FORNEY TEST MACHINES

FHS-400-VFD AUTOMATIC COMPRESSION TEST MACHINE

COMPRESSION MACHINE

LOAD CAPACITY	FRAME	CONTROL SYSTEM
400,000lb	High Stiffness (FHS)	VFD

TEST TYPES	TESTING MATERIALS	DESIGNED & BUILT BY FORNEY
Compression, Flexural, Modulus of Elasticity/Poisson's Ratio (MP), Proppant Crush Resistance, Tensile Splitting	Cylinders, Cubes, Grout Prism, Beams, Proppant Sand, Rock Core	Exceeds ACI Recommendations



CLICK HERE FINANCING OPTIONS AVAILABLE

DOWNLOAD SPEC SHEET

GET A QUOTE

GET A CONNECTED MACHINE AND SAVE $1,500

NATIVE TWO-WAY INTEGRATION WITH CMT SOFTWARE

Connected Testing Machines allow technicians to get more done faster with minimal human error through a two-way integration with ForneyVault. Resulting in 99.9%+ fewer manual errors, 66%+ increase in productivity, and 100% unalterable, unquestionable data.

- "One-touch" test starts and automatic controls
- Pre-test "Smart Checks" to validate test parameters
- Automatic preload calculations, notifications for individual and average low breaks and excessive variance, automatic data transfer, and more

SEE HOW IT WORKS

GET A CONNECTED QUOTE

CLICK TO CLOSE ADDITIONAL PRODUCT INFORMATION

HARDWARE

FRAME

Designed and built by Forney. As part of Forney's Premium "FHS" Series, the machine features a high stiffness frame and fully enclosed test chamber that is especially suited for high testing volumes and high strength concrete testing. FHS Testing Machines frames are manufactured from solid steel into a one-piece, welded unit that exceeds ACI recommendations.

The load frame is fabricated from solid steel into a one-piece welded unit that exceeds ACI frame rigidity requirements. The hydraulic cylinder assembly is mounted to the bottom crosshead, with force being applied in upward direction and debris protection by flexible rubber bellows and a full frame, rectangular platen.

MATERIALS

Test hydraulic cement, down hole cement, mortar, grout, concrete, self-consolidating concrete, CLSM, flowable fill, proppant, ceramics, metals, and plastics.

HYDRAULIC

The hydraulic unit is supplied as a complete, fully integrated assembly. The unit is pre-piped and pre-wired. It incorporates hydraulic valves; including an optional proportional valve for controlled piston retract required by code for Modulus of Elasticity and Poisson's Ratio tests.

The human machine interface (HMI), hydraulic unit, E-Stop, and dump valve are directly connected to the compression unit. Single unit design permits easy installation and provides portability without disassembling of hydraulic or electrical components.

ELECTRICAL

– A PC-based system utilizes a variable frequency drive to control the hydraulic pump motor. This maximizes efficiency – only running the pump at speeds necessary to achieve the desired pressure. This energy efficient approach dramatically reduces heat build-up in the hydraulic system and greatly extends hydraulic component life.

Here are the main components of the system:

- Variable frequency drive (VFD)
- Windows-based touchscreen human machine interface (HMI)
- Pressure transducer that provides pressure feedback
- E-stop PB
- Limit switch
- Solenoid-operated dump valve

SAFETY FEATURES

Several safety features are incorporated to protect both operator and testing machine:

- Maximum Capacity Protection: A high-pressure safety relief value protects the hydraulic circuit and load frame from exceeding maximum capacity.
- Overextension Protection: A piston over-extension limit switch system protects against piston extension beyond maximum travel.
- Fragment Safety Guard: Fragment guards with heavy-duty latches and hinges are mounted to both the front and rear of the compression frame. Fragment guards incorporate Lexan® inserts for complete operator protection from flying debris when testing explosive high-strength specimens. Lexan® also permits clear viewing of test in process.

SOFTWARE

EASY AUTOMATIC TESTING

push one button and the machine performs the complete test, including piston retract. Accurately controls the rate of load at the desired setting, thus no question about meeting ASTM (or other) specifications and ensuring repeatable results.

Frees the operator to do other tasks while testing is in process.

DIGITAL CONTROL SYSTEM

Setup of testing protocol, real-time display of test data, and post-test data transfer is accomplished through the ForneyLink touchscreen HMI. The operator can navigate options for:

- Test Run
- Test Setup
- Machine Setup
- Calibration
- Reporting and Data Transfer
- Diagnostics

Provides simultaneous display of force, stress, and rate of load and displays a real-time graph of Load vs. Time, or Stress vs. Strain. Standard functionality includes data collection by the ForneyLink HMI for printing and transfer. Data from optional extensometer and compressometer displacement transducers are also collected by the HMI. This data is captured with the same timestamp as the load data.

CMT SOFTWARE INTEGRATION

Connected testing machines natively integrate with ForneyVault CMT software, improving important processes before and after an automatic test.

Before the test, Connected machines will:

- Enable positive specimen identification via barcode scan
- Provide pre-test “Smart Checks” based on preloaded sample and specimen data to validate sample date, ample size and type, and expected strength.
- Validate specimen geometry.
- Calculate preload settings based on actual and/or expected strength.

After the test, Connected machines will:

- Provide a detailed XY plot data for every test performed.
- Transfer data automatically to LIMS packages, QC systems, or other software.
- Alert to warn calibration expiration.
- Notify correction factor use, individual low breaks, and excessive variance.
- Enable intelligent workflows for detailed reporting and approvals.

