



MTS Criterion® Series 60 Static-Hydraulic Universal Test Systems

High-performance monotonic testing solutions for research, development and manufacturing

be certain.

THE **MTS CRITERION FAMILY OF UNIVERSAL TEST SYSTEMS**

COMBINES HIGH-PERFORMANCE LOAD FRAME TECHNOLOGY, EASY-TO-USE MTS TESTSUITE™ TW SOFTWARE, AND A FULL COMPLEMENT OF TEST ACCESSORIES TO ADDRESS THE MONOTONIC TESTING DEMANDS OF A DIVERSE SPECTRUM OF USERS, RANGING FROM THE PIONEERING RESEARCHER TO THE HIGH-VOLUME MANUFACTURER.



MTS Criterion Universal Test Systems

Extending MTS testing expertise, technology leadership and unmatched global support across a full spectrum of monotonic testing environments

MTS Criterion systems leverage decades of MTS mechanical testing expertise, technology leadership and unmatched global support to provide accurate and repeatable monotonic testing across a full spectrum of laboratory and industrial settings.

Versatile, high-performance MTS Criterion systems perfectly complement MTS dynamic test solutions to help meet the unique and evolving needs of pioneering materials researchers and developers. Highly reliable and competitively priced, they are also ideal for meeting the robust quality compliance and uptime demands of high-volume manufacturing and product development environments.

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Proven MTS leadership & commitment

MTS is a leading global supplier of mechanical test and simulation solutions. Precision MTS force and motion control technologies and unrivaled testing expertise are integral to the research and development of materials, components and structures across a diversity of industries and fields. The introduction of the MTS Criterion family is the product of our investment into sustainable, globally-compliant hardware and software platforms and a testimony to MTS' continuing commitment to the advancement of materials testing worldwide.

Comprehensive offering

The MTS Criterion family integrates high-resolution MTS controls, a broad portfolio of electromechanical and static-hydraulic load frames, and a full complement of high-quality test accessories. Easy-to-use MTS TestSuite TW software and a large and growing library of test templates extend the utility of these systems across a wide range of applications, including tension, compression, flex/bend and shear tests on specimens such as:

- » Metals
- » Composites
- » Polymers
- » Construction materials
- » Wood and paper products
- » Biomedical products
- » Fibers and textiles
- » Adhesives and coatings
- » Foam
- » and more

Unmatched sales, service and application support

MTS Criterion Systems can be rapidly configured, delivered and set up to quickly meet specific testing requirements. These systems are backed by the global MTS Service & Support organization, a highly experienced team committed to providing test application and systems integration expertise, as well as maintaining system uptime and operational efficiency.

Contact MTS today and explore how high-performance MTS Criterion Universal Test Systems can enhance the flexibility and efficiency of your research, development or manufacturing testing.



Tightly Integrated Monotonic Solutions for Your Specific Testing Environment

Combining the latest in MTS mechanical testing innovation

MTS Criterion Systems integrate the latest MTS hardware and software platform innovations with an expanding selection of test accessories to deliver highly accurate and repeatable monotonic testing for exacting materials research or demanding, high-volume manufacturing QA/QC.

A complete portfolio of universal load frames

The MTS Criterion family includes a comprehensive line of robust Series 60 Static-Hydraulic load frames for performing accurate and repeatable monotonic testing on specimens ranging from sheet metal to high-strength structural steel to reinforced concrete. Available in numerous, high-stiffness configurations, these frames feature high-resolution MTS digital controls and powerful servocontrolled hydraulic

actuation to provide high-speed, low vibration testing across a very broad range of force capacities. MTS Criterion load frames comply fully with the latest global safety directives, including:

- » MACHINERY 2006/42/EC
- » LOW VOLTAGE 2006/95/EC
- » EMC Directive 2004/108/EC
- » GOST-R



State-of-the-art MTS testing technology

MTS Criterion Systems integrate numerous MTS testing innovations to maximize test fidelity, operational efficiency, ease-of-use, safety and maintainability:

- » High-resolution MTS digital controllers deliver high-speed, closed-loop control and data acquisition for higher fidelity test data and more meaningful analysis.
- » Precision MTS load cells offer high stiffness, overload and side load protection, and TEDS self-identification capabilities.
- » Convenient, ergonomic handsets provide full system control at the test space for streamlined setup.
- » The innovative Integrated Operations Platform combines an operator interface, system electronics and controls, and hydraulic power unit into a compact, ergonomic and easy-to-maintain module that is ideal for demanding industrial environments.
- » Full-featured test area enclosures with Integrated Control Pods and automated safety features help ensure operator well-being and full compliance with the latest international safety directives.
- » Durable, easy-to-maintain protective rubber matting extends the life and enhances the maintainability and utility of system test spaces.

