

# FORNEY TEST MACHINES

## FORNEY 700 SERIES COMPRESSION MACHINE WITH AUTOMATIC (VFD) CONTROLS AND HIGH STIFFNESS FRAME (FHS)

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.



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### LOAD CAPACITY

700,000lb

### FRAME

High Stiffness  
(FHS)

### CONTROL SYSTEM

VFD

### TEST TYPES

Compression, Flexural, Tensile Splitting

### TESTING MATERIALS

Cylinders, Cubes, Grout Prism, Beams,  
Rock Core

## ADDITIONAL PRODUCT INFORMATION

### MATERIALS

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

### 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.

### FRAME

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.

### 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.



## 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.

## DATA ACQUISITION

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.

## FORNEYVAULT® ENABLED MACHINES

Make your machine smart – enable two-way data communication by accessing information and making it available for the testing process. Connect your machine seamlessly to LIMS packages, QC software and other third-party software participating on the ForneyVault platform. ForneyVault enabled machines help control the workload, and make your technicians smarter and more productive, with fewer costly errors.

A smart machine can:

- ▲ Enable intelligent workflows
- ▲ Enable Bar Code Scanning capability to identify the specimen to be tested
- ▲ Validate specimen geometry
- ▲ Calculate proper preload settings – based on actual and/or expected strength
- ▲ Calibration Monitor provides notification of impending calibration requirements
- ▲ Discard Dashboard provides context enabled specimen management for untested specimen disposal decisions.
- ▲ Notify you that a correction factor should be used
- ▲ Notify you of individual low breaks
- ▲ Notify you of excessive variance among several specimens

## 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 valve 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.

## 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-0101-03 High Strength Cylinder Top Platen Assembly (included w/ machine)
Cylinder Compression (6" Dia x 12" L with Capping Compound or Ground Ends) (150mm x 300mm)	TA-0102 High Strength 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 TA-0202-02 Spherical Seat Extender, 6" H
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-0066 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 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
MOE & Poisson's Ratio (6" Diameter) (150mm)	LA-0488-P6-SG Compressometer/Extensometer  *Must have compression accessories  *Must have -MP machine

FACTORY INSTALLED OPTIONS	
Voltage	110/220VAC Single Phase
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 types
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	7,000lbf - 700,000lbf
Vertical Opening	19"
Horizontal Opening	14"
Ram Diameter	10.5"
Piston Stroke	2.5"
Platen Hardness	60 HRC
Lower Platen Dimension	12.25" x 18"
Upper Platen Dimension	7" Diameter
Oil Reservoir Capacity	2 Gallons
Overall Width	37"
Overall Depth	23"
Overall Height	62"

MOE & Poisson's Ratio (4" Diameter) (100mm)	<p>LA-0488-P4-SG Compressometer/Extensometer</p> <p>*Must have compression accessories</p> <p>*Must have -MP machine</p>
MOE & Poisson's Ratio (2" Diameter) (50mm)	<p>TA-3542-03 Axial Extensometer 2"</p> <p>TA-3975-01 Diametral 0.030"</p> <p>*Must have compression accessories</p> <p>*Must have -MP machine</p>

Unit Weight	2,100lbs
Test Standard Ready	<p>ASTM C39 Cylinders in Compression (6" diameter x 12" length, pad cap testing)</p> <p>ASTM E4</p>
Test Standard Capable	<p>ASTM C39, C78, C293, C109, C469, C496, C1019, D7012</p> <p>AASHTO T 22, T 97, T 106</p> <p>BS 1610, BS 1881, EN ISO7500-1, EN 12390-3, EN 12390-4</p>