

# MTS 810 & 858 Material Testing Systems



Versatile, multipurpose  
servohydraulic testing systems  
for static and dynamic tests



# MTS 810 & 858 Test Systems

## Meeting the Full Spectrum of Testing Needs

### Superior Testing and Global Support for all Environments

Test engineers worldwide rely on MTS Material Testing Systems and unrivaled global support to achieve outstanding results for both static and dynamic material and component testing. Renowned for their unmatched accuracy, flexibility, high performance, and innovative standard features, these systems provide for years of superior testing for all types of test and lab environments. With a large selection of fully fatigue-rated MTS load units, control technology and accessories to choose from, tightly integrated systems can be easily configured to meet an extremely wide array of test requirements.

#### Unmatched Accuracy

- ▶ An integral actuator design, stiff, low-mass crossheads, and special force transducers deliver superior axial and lateral stiffness.
- ▶ Precision-machined columns and actuator rods, and laser-guided factory alignment ensure unprecedented alignment accuracy.
- ▶ Highly accurate MTS load cells exhibit low hysteresis and long-term stability.
- ▶ Linear Variable Differential Transducers mounted co-axially with actuators deliver precise actuator position measurement.

#### Flexibility

- ▶ MTS load units perform both highly accurate monotonic tests and dynamic test applications.
- ▶ Flexible test spaces, hydraulic lifts and locks, and conveniently placed controls facilitate easy crosshead positioning.
- ▶ MTS servovalves are available in a wide variety of force and flow capacities.
- ▶ 810 systems can accommodate up to two servovalves - port shut-offs allow operation of one or both valves.
- ▶ MTS load units require no special mounting or foundation.

#### High Performance

- ▶ Lightweight crossheads and stiff components reduce load frame deflections and increase performance envelopes.
- ▶ Extremely low friction actuators and high response servovalves ensure superior test control.
- ▶ Close-coupled accumulators enable high frequency servovalve response, resulting in low distortion and reduced line noise.
- ▶ Hydraulic service manifolds provide smooth ramping of system pressure to ensure precise control during system start-up.

#### Innovative Features

- ▶ Five-port servovalves ensure that pressure changes – low-to-high, high-to-low, and rapid shutoff - are made under system control to guarantee smooth transitions.
- ▶ Local hydraulic station control integral with actuator-mounted manifold provides unmatched convenience and First-on/Last-off management of hydraulic power.
- ▶ Off-Low-Slow-High pressure control provides true bumpless start and protects specimens.
- ▶ Force-limited stroke control for specimen insertion protects both operators and specimens.

#### MTS Proven Control Solutions

FlexTest SE & GT Digital servo-controllers from MTS make up a powerful array of reliable, flexible and easy-to-use controllers designed to address the full spectrum of material and component testing needs. These systems employ robust VME-based MTS hardware and provide the pricing flexibility to accommodate a broad range of budgets.

An array of MTS material testing software perform test definition, test execution, and report generation for virtually all types of material tests, including tension, bending, and compression testing, fatigue life studies, and fracture growth studies. MTS software programs include:

- ▶ MTS's MultiPurpose TestWare® for flexibility to meet the demands of quickly changing test requirements in your standard and non-standard testing applications.
- ▶ MTS TestWorks® to perform all of your tensile, flex, compression and peel/tear tests, we well as complicated non-standard tests.
- ▶ MTS Fatigue and Fracture Testing Software for general-purpose and material-specific testing applications.

### Material Testing Continuum

<b>Force Range</b>	5 kN (1 kip)	25 kN ( 5.5 kip)	100 kN (22 kip)	250 kN (55 kip)	500 kN (110 kip)
<b>Range of Available Performance</b>	Moderate		High	Very High	
<b>Material Strength</b>	Plastics	Elastomers	Aluminum	Composites	Steel Super Alloys
<b>Specimen Size</b>	Subsized		Standard	Medium	Large
<b>Test Type</b>	Tension • Bend • Durability • High Cycle Fatigue • Low Cycle Fatigue Compression • Creep • Fatigue Crack Growth • Fracture Toughness				

858

810

### Versatile, Configurable 810

The 810 Material Testing System delivers a broad array of testing capabilities for both low and high force static and dynamic testing. By selecting from a variety of force capacities, servovalve flow ratings, pump capacities, software, and accessories, the floor-standing 810 system can easily be configured to meet your specific material or component testing needs. The versatile 810 system features:

- ▶ Force ranges from 25 kN (5.5 kip) to 500 kN (110 kip)
- ▶ A wide performance range - see Performance Curves on pages 20-23
- ▶ The ability to test materials ranging in strength from plastics to aluminum, composites and steel
- ▶ A large test space to accommodate standard, medium and large size specimens, grips, fixtures and environmental subsystem
- ▶ The capability to perform a wide variety of test types from tensile to high cycle fatigue, fracture mechanics, and durability of components



### Full Featured, Compact 858

The 858 Material Testing System is a cost-effective choice for low force static and dynamic testing applications. Designed to preserve valuable floor space, the 858 load unit can fit conveniently on an existing laboratory bench, or sit on its own portable, custom cart. While extremely compact, the 858 system provides a broad range of test enhancing features, including:

- ▶ Force ranges from 5 kN (1.1 kip) to 25 kN (5.5 kip)
- ▶ A moderate performance range - see Performance Curves on pages 24-27
- ▶ The ability to test lower strength materials ranging from plastics to aluminum
- ▶ Accommodation of subsized to standard specimens
- ▶ The capability to perform tension, compression, bend and fatigue tests; specialized tests for biomedical and biomechanical testing; and durability testing on small components
- ▶ Wide column spacing to accommodate larger fixtures, environmental chambers and furnaces