Easy-to-use MTS TestSuite TW Software

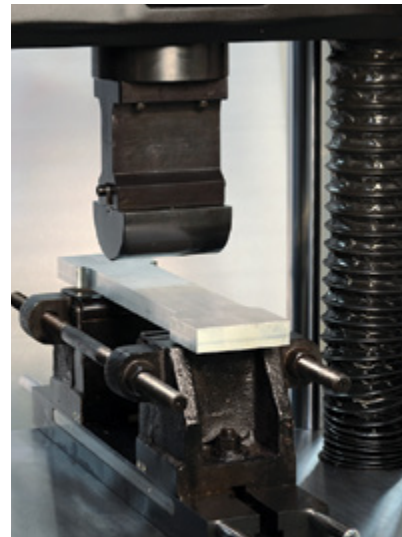
The latest addition to the growing MTS TestSuite platform, MTS TestSuite TW software delivers the versatile array of test definition, analysis and reporting capabilities required to address the evolving needs of advanced researchers,

as well as the intuitive operator interface, selectable multi-language capabilities, and growing host of test templates needed to establish and sustain standard, industry-compliant manufacturing quality testing.



A full complement of test accessories

MTS Criterion System users can draw upon an extensive offering of grips and fixtures, environmental simulation systems and extensometers to address standard and custom test requirements across a full spectrum of monotonic materials testing applications, including tension, compression, flex/bend and shear, peel, tear creep, stress and more.



Supporting the Evolving Needs of Advanced Research & Development

Engineers and researchers worldwide rely on MTS for the testing technology and expertise required to pursue research and development of the next generation alloys, ceramics, composites and polymers so critical to the futures of industries such as aerospace, power generation, ground transportation and biomedical. High-performance MTS Criterion systems are engineered to support these critical endeavors by enhancing the over-all flexibility and efficiency of a research and development test lab.

Cost-efficient monotonic solutions

MTS Criterion systems provide research and development labs with a cost-efficient means to augment and extend the utility of their most valuable testing equipment and resources. Capable of delivering highly accurate and repeatable tension, compression, flexure and other basic tests, these systems free up high-demand dynamic systems for more complex evaluations. Additionally, MTS Criterion systems employ the same MTS TestSuite software platform, and can share many of the same high-quality accessories, utilized by dynamic MTS Landmark® servohydraulic test systems.

Versatile, high-performance hardware & software

The MTS Criterion family comprises an array of versatile, high-performance components to meet the exacting test needs of advanced researchers and help them adapt readily to evolving demands. This array includes a broad selection of configurable load frame hardware, high-resolution controls, a customizable software toolset, and a full complement of precision grips, fixtures, extensometers and environmental simulation systems.

MTS application expertise

MTS Criterion systems are backed by the global MTS Service & Support organization, which is capable of providing the test application and systems integration expertise needed to optimize test system effectiveness and mitigate the risks of pursuing unique or complex custom test applications.



Meeting the Rigorous Demands of Manufacturing QA/QC

The comprehensive MTS Criterion family is also ideal for meeting rigorous quality compliance and uptime demands across a broad range manufacturing and product development environments.

Comprehensive offering

The comprehensive MTS Criterion offering features all the components needed to tailor the right monotonic testing solution for any manufacturing QA/QC or product development needs. The broad selection of optimized load frame hardware, growing library of standards-compliant templates, and full complement of test accessories can be quickly and seamlessly integrated to deliver highly accurate and repeatable monotonic testing of products ranging from metals to polymers and construction materials to textiles.

Rugged, reliable hardware

Durable, high quality MTS Criterion load frames are built to operate reliably within harsh industrial environments, and are designed to be easily maintained. Additionally, MTS Criterion systems are backed by the global MTS Service & Support organization, a highly experienced team committed to maintaining system uptime and operational efficiency.

Cost-efficient, productive test platforms

Competitively priced MTS Criterion systems integrate numerous design innovations to optimize test fidelity, operational efficiency, ergonomics and maintainability. They can be rapidly configured, delivered and set up to quickly meet the specific goals of any testing program. Ease-of-operation, adherence to worldwide safety and ergonomics directives, and a selectable, multi-language MTS TestSuite TW testing interface make MTS Criterion systems an excellent foundation for establishing and sustaining global, standardized test procedures.

Integrated safety features

To help ensure operator well-being and comply with international safety and directives, MTS Criterion systems integrate a variety of safety features, including a full complement of integrated and isolated test space enclosures, mechanically adjustable crosshead limits, motor overheat protection, and more.



