

# High Rate Testing Systems

## Fast and steady wins the race



Whether you're testing the automotive crash worthiness of plastic or metals, sports equipment safety, or aerospace reliability, MTS Systems Corporation can provide a high rate test system to meet your needs.

For more than 30 years, MTS has been providing servohydraulic test systems capable of tests ranging from the routine to the extreme. For high rate testing, we offer a capability based on experience and proven engineering capabilities unmatched in the industry. From the robustness of our load frames to the efficiency of our software and data analysis, MTS high rate systems have what it takes to perform your test reliably and efficiently.

### Typical High Rate Tests Performed

- ▶ High strain rate tensile tests
- ▶ Dart impact penetration tests
- ▶ ASTM D3763
- ▶ ISO 6603.2
- ▶ Impact flexure tests
- ▶ Impact compression tests
- ▶ Other ASTM/ISO/DIN/BS/AFNOR tests

### Typical Applications

- ▶ Automotive crash worthiness
- ▶ Dashboards
- ▶ Bumpers
- ▶ Sports equipment safety
- ▶ Football helmets
- ▶ Baseball bats
- ▶ Aerospace safety and reliability
- ▶ Plastic material characterization
- ▶ Metallic material characterization

### Custom Engineered Capability

If you don't see the test capability or application you're looking for here, MTS can also work with you to provide an engineered system designed to meet your specific needs.



### Automotive Crash Worthiness

MTS has long provided high rate test solutions for a variety of automotive applications, including solutions for test requirements to satisfy Federal Motor Vehicle Safety Standards. Raw material suppliers and component vendors for automotive interiors often must comply with FMVSS201 (Occupant Protection in Interior Impact) as described by the National Safety Administration for vehicles in 1999 and beyond. MTS has provided a number of systems to meet this test requirement, including a test rate of 264 Inches/Second (15 MPH) and higher.

### Sports Impact

Sporting goods such as hockey skates, goalie masks, and helmets for biking, football, or hockey all must have superior resistance to impact. The safety guidelines established by the U.S.

Consumer Product Safety Commission, and testing standards established by independent certification organizations, are often unique and demanding. MTS has extensive experience in engineering test solutions for these types of products and for the materials used to manufacture them.

### ASTM/ISO Testing

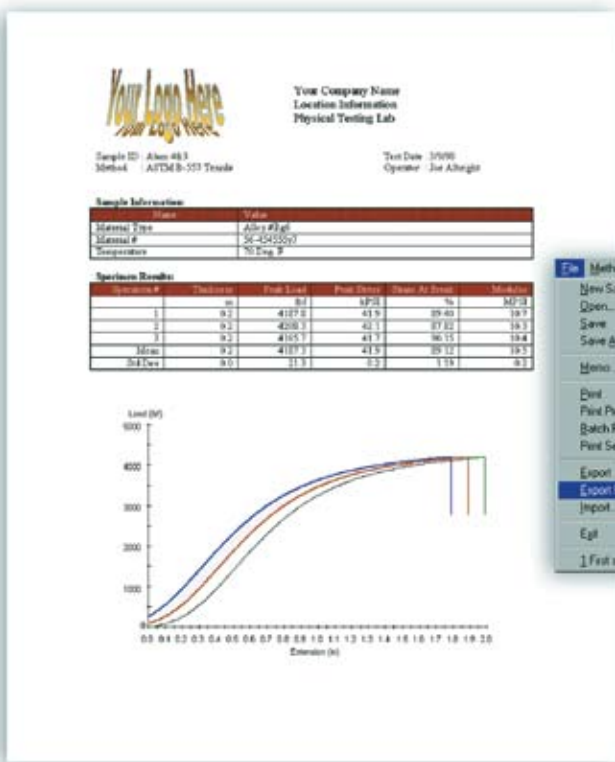
High rate test specifications such as ASTM D3763 and ISO 6603 often require demanding and unique system solutions. When required rates or loads exceed the capabilities of drop or instrumented impact products, look to MTS to engineer the proper solution. We can provide testing systems for high rate tensile, compression or impact applications, and we have vast experience in selecting the proper test system configuration to meet each customer's unique requirements.

