

800LE Electrodynamic Test System – all Electric For Static, Fatigue, Dynamic Testing

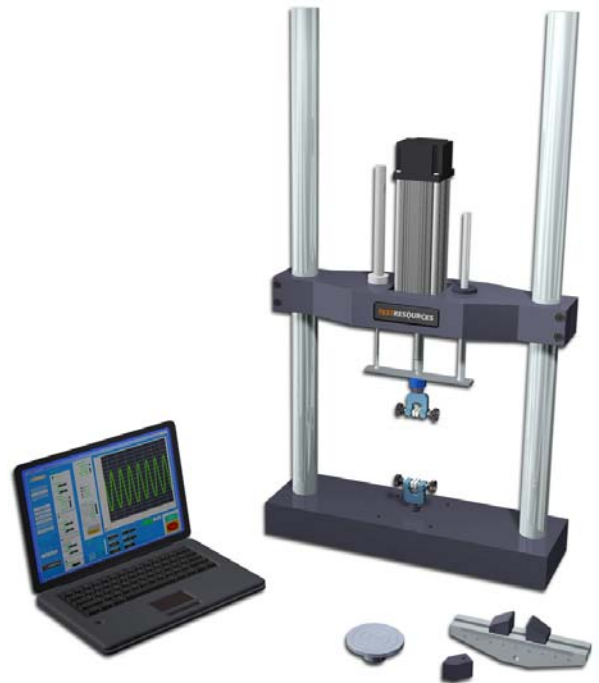
Force Range: 0.0001 N to 6000 N (1350 lb)
Speed Range: Static to 15 Hz

System Overview

The 800LE test system is used to characterize and test materials, devices and components over a wide spectrum of load, strain and stroke. Each system is configured from a wide number of actuators and transducers to serve specific customer needs. When configured with short travel LVDT's or small load cells – the package delivers unmatched accuracy and control in micromechanical test applications.

800LE Systems include:

- 800 Series Dual Column load frame
- E2 and E3 Series Electrodynamic Actuators with Power Pack
- Load cell and encoder - optional extensometer and LVDT
- 2370 Servocontroller
- TestBuilder & MachineBuilder Software Products
- PC with USB port

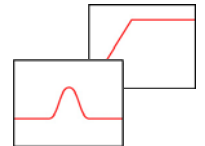


Perform Standard or Special Static, Dynamic or Fatigue Tests

Monotonic Static and Dynamic Tests

Tensile, Compressive, Flexural, Stress Relaxation, Indentation or Creep Tests

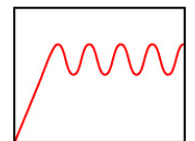
Slow or quick ramps in load, strain or position control. Set up and collect force, strain, and displacement data for materials characterization, stress – strain plotting, and calculate strength properties. Special applications software products available to automate multi-step creep and stress relaxations tests to get more data out of each test run. Generate impact loads and capture high speed force, strain, and displacement data for materials characterization or product performance.



Fatigue, Fracture & Cyclic Tests

Tension / Tension, Compression / Compression, Tensile / Compression (thru zero) Fatigue Tests

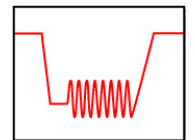
Run load or strain controlled cyclic fatigue tests to determine cycles to failure or to prove your device meets endurance requirements. Adaptive peak valley control feature adjusts amplitude as test sample responds. Optional metals research application software includes full suite of LCF and fracture mechanics software programs.



Dynamic Characterization Tests

Tension, Compression, Shear

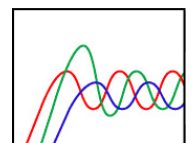
Sweep time and temperature, change strain and load rates and gather accurate stress and strain data to measure time-dependent characteristics of viscoelastic materials using special test software. Analyze and report the full dynamic properties of gels, elastomers, polymers, tissues and biomaterials.



Multiaxial Tests

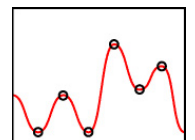
Planar Biaxial Characterization and Fatigue Tests, Combined Axial / Torsion Tests

Combine Tension, Compression, Torsion, Pressure or whatever channels you wish with the expansive 2370 controller and characterize your new material by testing it in the final application. Use as many modes of control as you wish and perform in-phase or out-of-phase modeling,



Random Spectrum

Point loading - Create your own test, Mix n' match - Import your loading profile from a spreadsheet and produce customized point by point waveforms. You can mix ramps and sinusoids, switch control modes during a test condition, or customize your data collection process.