Series 60 Static-Hydraulic Universal Test Systems

A complete selection of robust static-hydraulic systems for meeting higher force monotonic testing requirements

MTS Criterion Series 60 systems perform accurate and reliable tension and compression tests of high-strength specimens in a wide range of shapes and sizes. These robust test systems employ reliable MTS servocontrolled hydraulic actuation and high-speed, digital closed loop controls to test in load, displacement or strain control at force capacities ranging from 300 kN to 1000 kN. Series 60 systems are available in a variety of high-stiffness

6-column load configurations, all supported by a compact and ergonomic Integrated Operations Platform. Easy-to-use MTS TestSuite TW software, a large and growing library of standards-compliant test templates, and full complement of accessories extend the utility of these systems across a full spectrum of high-strength metals and construction materials, including:

- » Sheet metal
- » Plate metal
- » Bar metal
- » Fasteners
- » Wire and cable
- » Chain
- » Piping and tubing
- » Structural steel
- » Rebar
- » Welds
- » Castings
- » Forgings
- » Structural components
- » Rock and concrete
- » Pavement
- » Fasteners (non-metal)
- » Wire and cable (non-metal)
- » Rebar (non-metal)

SERIES 60 SYSTEM KEY FEATURES

- » High-stiffness 6-column load frame configurations
- » Reliable MTS servocontrolled hydraulic actuation
- » High-resolution, digital closed loop controls
- » Convenient, test setup and control handsets
- » Versatile, easy-to-use MTS TestSuite TW software with standards-compliant template library (ASTM, ISO, DIN, EN, BS, and more)
- » Complete selection of grips, fixtures, environmental systems and extensometers
- » Compact and ergonomic Integrated Operations Platform
- » Standard Dual Zone Test Space for reducing setup time
 - Tension on top
 - Compression on bottom
- » Non-step loading
- » "Quick Return" hydraulic valve for higher throughput
- » Automatic limit checking of crosshead position, overload, over temperature, over voltage, etc.
- » Optional EU-compliant Isolated Safety Enclosure
- » Fully compliant with MACHINERY 2006/42/EC, LOW VOLTAGE 2006/95/EC, EMC Directive 2004/108/EC, and GOST-R
- » Durable test space protection
- » Easy-to-access maintenance panels



Model 64.305

LOAD FRAME CONFIGURATION: 6-column, servocontrolled hydraulic

RATED FORCE CAPACITY: 300 kN

TEST SPACE: dual zone (tension on top, compression on bottom)



Model 64.605

LOAD FRAME CONFIGURATION: 6-column, servocontrolled hydraulic

RATED FORCE CAPACITY: 600 kN

TEST SPACE: dual zone (tension on top, compression on bottom)



Model 64.106

LOAD FRAME CONFIGURATION: 6-column, servocontrolled hydraulic

RATED FORCE CAPACITY: 1000 kN

TEST SPACE: dual zone (tension on top, compression on bottom)



Model 64.206

LOAD FRAME CONFIGURATION: 6-column, servocontrolled hydraulic

RATED FORCE CAPACITY: 2000 kN

TEST SPACE: dual zone (tension on top, compression on bottom)



MTS Criterion Series 60 Specifications - Comparative

		Model 64.305	Model 64.605	Model 64.106	Model 64.206	
Rated Force Capacity	kN	300	600	1000	2000	
	lbf	67,500	135,000	220,000	450000	
Column Configuration	Column Number	6	6	6	6	
Test Zones	Single/Dual	Dual	Dual	Dual	Dual	
Actuator (Piston) Stroke	mm	150	200	250	250	
	in	5.91	7.87	9.84	9.84	
Actuator (Piston) Speed	mm/min	0.5 - 180	0.5 - 140	0.5 - 90	0.5 - 83	
	in/min	0.02 - 7.08	0.02 - 5.51	0.02 - 3.54	0.0197 - 3.27	
Crosshead Speed	mm/min	220	210	200	256	
	in/min	8.66	8.27	7.87	10.07874016	
Column Spacing (test space width)	mm	410	435	530	720	
	in	16.1	17.1	20.9	28.3	
Tension Test Space*	<i>Standard Length</i>	mm	30-525	30-750	30-790	30-920
		in	1.18-20.66	1.18-29.52	1.18-31.1	1.18-36.22
	<i>Extended Length</i>	mm	30-900	30-1100	50-1150	NA
		in	1.18-35.43	1.18-43.3	1.18-45.27	NA
Compression Test Space**	<i>Standard Length</i>	mm	105-600	110-830	130-910	150-1000
		in	4.13-23.6	4.33-32.7	5.12-35.8	5.91-39.37
	<i>Extended Length</i>	mm	135-980	160-1230	175-1280	NA
		in	2.31-38.58	6.30-48.4	6.89-50.39	NA
Diameter of Round Specimens	mm	6 - 32	10 - 40	15 - 55	15 - 70	
	in	0.24 - 1.26	0.39 - 1.57	0.59 - 2.17	0.59 - 2.76	
Thickness of Flat Specimens	mm	2-25	2 - 30	2 - 40	10 - 70	
	in	0.08 - 0.98	0.08 - 1.18	0.08 - 1.57	0.39 - 2.76	
Minimum Specimen Length	mm	195	216	315	395	
	in	7.68	8.50	12.40	15.55	
Compression Platens	mm	150 x 150 (square)	150 x 150 (square)	220 x 220 (square)	240 x 240 (square)	
	in	5.91 x 5.91 (square)	5.91 x 5.91 (square)	8.66 x 8.66 (square)	9.45 x 9.45 (square)	
Frame Height	<i>Standard Length</i>	mm	2074	2390	2720	3428
		in	81.7	94.1	107.1	135.0
	<i>Extended Length</i>	mm	2470	2780	3130	NA
		in	97.2	109.5	232.5	NA
Frame Width	mm	870	1170	1310	1590	
	in	34.3	46.1	51.8	62.6	
Frame Depth	mm	725	800	910	975	
	in	28.5	31.5	35.8	38.4	
Frame Weight	<i>Standard Length</i>	kg	1950	3150	5250	9700
		lb	4300	6945	11575	21389
	<i>Extended Length</i>	kg	2003	3254	5400	NA
		lb	4416	7174	11905	NA