Model	Static Capacity	Maximum Velocity (no load)
819.10	6,000 lbs (25 kN)	700 in/sec (18 m/sec)
819.11	6,000 lbs (25 kN)	1200 in/sec (30 m/sec)
819.12	11,000 lbs (50 kN)	400 in/sec (10 m/sec)
819.14	11,000 lbs (50 kN)	600 in/sec (15 m/sec)
819.15	22,000 lbs (100 kN)	300 in/sec (7.5 m/sec)

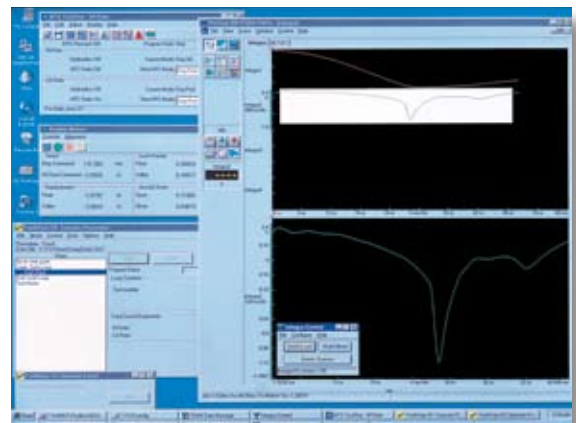
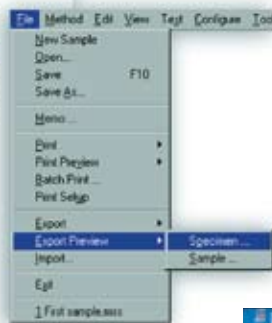


## High Rate Data Acquisition

For high speed data acquisition, MTS uses a proven subsystem that is fully programmable and easy to use. Data acquisition rates go up to 1 MS/s and are synchronized with the test event, assuring that you will capture all the details of your high rate test.



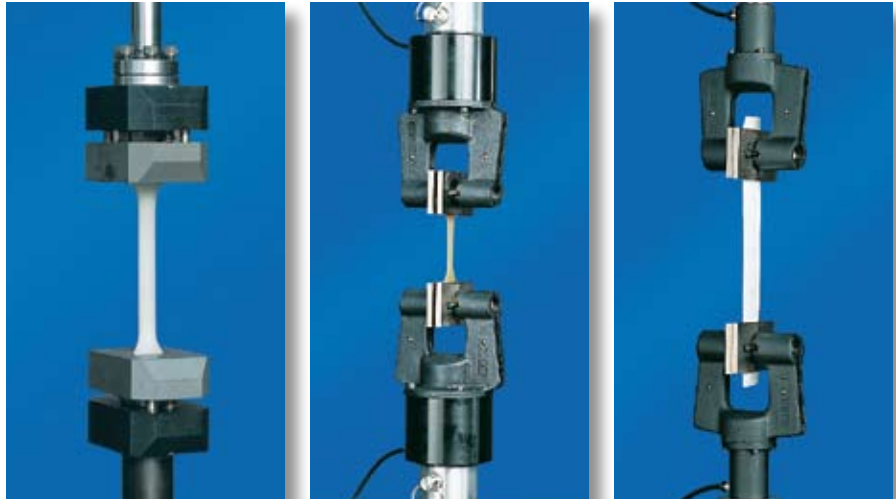
Once you have the data, it can be directly imported into our industry-leading TestWorks 4 software program for analysis and report generation. Whether you want to look at something as simple as peak load or a complex energy calculation, TestWorks 4 can provide the analysis and report generation you want.



Data acquisition software is fully integrated with the MTS TestStar II controller software for flexible, powerful, easy-to-use test control.

## Accessories That Make a Difference

Gripping the test specimen is very critical in high rate systems. It is important that the specimen doesn't slip within the grips during the test, and that the fixturing doesn't influence the load or displacement data acquired during the test. Additionally, the accessories must be as light as possible to provide the high speed capability. MTS can offer grips and fixtures that live up to all three of these requirements.



High rate testing requires specially designed accessories. For tension testing applications, MTS offers a series of light-weight wedge grips in a variety of force ratings. These grips are commonly used with slack adapters, as shown at left, to enable loading of the specimen without an acceleration period. The slack adapter allows a period of free travel so the actuator can reach test speed prior to loading

## Unparalleled Service and Support

Part of the added value MTS provides is the excellent service and support of our staff of application engineers. Degreed engineers with extensive material testing experience and knowledge, they're ready to make sure that you get the most out of your test system investment.



## For More Information

To learn more about MTS high rate systems, contact your MTS sales engineer or use the contact information below.

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ISO 9001:2000 CERTIFIED QMS

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