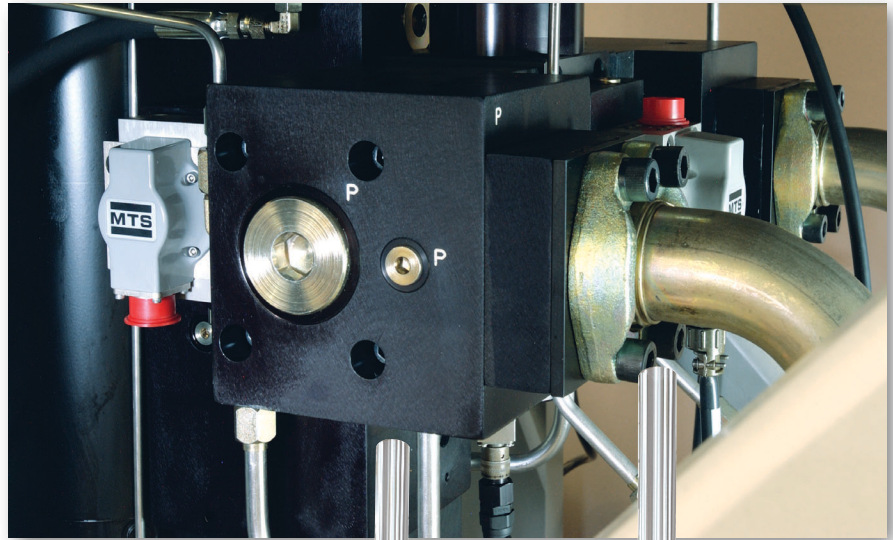


# New Model 852 System Delivers High Force, High Velocity Damper Testing



Flexible Durability & Performance Testing for Larger Vehicle Shock Absorbers & Struts

To meet the higher force requirements for testing the durability and performance of today's light truck and sport utility vehicle shock absorbers and struts, MTS Systems Corporation has developed the Model 852 Damper Test System. This latest addition to the already-broad family of MTS damper test systems supports a very wide range of force and velocity capacities, delivers high levels of testing flexibility, employs proven MTS software and controller technology, and leverages 30 years of MTS testing experience to help overcome the damper testing challenges presented by today's larger passenger vehicles.



## High Force, Multi-Specimen Testing

Dampers for larger vehicles generate higher forces at typical velocities. Performing multi-specimen, durability tests of these dampers requires the utilization of higher force capacities. The Model 852 meets this requirement by supporting force capacities of 25kN, 50kN, 67kN, and much higher, to run durability tests on up to eight specimens simultaneously. The standard system features a high performance three-stage servovalve for high velocity durability testing, with optional medium- and low-velocity servovalve packages available, as well. Like other members of the MTS damper test family, the Model 852 features standard low flow switching that restricts actuator velocity during specimen installation and removal to ensure operator safety. Also standard is a large base mass to withstand high inertial loading.

A high performance, three-stage servovalve enables high velocity durability testing. Optional medium- and low-velocity servovalve packages are also available.



The MTS Model 852 delivers force capacities of 25kN, 50kN, 67kN, and significantly higher, to test the durability of light truck and sport utility vehicle shock absorbers and struts.

**Flexibility-Enhancing Features and Options**

The Model 852 brings a high degree of flexibility to damper testing through a variety of standard and optional hardware packages. To accommodate a recent trend toward testing the performance of subassemblies, the Model 852 comes standard with a T-slot table

for fixture and reaction bracket mounting. This setup enables the testing of both independent specimens and small subassemblies. Additionally, the system's columns, crosshead, and actuator can be mounted at the table's end or center point, further enhancing test flexibility. Optional Model 852 features include:

- ▶ Temperature monitoring and control to hold the test when a temperature set point has been exceeded
- ▶ Specimen water-cooling
- ▶ Vibration isolation base
- ▶ Selection of accumulator sizes to expand performance testing flexibility without additional HPU capacity
- ▶ Servovalve additions for medium or low velocity testing



A T-slot table for fixture mounting and reaction bracket mounting enables performance testing of both independent specimens and small subassemblies. The system's columns, crosshead, and actuator can be mounted at the table's end or center point, further enhancing test flexibility.

A selection of optional accumulator sizes enables you to expand Model 852 performance testing flexibility without having to add HPU capacity.

The Model 852 can perform high force and velocity durability tests on up to eight specimens simultaneously.



The Model 852 features a large base mass that can be secured to a floor, a seismic base, or an optional vibration isolation system.



Like other systems in the MTS damper test family, the Model 852 employs proven FlexTest™ controller technology and state-of-the-art MTS application software.

### Proven FlexTest Control

Reliable system control is achieved with an MTS FlexTest SE or GT digital servocontroller. Both FlexTest SE and GT controllers employ the same proven, VME-based MTS Model 493 hardware to deliver high-speed closed-loop control, data acquisition, function generation, and transducer conditioning to address the full spectrum of material and component testing needs. The high-capacity FlexTest GT accommodates up to 32 modules that can be distributed among 8 channels and 4 stations as required, with the option to add 16 user programmable digital inputs and digital outputs. The FlexTest SE delivers cost-effective one or two channel, single-station control.



The design of FlexTest controllers is based on decades of MTS expertise in servohydraulic structural and material testing. FlexTest SE and GT controllers employ the same proven, VME-based MTS Model 493 hardware used daily in thousands of digital controllers around the globe to deliver high-speed closed-loop control, data acquisition, function generation, and transducer conditioning.