* Total tension test space is the distance from the grip end with the actuator fully retracted.

** Total compression test space is the distance from the base plate to the compression grip adapter face.

MTS Criterion Series 60 Specifications - Common for 300 kN to 1000 kN

Force Accuracy*	± 0.5% of applied force	± 1.0% of applied force
Force Range**	1% - 100% of rated force capacity	0.5% to 1% of force rated capacity
Displacement Resolution	0.2 um (0.00000787 in)	
Displacement Accuracy	+/- 1% of indicating	
Strain Accuracy***	± 0.5% of applied strain	
Security Protection	Over-force, travel limits, oil pressure, over-temperature, over-voltage and others	
Over Force Protection	110%	
Data Acquisition Rate	1000 Hz	
Control Loop Rate	1000 Hz	
Environmental Requirements		
<i>Operating Temperature Range</i>	5 to 40°C 41 to 104°F	
<i>Operating Humidity</i>	5 - 85% Non-condensing	
<i>Storage Temperature Range</i>	-18 to 49°C 0 to 120°F	
<i>Maximum Storage Humidity</i>	90% Non-condensing	
<i>Maximum Altitude</i>	2000 Meters	
Integrated Operations Platform (IOP) Power Requirements	400 V 50 Hz / 480 V 60 Hz V AC (3 phase)	
IOP Dimensions		
	mm	1040 x 720 x 1900
	in	38.58 x 28.35 x 74.8
IOP Weight		Encoder
	kg	400
	lb	881.85

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* Applicable onsite calibration services are available to meet ISO 7500-1, ASTM E4.

** Exceptions apply. See your local MTS contact.

*** Extensometer calibration services are available to meet ISO 9513, ASTM E83.

Shipping Information

		Model 64.305	Model 64.605	Model 64.106	Model 64.206
Standard Length Frame					
<i>Dimensions - Crated</i>	mm	2400 x 1536 x 1326	2780 x 1690 x 1350	3100 x 1800 x 1520	3820 x 1920 x 1650
	in	95 x 61 x 52	110 x 67 x 53	122 x 71 x 60	150 x 76 x 65
<i>Weight - Crated</i>	kg	2100	3350	5370	10250
	lb	4631	7387	11841	22601
Extended Length Frame					
<i>Dimensions - Crated</i>	mm	2700 x 1536 x 1326	3080 x 1690 x 1350	3510 x 1800 x 1520	
	in	106 x 61 x 52	121 x 67 x 53	138 x 71 x 60	
<i>Weight - Crated</i>	kg	2150	3460	5530	
	lb	4741	7629	12192	
Integrated Operations Platform					
<i>Dimensions - Crated</i>	mm	1220 x 940 x 2330			
	in	48 x 37 x 92			
<i>Weight - Crated</i>	kg	500			
	lb	1102			

MTS TestSuite Software

Efficient and versatile software for productive materials and component testing

MTS TestSuite TW software facilitates the accurate and repeatable mechanical testing of materials, components and finished goods. It provides the versatility required to address unique and complex test requirements, along with the ease-of-operation required for efficient QA/QC testing. With this software, test engineers will have utmost flexibility to create and run tests, analyze data and report results in a way that matches their specific mechanical testing needs, now and well into the future.

The MTS TestSuite TW Software family

Comprises a set of applications and templates that can be bundled together to meet specific test program or organization needs.

TW Elite is the engine that drives all the MTS TestSuite TW offerings. It includes all the test definition capacity and flexibility test designers need to create and edit custom test sequences while accommodating the specific runtime needs of lab personnel.

TW Express is designed for the test operator and is used to run tests created with TW Elite. This application allows the operator to easily execute even the most complex tests and monitor data or calculated values in runtime views that can be tailored by both test designers and operators.