REMOTE SUPPORT

with a user-provided Internet connection (either Wi-Fi or Ethernet), all Forney VFD systems are capable of real-time, online support from the Forney Support Team for basic settings and test setup to advanced troubleshooting, fault finding, and software updates.

We offer unlimited Remote Technical Support for all Forney Testing Machines during the two-year warranty period.

For ForneyVault® subscribers, post-warranty remote technical support fees are waived for the life of your subscription.

Please refer any special requirements to a Forney sales representative.

*** Specifications are subject to change without notice.**

ACCESSORIES

Cylinder Compression (6" Dia x 12" L with Pad Caps) (150mm x 300mm)	TA-0101 Cylinder Top Platen Assembly (included w/ machine)
Cylinder Compression (6" Dia x 12" L with Capping Compound or Ground Ends) (150mm x 300mm)	TA-0103 Cylinder Top Platen Assembly
Cylinder Compression (4" Dia x 8" L with Pad Caps) (100mm x 200mm)	TA-0101 Cylinder Top Platen Assembly (included w/ machine) TA-0202 Spherical Seat Extender, 4" H
Cylinder Compression (4" Dia x 8" L with Capping Compound or Ground Ends) (100mm x 200mm)	TA-0101 Cylinder Top Platen Assembly (included w/ machine) TA-0202-02 Spherical Seat Extender, 6" H
Compressive Strength and Elastic Moduli of Intact Rock Core Specimens	TAG-0090 2x4in Compressometer/Extensometer
Cylinder Tensile Splitting (6" Dia x 12" L) (150mm x 300mm)	TA-0107-07 Cylinder Splitting Accessory
Cylinder Tensile Splitting (4" Dia x 8" L) (100mm x 200mm)	TA-0107-07 Cylinder Splitting Accessory TM-0074-01 Bottom Platen
Cube (2") (50mm)	TAG-0056 Cube (2") Accessory Kit
Cube (6") (150mm)	TA-0202-02 Spherical Seat Extender, 6" H TA-0109 Cube Top Platen Assembly
Flexural Beam (6" x 6" x 18") (150mm x 150mm x 450mm)	TA-0166 Flexural Testing Accessory
Masonry Block (8" or 12" W x 8" H x 16" L) (200mm or 300mm W x 200mm H x 400mm L)	TAG-0063 Half Block Kit *Half block only (8" x 8" x 8")
Grout Prism (3" x 3" x 6") (75mm x 75mm x 150mm)	TA-0101 Cylinder Top Platen Assembly (included w/ machine) TA-0202-02 Spherical Seat Extender, 6" H TM-0095 Bottom Platen
MOE (6" diameter) (150mm)	LA-0488-E6-SG Compressometer *Must have compression accessories *Must have -M or -MP machine
MOE (4" diameter) (100mm)	LA-0488-E4-SG Compressometer *Must have compression accessories *Must have -M or -MP machine

FACTORY INSTALLED OPTIONS

Voltage	110/220VAC Single Phase The full load amperage for standard VFD Control Systems is less than 5A (115VAC single phase voltage). We recommend standard 15A or 20A circuits.
Displacement	Available Upgrade
Optional Test Protocol Capabilities	ASTM C469 MOE (M) ASTM C469 MOE & Poisson's Ratio (MP) ISO 13503-2 Proppant (SW-0010) *Additional accessories required *Inquire about other test type requirements
Capacity Options	Dual Range (2 transducers) on Single Frame (2R)
Frame Options	Second Frame Capability (AB) Dual Frame Capability (adds 250k de-rated frame to machine) (2F) Dual Frame Capability (adds 30k frame setup for Concrete Beam) (BT)
Travel Limit Switch	Standard Equipment

SPECIFICATIONS

Load Capacity Range	4,000lbf - 400,000lbf
Vertical Opening	19"
Horizontal Opening	11"
Ram Diameter	7.75"
Piston Stroke	2.5"
Platen Hardness	60 HRC
Lower Platen Dimension	9.25" x 15"
Upper Platen Dimension	6.5" Diameter
Oil Reservoir Capacity	2 Gallons
Overall Width	33"
Overall Depth	19"

MOE & Poisson's Ratio (6" Diameter) (150mm)	LA-0488-P6-SG Compressometer/Extensometer *Must have compression accessories *Must have -MP machine
MOE & Poisson's Ratio (4" Diameter) (100mm)	LA-0488-P4-SG Compressometer/Extensometer *Must have compression accessories *Must have -MP machine
MOE & Poisson's Ratio (2" Diameter) (50mm)	TA-3542-03 Axial Extensometer 2" TA-3975-01 Diametral 0.030" *Must have compression accessories *Must have -MP machine
Proppant (2" diameter) (50mm)	TA-0119-11 Top Platen Assembly TA-0151 Bottom Platen TA-0174 Spacer, 6" H TM-2035 Centering Stud TA-0002 Proppant Crush Piston & Cell

Overall Height	61"
Unit Weight	1,170lbs
Test Standard Ready	ASTM C39 Cylinders in Compression (6" diameter x 12" length, pad cap tesing) ASTM E4
Test Standard Capable	ASTM C39, C78, C293, C109, C469, C496, C1019, D7012 AASHTO T 22, T 97, T 106 ISO 13503-2 API RP 56 BS 1610, BS 1881, EN ISO7500-1, EN 12390-3, EN 12390-4