### State-of-the-Art Damper Testing Software

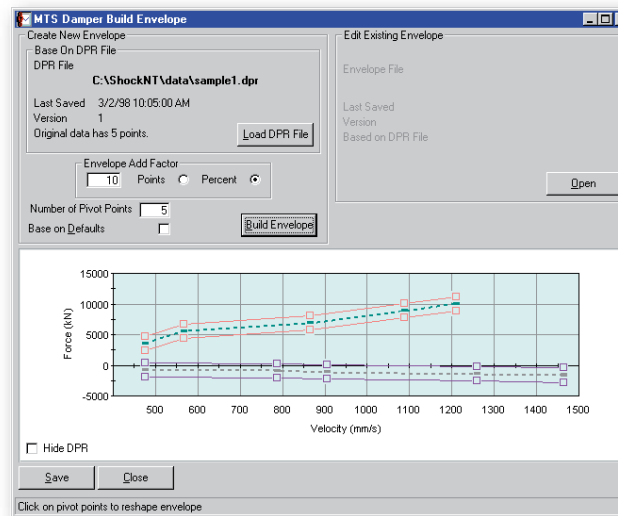
Engineered specifically for damper performance and durability testing, flexible MTS Damper Testing software facilitates simplified test setup, and comprehensive data acquisition and reporting. It also employs a wide variety of control waveforms to enable easy and flexible function generation, including:

- ▶ Sine, triangle, and square wave
- ▶ Dual rate sine
- ▶ Dual rate ramp
- ▶ Sine-on-sine
- ▶ Ramp-on-ramp
- ▶ Sine sweep
- ▶ Arbitrary (200Hz play-out maximum)

MTS Damper Testing software delivers flexible post processing, an extensive set of results calculations, and run-time and post-test graphics via a standard report platform. Data reports can be automated and include standard force-displacement and force-velocity curves, and other typical methods of presentation and analysis. The software also provides the capability to perform tem-

perature dependent performance tests, position dependent gas force evaluation, and shock absorber noise characterization.

The Model 852 can also employ other MTS packages, such as RPC® Pro software for performing time history playback, Empirical Dynamics™ Modeling (EDM™) software, and Virtual Test Lab™ (VTL™) software.



Through years of providing damper testing systems MTS has developed a flexible, comprehensive, capable software solution engineered exclusively for damper work. The MTS damper testing automation package runs on a PC and features software designed for simplified test setup, and comprehensive, very capable data acquisition and reporting.



## MTS Model 852.xx Damper Test Machine Specifications

Actuator Rod Diameter	80 mm (3.15 in.)
Test Space, Actuator Face to Load Cell	1575 mm maximum 180 mm maximum
Frame Dynamic Load Rating	67 kN (15 kip)
Floor Mount	Frame Bolted to Concrete (optional vibration isolation system available)
HSM	Integral to Accumulator Manifold, 284 lpm max
Actuator Hydrostatic Bearing	Yes
Actuator Stroke	250 mm (10 in.)
Heavy Duty Anti-Rotate	Yes
Safety Low Flow	Yes
Accumulation	
852.25 & 852.50	19 Liter Pressure and Return
852.67	38 Liter Pressure and Return

## Performance Testing Specifications

Maximum velocity, sine wave, for 3 cycles of 100 mm stroke (peak to peak), 45 kg moving mass, sine wave command

Model 852.25		Model 852.50		Model 852.67	
4.0 m/s	no load	5.0 m/s	no load	3.8 m/s	no load
3.6 m/s	5 000 N load	4.5 m/s	5 000 N load	3.6 m/s	10 kN load
3.0 m/s	10 000 N load	4.0 m/s	10 000 N load	3.1 m/s	20 kN load
2.2 m/s	15 000 N load	3.0 m/s	20 000 N load	2.5 m/s	30 kN load
1.5 m/s	18 000 N load	1.2 m/s	30 000 N load	1.7 m/s	40 kN load

## Durability Testing Specifications

Maximum sine wave continuous peak velocity for durability testing

Model 852.25			Model 852.50			Model 852.67		
HPU	Hz Power	m/s	HPU	Hz Power	m/s	HPU	Hz Power	m/s
505.20	60	0.9	505.20	60	0.5	505.20, 60 Hz	60	0.3 (33.5 kN of load)
505.20	50	0.7	505.20	50	0.4	505.20, 50 Hz	60	0.2 (33.5 kN of load)
505.30	60	1.6	505.30	60	0.9	505.30	60	0.6 (33.5 kN of load)
505.30	50	1.3	505.30	50	0.7	505.30	50	0.4 (33.5 kN of load)
505.60	60	3.2	505.60	60	2.0	505.60	60	1.4 (33.5 kN of load)
505.60	50	2.9	505.60	50	1.7	505.60	50	1.1 (33.5 kN of load)
505.90*, #	60	3.2	505.90*	60	3.2	505.90*	60	2.2 (33.5 kN of load)
505.90*, #	50	3.2	505.90	50	2.6	505.90	50	1.7 (33.5 kN of load)
			505.180*, #	60	3.6	505.180*, #	60	2.9 (33.5 kN of load)
			505.180*, #	50	3.6	505.180*, #	50	2.9 (33.5 kN of load)

\* Due to a flow limit of 284 lpm with the standard on/off HSM, an optional 293 HSM is required to meet this performance.

# Maximum velocity limited at this specimen load.

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