Reporter Add-In for report design and generation, there is a Reporter Add-In for use with Microsoft Excel® that allows the easy organization of raw data and creation of impressive reports with little time investment or manual intervention.

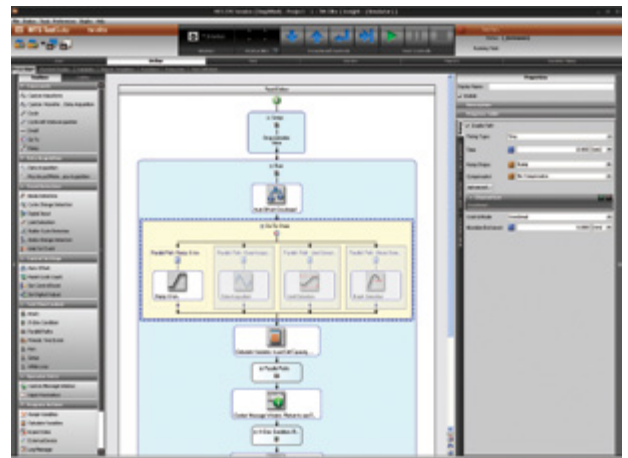
Templates from the straightforward test to the extremely complex calculation, MTS test templates offer a wide array of solutions to reduce test creation time, streamline test execution and support adherence to testing standards. Four types of template solutions are available to meet a range of testing needs:

- » **BASE TEMPLATES** are included with the software application and include five tensile, two flex, five peel/tear, and three compression templates that may be modified to meet specific needs.
- » **ADVANCED PRE-PACKAGED TEMPLATES** make it fast and simple to run tests according to ASTM, ISO and EN standards. Purchased individually or in application-specific bundles, they also can be modified to meet unique requirements.
- » **MTS CUSTOM TEMPLATES** are available for the most complex or challenging test applications. Users can turn to MTS experts for custom test template development, saving valuable test engineering time and resources.
- » An integrated **METHOD CONVERTER** automatically converts TestWorks® 4 software test methods to TW templates for use with MTS TestSuite TW software.

Efficient test definition

MTS TestSuite TW Elite software makes it easier than ever to design a test. Its user-friendly interface and features simplify the creation, customization and sharing of templates for everything from routine to custom testing. Technicians will be empowered to efficiently define parameters for the full complement of standard material tests, including peel, tear, shear, tensile, compression, creep, cyclic and strain. There are four quick and easy ways to create tests.

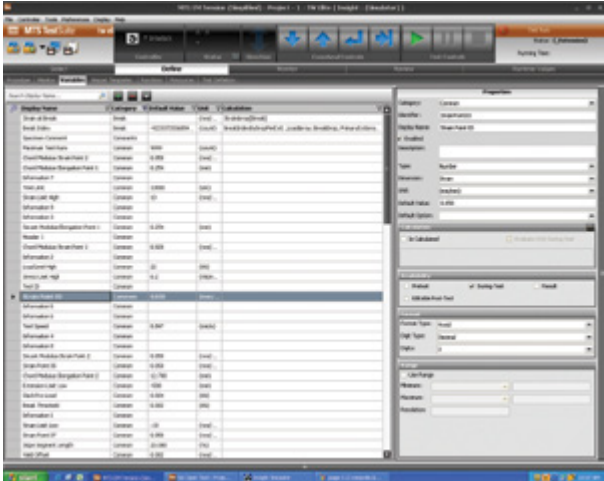
1. Use or modify a base or advanced pre-packaged test template
2. Convert an existing TestWorks 4 software method
3. Design your own test or template
4. Have MTS design a Custom Test Template



The MTS TestSuite TW Test Editor provides an intuitive graphical depiction of workflow that clearly distinguishes finished activities from those that are in progress or have not started yet.

Simple test execution

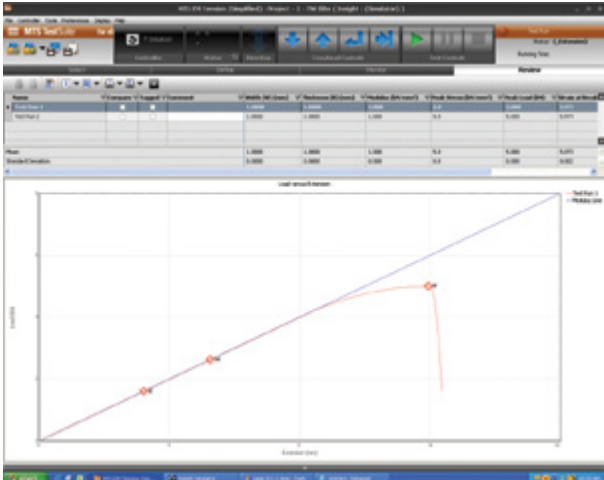
Runtime operation has never been so simple. To execute a test, operators simply choose a test and then follow the easy-to-understand interactive menus. The configurable test monitor allows for superior control and versatility once testing begins. A convenient toolbox displays all required elements in a single location, with tabs that allow users to select from multiple views to productively manage what the user will see while the test is running. The Test Editor view enables simple real-time monitoring of test progress, clearly identifying finished activities from current activities and those that have not yet begun.



