ELITE SERIES

Automated Consolidation

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Automated Consolidation

The HM-5470.3F ConMatic IPC is a fully-automated, incremental pressure controller for performing incremental consolidation and one-dimensional swell tests. The ConMatic IPC allows consolidation, constant load and volume swell tests to be run automatically, freeing up technicians for other tasks and reducing the duration of the testing procedures by more than half—effectively saving time and manpower and increasing lab profitability. One ConMatic automated system can replace the production of several manual machines— running incremental consolidation tests according to ASTM D2435 Method B, where successive load increments are applied after 100% primary consolidation.

Once a sample has been placed onto the test platform and the test conditions set, the ConMatic IPC performs all consolidation tests, including moving to the next stress level, without operator assistance. The system automatically moves through the different test parameters specified by the user with incremental consolidation tests typically being completed in 24 to 48 hours. The Humboldt NEXT software uses sample deformation readings taken from the displacement transducer and load readings from the load cell to maintain a constant applied stress or strain to the sample through the use of a digital pressure regulator. Test results are recorded and rendered in real-time on the computer screen while test data is stored and calculations are performed automatically. The Humbolt NEXT software provides:

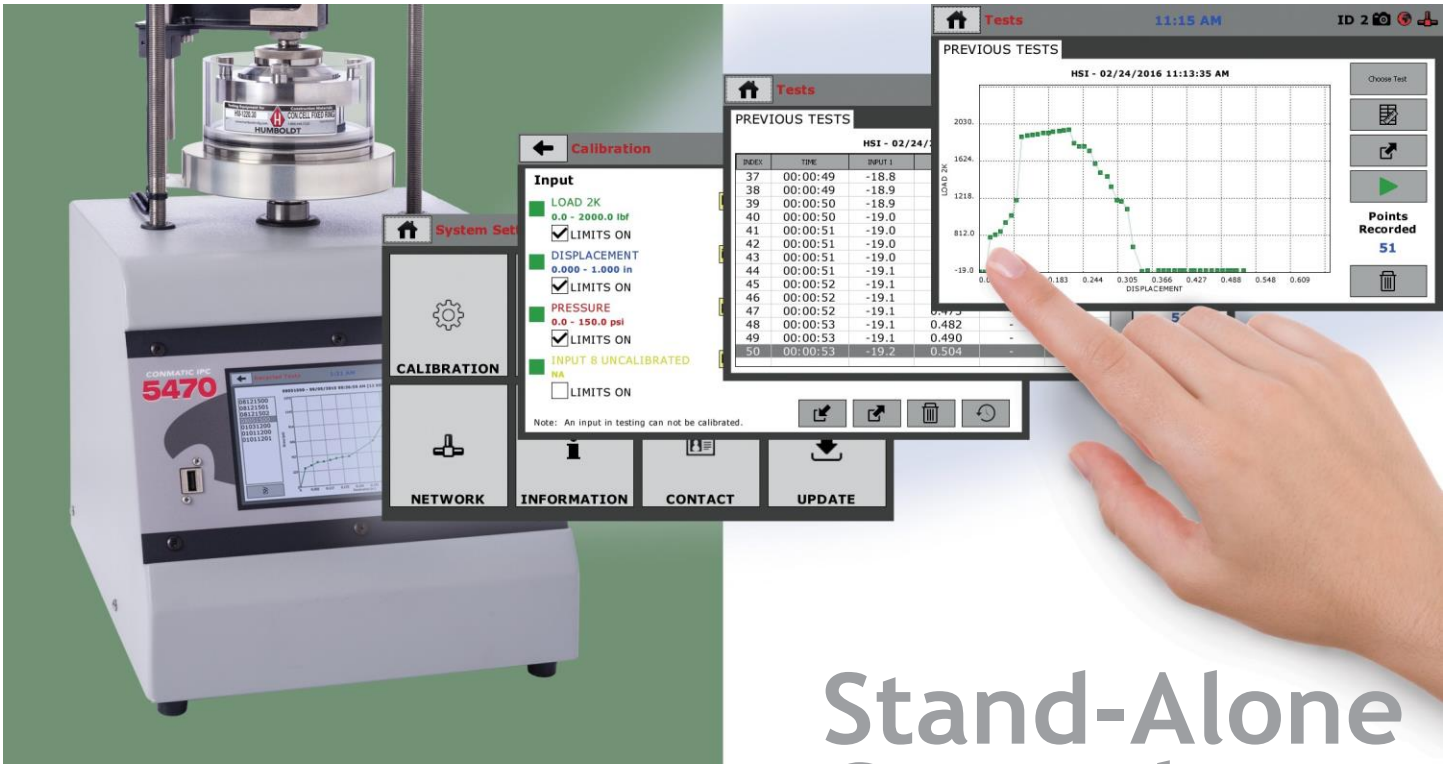
- Live tests and live graphing capabilities (real-time)
- Complete test reporting including all calculations and graphs required for testing
- Review and exporting of tests using Microsoft Excel
- Smart Test Function: automatically picks up where it left off if the test was not finished due to unexpected events within your computer

The unique design of the ConMatic IPC system enables the user to connect multiple Conmatic IPC units to a single computer and run them independently and simultaneously.