Dual Column Load Frame & Servo-all-electric actuator

The 800 Series dual column load frames are feature a compact tabletop construction to minimize use of critical lab space. The moveable crosshead enables adjustable test space and a mechanical lift option makes it easy to move. Load frame column width and length are configured to your test sample requirements. The test machine requires single phase 220V (or optional 110V). Actuator stroke options to 18 inches.

2370 Control Hardware

- High Speed (300 MIPS) Digital Signal Processor
- 24 bit Analog Data Conversion
- 32 bit Digital Data acquisition
- 40 bit Servo-Loop Calculations

The 2370 Series offers the latest in electronic performance, functionality and cost savings. The 2370 controller combined with Global Data Sharing (GDS) software, offers the test engineer a unique, flexible, and modular test control system.

Each 2370 includes three strain bridge feedback channels for load cells or extensometers, one channel to provide user choice of AC type signal conditioner for an LVDT position transducer or any transducer that can provide a high level 10V analog input signal. The fifth feedback and control channel is for the actuators digital encoder which offers high resolution (better than 1 micron) control.

2370 controllers control two actuators so expansion to a second channel is included at no extra charge. Eight digital input and eight output channels provide drive and device control. Test data can be acquired at speeds up to 5000 samples per second on all feedback channels concurrently.

800L Electrodynamic Test System

Specifications of Common Configurations

Model	800LE216	...E326	...E316
Static Force Rating	± 2.5 kN (575 lb)	±3 kN (675 lb)	± 6 kN (1350 lb)
Fatigue Rating	± 1.5 kN (350 lb)	±3 kN (675 lb)	±3 kN (675 lb)
Velocity Max	200 mm/s (8 in/s)	250 mm/s (10 in/s)	125 mm/s (5 in/s)
Stroke	±63 mm (±2.5")		
Cyclic Range	Static to 15 Hz		

* Actuators are matched to specific test requirements and specifications shown are general in nature. Multiple options are available to satisfy specific customer needs. Performance curves and life predictions for fatigue testing applications are available. Discuss all critical specifications with an application engineer.

Dimensional and Utility Requirements

Load Frame Model	800-36	800-MTO
Column Clearance	405 mm (16 inches)	To 800 mm (32 inches)
Column Length	900 mm (36")	To
Vertical Test space	0 to 810 mm (32")	To
Footprint without outriggers	165 mm (6.5") D x 560 mm (22") W	165 mm (6.5") D x 660 mm (26") W
Weight	36 kg (80 lb)	36 kg (100 lb)

2370 Software

2370 Software Products are all compatible with Global Data Sharing (GDS) which requires a PC with Microsoft Operating System. Each system includes:

MachineBuilder Software which configures the machine transducers and actuators and enables servotuning, calibration, and global limit setting. The system is user configurable. The addition of a second actuator can result in two stations, one biaxial station or both scenarios.

TestBuilder Software makes it possible to set up, launch, and monitor tests. Captured test data may be saved and exported to Excel for reports. Separate panels are available for static and fatigue tests. Create, store and execute tests including command signal, data acquisition and export of data to Excel.

Application Development Options include an applications development software toolkit that allows users to develop software components (extensions to the base control software) using Visual Basic, C+ or Labview and also made to order software programs supplied by TestResources.

Applications



Orthopedic devices implanted in the body must undergo static and fatigue tests that mimic ten years of product life to be considered acceptable. Spinal implants and constructs are tested according to various ASTM and ISO standards and typically require static tension, compression and torsion testing, and fatigue tests. The typical medical device developer needs a versatile proven test system that can do both types of tests and one that can expand to combined axial torsional loading.

800LE316 shown

Vascular devices are tested for fatigue life up to 400 million cycles. Multiple test samples being testing in bath.

800LE356 shown



System shown for testing ceramic materials at temperatures to 1000C (1800F).

800LE326 shown



Biaxial system with vertical actuator combined with horizontal actuator. The application is friction tests on cartilage.

800LE326 shown