The software's interactive menu can be customized to meet the needs and preferences of your test operators.

Robust analysis

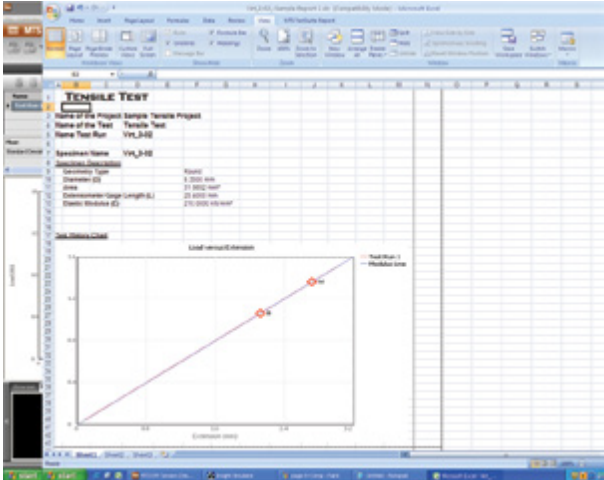
MTS TestSuite TW software features robust capabilities for interacting numerically and graphically with post-test data. You will get the most from your test results with intuitive displays and flexible, interactive data plots, and have full freedom to explore "what if" scenarios by adding variables, calculations, tables or charts. Integrated analysis tools include movable markers, text, and construction lines, and the ability to define a region of interest and easily zoom in for closer inspection. You can even contrast multiple graphs of the same post-test data simultaneously for deeper insight into test specimen properties.



Interactive markers, text and construction lines enable operators to flexibly plot data and zoom in on an area of interest at any time.

Flexible reporting

MTS TestSuite TW software equips users with flexible tools for presenting and sharing test data through detailed runtime reports. They can output results directly via a user-friendly standard report template, or employ the MTS TestSuite Reporter Add-In for Microsoft® Excel® to create custom reports as a process independent from testing itself.



Easily create a report against a defined template as part of a test.

A Full Complement of Test Accessories

Choose the right mix of for your specific testing needs

Grips, platens & fixtures

The MTS Criterion family is complemented by several optimized lines of grips, fixtures and platens to meet a full spectrum of monotonic testing needs.

» MTS Criterion Series 60 systems are complemented by a growing line of accessories to meet a full spectrum of monotonic testing needs. These include affordable grips, fixtures and platens for standard monotonic testing of metals, construction materials, composites, fasteners and more.