HM-5470.3F

Specifications

Sample Size	up to 4" (100mm)
Maximum load	2200lbf (10kN)
Clearance, vertical	8.25" (210mm)
Clearance, horizontal	7.75" (197mm)
Maximum piston travel	0.5" (12.7mm)
Dimensions (L x W x H)	12" x 12" x 30" (305 x 305 x 762mm)
Net weight	42 lbs (19kg)



Stand-Alone Control

Touch-Screen Controller provides:

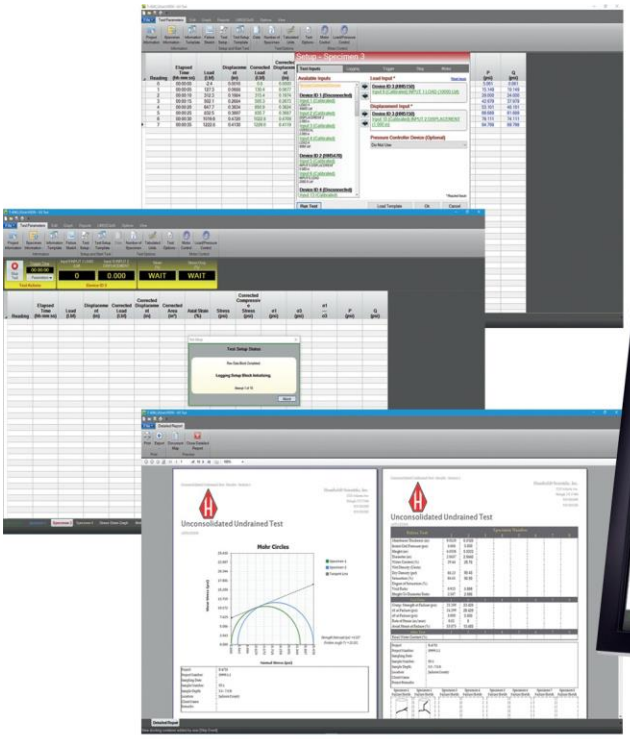
- 2-channel data acquisition
- Hi-res, 7," waterproof, touch-screen provides total control and real-time graphical display of tests
- Machine/Test control and data acquisition via touch-screen
- Control both channels at the same time
- Calibration of channels to load cell and transducer
- Real-time graphical chart and numerical display of tests via touch-screen display
- Effective sampling rate of 50 readings per second
- Stores up to 1000 tests with 3000 points per test
- 2 USB ports. One in front for data transfer and the rear port is for powering a wireless access point.

Humboldt's touch-screen controller provides you with full, graphical monitoring of all testing functions in a stand-alone application, while maintaining full computer control when desired.

Now you can have full, finger-tip control and monitoring of all testing functions with Humboldt's touch-screen controller, found on the ConMatic IPC automated consolidation system. This seven-inch, waterproof screen provides at-a-glance monitoring of testing functions, in a real-time graphical display, without the use of a computer, building upon Humboldt's dedication to modular, stand-alone data acquisition.

Now, in a stand-alone application, you will be able to run tests and display results while viewing tabulation, basic x-y graphs and instrument readings in real-time during the test, using user-defined, basic data acquisition. Test data is stored in the device and can be downloaded to a USB drive via the machine's FRONT USB port or the data can be transferred to a computer via the LAN port.

A second USB port located on the back of the machine can also be used to power a wireless access point, which can provide a wireless hook-up with a computer, if no LAN is available.



Computer Control

Next software and the enhanced Consolidation module, HM-5100SW, is included with the ConMatic IPC automated consolidation machine. This software provides robust machine control, calibration, data acquisition and report generation for those using a computer to control consolidation testing operations.

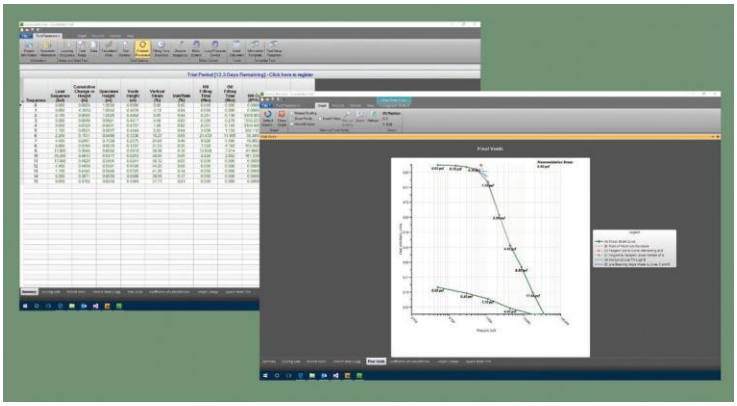
In addition, operators have the ability to view and control testing operations from a PC in the lab, in the next room or at a different location, while also providing report generating capabilities using the consolidation test-specific software module.

