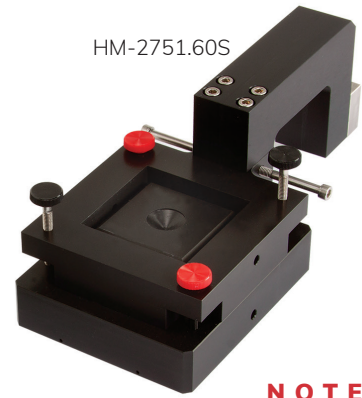
- Up to 255 individual tests can be run simultaneously from a single PC
- Provides advanced graphing capabilities
- Provides full-unit customization

- Reports can also be exported to Excel or a CSV file, if desired, and, we can provide custom integration/export solutions for LIMS, EQuIS, gINT, etc.

Shear Box Assemblies for HM-5760, HM-5755, HM-5750		
Size	Square	Round
2.0"	HM-2751.20S	HM-2751.20D
2.42"	HM-2751.24S	HM-2751.24D
2.5"	HM-2751.25S	HM-2751.25D
4.0"	HM-2751.40S	HM-2751.40D
50mm	HM-2751.50S	HM-2751.50D
60mm	HM-2751.60S	HM-2751.60D
100mm	HM-2751.100S	HM-2751.100D



HM-2751.25D



HM-2751.60S

NOTES

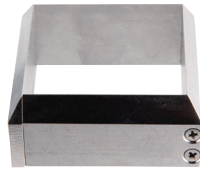
Shearbox assemblies include: sample box, (2) porous plates, (1) loading pad, and (1) grid plate. All shearboxes feature mounting screws for use with the HM-2750 ASTM D3080-compliant counter-balance device.



HM-2703.25S



HM-2703.25D



HM-2702.S



HM-2702.25D



HM-2755.25S



HM-1220.25.4



HM-2704.25S



HM-2704.25D

Dolly Tamper		
Size	Square	Round
2"	HM-2703.20S	HM-2703.20D
2.42"	HM-2703.24S	HM-2703.24D
2.5"	HM-2703.25S	HM-2703.25D
4.0"	HM-2703.40S	HM-2703.40D
50mm	HM-2703.50S	HM-2703.50D
60mm	HM-2703.60S	HM-2703.60D
100mm	HM-2703.100S	HM-2703.100D

Cutter		
Size	Square	Round
2"	HM-2702.20S	HM-2702.20D
2.42"	HM-2702.24S	HM-2702.24D
2.5"	HM-2702.25S	HM-2702.25D
4.0"	HM-2702.40S	HM-2702.40D
50mm	HM-2702.50S	HM-2702.50D
60mm	HM-2702.60S	HM-2702.60D
100mm	HM-2702.100S	HM-2702.100D

Calibration Disk		
Size	Square	Round
2"	HM-2755.20S	HM-1220.20.4
2.42"	HM-2755.24S	HM-1220.24.4
2.5"	HM-2755.25S	HM-1220.25.4
4.0"	HM-2755.40S	HM-1220.40.4
50mm	HM-2755.50S	HM-1220.50.4
60mm	HM-2755.60S	HM-1220.60.4
100mm	HM-2755.100S	HM-1220.100.4

Porous Plate		
Size	Square	Round
2"	HM-2704.20S	HM-2704.20D
2.42"	HM-2704.24S	HM-2704.24D
2.5"	HM-2704.25S	HM-2704.25D
4.0"	HM-2704.40S	HM-2704.40D
50mm	HM-2704.50S	HM-2704.50D
60mm	HM-2704.60S	HM-2704.60D
100mm	HM-2704.100S	HM-2704.100D



HM-001076



HM-003274

HM-003275A

Accessory	Model
Replacement Pressure Ball 5/8" 440 Stainless Steel	HM-001076
Screw, Black Head	HM-003274
Screw, Red Head*	HM-003275A

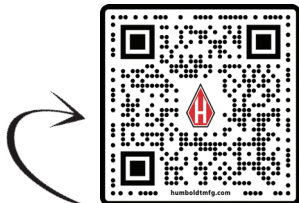
*Red Head Screws are used to hold the shear box together and are made with plastic heads, which will shear off before shear box can be damaged.



HM-4168

Installation and Spare Parts Kit HM-4168

Direct Shear Installation and Spare Parts Kit provides tubing, fasteners and tools to complete an installation of pneumatic direct shear equipment. Installation and Spare Parts Kit HM-4168



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