Tension Grips



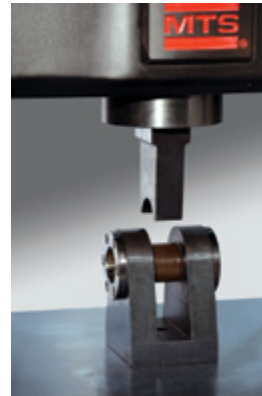
Shoulder Grips



Compression Platen



Concrete Splitting Fixture



Shear Fixture

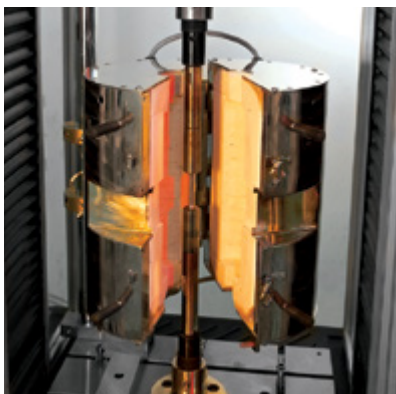


3-point Flexure Fixture

Furnaces

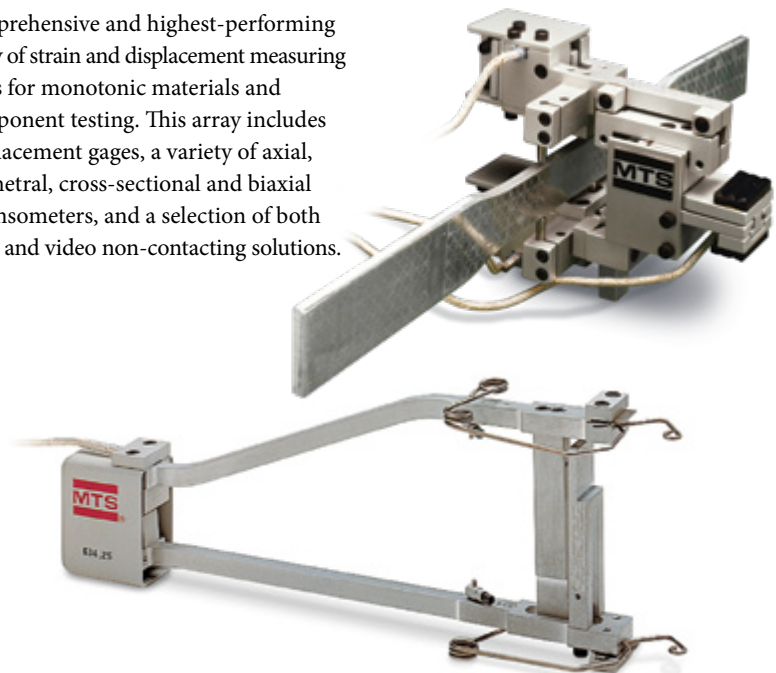
MTS furnaces are ideal for conducting tension, compression, bend and cyclic fatigue testing of metals, composites and ceramics at high temperatures.

A center-split design facilitates easy specimen and fixture access, and mounting brackets are available for a variety of MTS and non-MTS load frames.



Precision extensometers

MTS offers the world's most comprehensive and highest-performing array of strain and displacement measuring tools for monotonic materials and component testing. This array includes displacement gages, a variety of axial, diametral, cross-sectional and biaxial extensometers, and a selection of both laser and video non-contacting solutions.



State-of-the-art MTS Testing Technology

Optimizing test fidelity, operational efficiency, ease-of-use, safety and maintainability

Integrated operations platform

Unique to Series 60 Static-Hydraulic Systems, the new Integrated Operations Platform consolidates the operator interface, system electronics and controls, and hydraulic power supply into a single compact, mobile unit. Ideal for demanding industrial environments, this unit includes a conditioned internal environment to protect components and enhance system maintainability. Ergonomic, centralized controls, a noise-dampening enclosure, and a tidy cabling/hose management system help ensure operator safety and well-being.

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- A** Compact and mobile protective cabinet
 - Environmental conditioning
 - Noise damping
 - Maintenance friendly access panels and doors
- B** System computer and electronics
- C** Ergonomic user interface
- D** High-resolution, closed loop digital controller
- E** Hydraulic power supply
- F** Managed cabling/hose system



State-of-the-art MTS Testing Technology

Optimizing test fidelity, operational efficiency, ease-of-use, safety and maintainability



High-resolution digital controllers

MTS digital controllers deliver high-speed, closed loop control and an industry-leading 1,000 Hz data acquisition rate. This capacity allows you to generate higher resolution test data for more meaningful analysis, achieve higher fidelity across test runs, and gain statistically significant test samples more quickly and efficiently. MTS digital controllers integrate seamlessly into Series 60 Integrated Operations Platforms.

- » 1000 Hz control loop rate
- » Up to 1000 Hz data acquisition rate
- » 20-bit resolution
- » Built-in USB 2.0 for PC communication
- » Self-ID capability for calibration and auto-ranging
- » Two optional strain inputs in addition to the system load cell
- » Two BNC monitor connectors
- » Test area enclosure interlock connector



Precision, TEDS-enabled load cells

Highly accurate MTS load cells are designed to offer high stiffness and stability with low non-linearity. They provide overload and side load protection and are designed with built-in shunt resistors to facilitate regular verification of accuracy using calibration routines featured in MTS software. To increase efficiency and reduce potential operator error, they feature TEDS (Transducer Electronic Data Sheets) self-identification capabilities that follow the recently adopted IEEE 1451.4 standard. This enables an MTS Criterion System to automatically detect installed load cells and download specific calibration information.



Convenient, ergonomic handsets

MTS handsets facilitate streamlined test setup by enabling operators to perform standard system control functions such as start, stop, pause, and crosshead positioning while standing close to the test specimen. The handset can display test status messages, system performance messages, and test results. Two programmable function keys are set up in the software as digital inputs, allowing users to define test functions such as start test, pause and hold position. The handset features a compact, ergonomic design for both right-handed and left-handed operators and a large text display that provides information at a glance.

Durable, easy-to-maintain test space

MTS Criterion Systems feature durable, protective rubber matting to extend the life and enhance the maintainability and utility of the system test space. Both Series 40 and Series 60 systems feature heavy work surface mats, which are designed to protect the load frame base and facilitate easy test space cleanup and maintenance. Work surface mats feature molded edges to prevent tools from rolling off and an integrated groove pattern to channel away spills and debris. Series 60 systems feature grip cavity mats and wedge covers to protect grip/fixture interfaces.