So, whether you are controlling a single consolidation machine, controlling multiple machines or even a complete geotechnical lab, Humboldt's NEXT software, in conjunction with Humboldt's ConMatic IPC, provides a complete solution for the calibration, acquisition, recording and presentation of consolidation testing data in data tabulation and graphic chart formats.

Humboldt's, NEXT software provides:

- Machine control, and data acquisition via networked computer
- Provides the ability to use Next Software's, advanced test-specific modules
- Real-time graphical chart and numerical display of tests via computer display
- Effective sampling rate of 50 readings per second
- Stores unlimited 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.

NEXT Consolidation Software Module



This Software module is included with the HM-5470.3F ConMatic IPC consolidation machine. Below are some of the features it provides.

- consolidation test setup that guides you through the process, which includes selecting data collection parameters
- input specific project information for each test, such as project name, client information, etc
- all test-specific initial, intermediate, and final parameters required by ASTM and BS standards are dynamically calculated for you, based on your input of specimen information, such as size, weight, etc
- tabulated test data, graphs and all consolidation calculations are provided in real time, allowing you to monitor tests in progress
- generate consolidation reports that include all graphs and data presented in a project
- create and store consolidation test setup templates for rapid setup of future tests
- produce consolidation graphs, which allow you to draw construction lines to calculate angles and other consolidation parameters
- all unit parameters can be adjusted individually
- access free, downloadable software upgrades for the included HM-5100SW software module
- simultaneously run multiple tests on one computer, involving any of the available HMTS modules and any compatible Humboldt equipment up to 255 device connections, which is up to 1020 inputs
- automatically recover from a PC shutdown without loss of data
- easily change between different test standards

ConMatic IPC includes:

Description	Part #
(1) S-type load cell 2,000 lbs (10kN) with 0.75" adapter	HM-2300.20
(1) Linear strain transducer, 1.0" (25mm)	HM-2310.10
(1) Linear strain transducer Bracket	HM-2310BR
(1) HMTS consolidation software module	HM-5100SW
(1) Ball 0.625" 440 stainless steel	HM-001076

Additonal items needed for setup:

Consolidation Installation and Spare Parts Kit
Installation and spare parts kit provides tubing, fasteners and tools to complete an installation of pneumatic consolidation equipment.

Installation and Spare Parts Kit HM-4168

The ConMatic IPC System Requirements:

AC Supply: 110/220 VAC 50/60 Hz 5 Amp

Air Supply: Air Supply: Clean and dry (air filter, water trap), minimum: 100 psi (700 kpa) continuous air supply, 10CFM (0.3 m^3/min)

Consolidation Cells

Fixed Ring Consolidation Cells
Complete cell assembly features stainless steel construction and self-trimming cutter ring. Cutter ring rests inside clamping ring on lower porous stone, which is larger than the sample. The top porous stone and loading pad rest on the sample. The assembly is fixed on the cell base and enclosed within an acrylic cylinder open to the atmosphere, which permits saturation of the sample. The cell comes complete with all the parts illustrated in the drawing below.

Floating Ring Consolidation Cell
Complete cell assembly features stainless steel construction with self-trimming cutter ring. Similar in construction to a fixed ring cell with the exception that the lower porous stone fits inside the cutter ring and can move vertically within it. The sample ring is also free to move vertically. The cell comes complete with all the parts illustrated in the drawing below.

Fixed Ring Permeability Cell
Similar in construction to a fixed ring cell with the exception that the saturated sample and water are sealed from the atmosphere. Complete cell assembly features stainless steel construction and self-trimming cutter ring. Base features outlet port and 10cc pipette for monitoring water level. The cell comes complete with all the parts illustrated in the drawing below, as well as a pipette.

Fixed Ring Consolidation Cell	
2.0"	HM-1220.20
2.42"	HM-1220.242
2.5"	HM-1220.25
3.0"	HM-1220.30
4.0"	HM-1220.40
50mm	HM-1220.50
70mm	HM-1220.70
75mm	HM-1220.75
100mm	HM-1220.100

Floating Ring Consolidation Cell	
2.0"	HM-1210.20
2.42"	HM-1210.242
2.5"	HM-1210.25
3.0"	HM-1210.30
4.0"	HM-1210.40
50mm	HM-1210.50
70mm	HM-1210.70
75mm	HM-1210.75
100mm	HM-1210.100

Fixed Ring Consolidation Cell	
2.0"	HM-1230.20
2.42"	HM-1230.242
2.5"	HM-1230.25
3.0"	HM-1230.30
4.0"	HM-1230.40
50mm	HM-1230.50
70mm	HM-1230.70
75mm	HM-1230.75
100mm	HM-1230.100

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