Globally-compliant system safety features

To help ensure operator well-being and full compliance with the latest international safety directives, MTS Criterion Series 60 Systems are designed to accommodate a variety of safety features, including:

- » A full complement of isolated test space enclosures
 - Automatic, low-velocity travel when the enclosure door is open
 - Integrated test space enclosure interlocks
 - Integrated Control Pod
 - ① System Status Light—indicates whether the load frame drive is energized and ready for testing
 - ② E-Stop
 - ③ Test Control Handset
 - ④ Specimen Setup Handset
- » Mechanically adjustable limits to stop the crosshead at predetermined points
- » Motor overheat device to automatically turn off the motor power supply
- » Ability to set limits for load, extension, strain, or any other data channel



Unmatched MTS Service & Support

Committed to maximizing test system uptime and operational efficiency

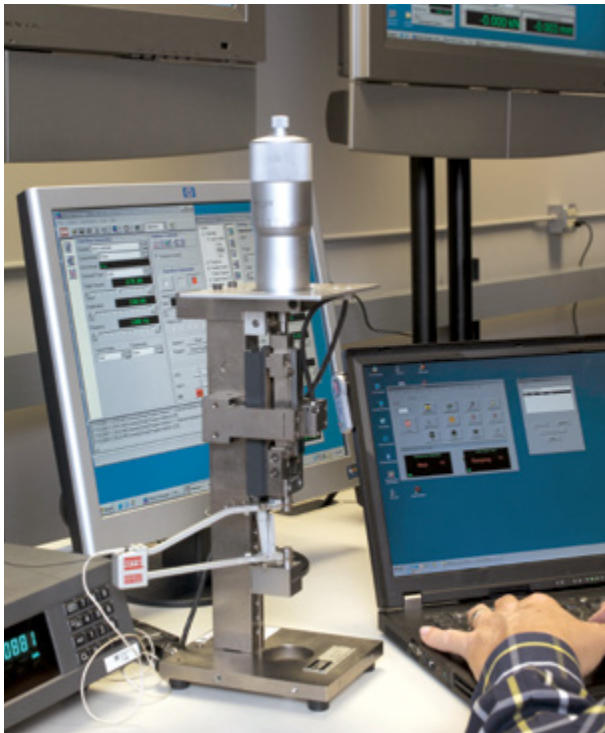
MTS Criterion Systems are backed by the global MTS Service & Support organization. This highly experienced team offers lifecycle management services for all your test systems and is committed to maximizing the uptime and operational efficiency of your test system. With the expertise to support your test equipment from pre-installation to decommission, and at every point in between, MTS has the service solutions to meet your needs for test schedule predictability, data integrity, system performance optimization and budget management.

Onsite services

MTS builds the most rugged test solutions available, but constant motions and forces applied to test specimens ultimately take their toll. Our field service engineers have a worldwide reputation for applications expertise, and will respond to your request for support or repair quickly and efficiently. MTS can also assist with installation or movement of lab equipment. Our service team can help you properly disassemble the equipment, pack it for transportation and install it at a new location. In addition, we offer consumables and spare parts for new-generation MTS equipment and most of our legacy systems.

Engineering services

MTS offers a complete set of professional engineering services, including systems engineering, test consulting and facilities design services. MTS experts will listen to your test objectives, analyze your situation, and translate your desires to specific system requirements. Leveraging years of application expertise, MTS will engineer the right solution that meets your testing needs and business conditions. We can provide test designs, fixture engineering, control system evaluation, data collection and results analysis. By referencing the best practices of test labs worldwide, MTS can help you design test facilities, including hydraulic distribution systems, and recommend long-range lab investment plans that support your business growth strategies or research plans.



Extensometer Calibration



Load Frame Alignment

Training

MTS training programs are designed to improve operator efficiency and optimize system performance. Expertly led and completely customizable, the courses provide hands-on learning to make sure your staff is thoroughly familiar with your test systems and know how to operate them effectively. In addition to a broad selection of standard courses, MTS can customize courses to meet your specific lab needs and deliver the training at our Training Center or your workplace.

Calibration & alignment

All test labs must calibrate their testing equipment to help ensure data accuracy, and MTS provides top-quality, accredited calibration services. We can complete calibration at your location, or in our factory metrology labs. We also offer a range of services, including load frame alignment services, designed to help minimize data variance.

Maintenance & monitoring

Making sure that equipment is operating at full capacity and test projects are completed on time without interruption are important aspects of test lab management. Based on service experiences accumulated over decades, MTS has a set of well-defined routine maintenance offerings tailored for specific systems and components, to help extend equipment life and provide you with confidence in

your equipment operation. We also offer sophisticated assessment tools to better understand equipment condition and anticipate potential issues before they become larger problems.

Upgrade solutions

As technology improves, an upgrade is often the most economical way of expanding your lab capabilities and extending the life of existing test equipment. MTS offers upgrades and replacements for all areas of your test system: mechanical components, controllers and software. Our Software Support Plan (SSP) agreements make it easy to stay current with rapidly changing software technology. Within your contract period, you will automatically receive updates to all software covered in your contract.



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