Retrofit/Upgrade Service for Universal Testing Machines

Not able to perform a test that you wish you could?

INSTRON 4502 Retrofit with new ADMET MTESTQuattro® Materials Testing System

ADMET Retrofit Benefits

✓	Cost savings in the tens of thousands of dollars when compared to purchasing a new machine
✓	Increased capabilities, flexibility, and accuracy of your materials testing system
✓	Reduced testing times
✓	Archived test results to generate comprehensive reports
✓	Fast and error-free calculations according to national specifications
✓	Reliable reports, in the preferred format
✓	Simplified reporting of test results over networks or the Internet
✓	Streamlined operations and effortless training
✓	Increased credentials surrounding your product to support your business development efforts

Transform Older Testing Machines with Today's Technology

Materials testing machines were initially manufactured in the United States in the 1800s and many older machines are still in use today. Often, the equipment remains functional decades after initial purchase, thereby returning the initial investment back to the owner. This is a testament to the ingenuity and craftsmanship of our American engineers and workers.

However, older machines should be upgraded to benefit from newer innovations and capabilities. The replacement costs for older mechanical testing machines can be in the tens and hundreds of thousands of dollars. At ADMET, we have worked with thousands of professionals at retrofitting their materials testing systems across sixty countries on six continents.

Upgrade Your Materials Testing Machines with ADMET's Retrofit Service

Some certification services may indicate high standards that outdated machines do not have and some manufacturers or engineers feel forced to purchase completely new equipment. However, this is not necessary, as ADMET staff can provide the accessories and add-ons needed to accomplish the test procedures at substantial cost savings for the end-user. This may be in the form of software, digital controllers, environmental baths, grips/fixtures, or extensometers.

The make or model of the testing machine - whether made in the United States or abroad, designed for static or fatigue testing, or powered by an electric servo motor or hydraulic power unit - will not affect the retrofit process in any consequential way. Any testing system can be upgraded with ADMET's retrofit service.

Retrofits Save Money

To expand upon a point mentioned previously, by retrofitting an older machine the owner will gain clear cost benefits over the purchase of a new system. The reason for this is because the most expensive and durable part of a new system is the load frame. By keeping that old load frame in place and merely adding digital controllers and Windows-based software, you expand functionality with minimal investment.

Equipment for a typical retrofit costs between $1,500 for the integration of a simple digital indicator to $35,000 for a new servo-hydraulic power unit with a Windows-based materials testing system. Since a brand new 200,000 lb capacity universal materials testing machine costs between $250,000 to $300,000, a retrofit will save more than $200,000 for a company. A smaller 60,000 lb. machine would cost $70,000 to $85,000 to replace. In this scenario, a retrofit would save between $30,000 to $40,000 for the customer.

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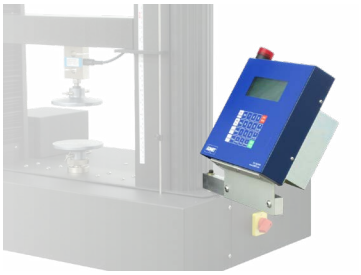
Retrofit/Upgrade Service for Universal Testing Machines

Expand functionality for minimal investment.

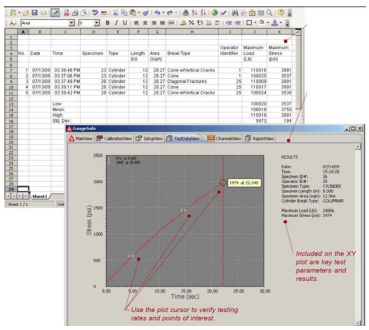
ADMET Controllers and Indicators

By pairing an older system with an ADMET controller or indicator, the functionality of the system is transformed, such as a new range of testing, the production of metrics and calculations and the output of essential reports. Our advanced PC-based MTESTQuattro® software incorporates a wide array of reporting, data acquisition, analysis and control. Alternatively, ADMET offers the eP2 Digital Controller, a standalone touch panel unit, for quality and process control measurements.

Adding indicators to a materials testing system can also provide the option to measure and record peak load. ADMET can pair the GaugeBuster 2 or Pi indicator with a load cell or pressure transducer to determine the live peak load/stress of a sample. In addition, ADMET can upgrade a system with a new servo motor, actuator, load cell or pressure transducer as well as convert the system to full closed-loop automatic control.



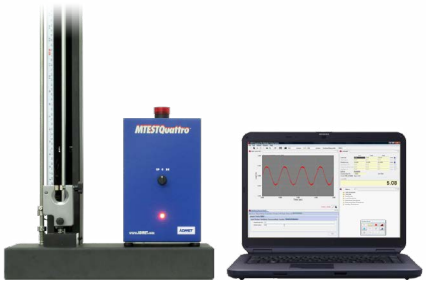
eP2 Digital Controller

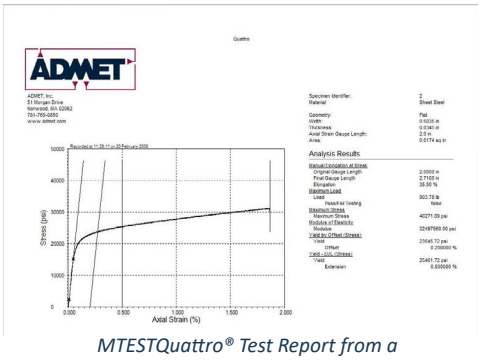


GaugeSafe Data Exchange Program

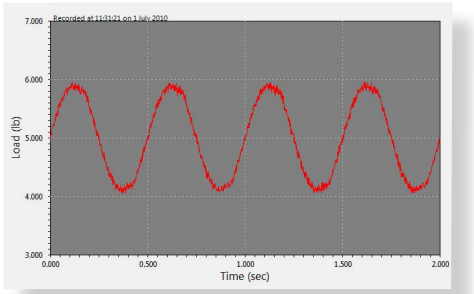
eP2 Digital Controller - A standalone pushbutton controller well suited for performing a variety of standard tension, compression and bend tests. Includes the GaugeSafe Data Exchange Program for generating reports and stress vs. strain plots from test data uploaded to a computer.

MTESTQuattro® - A full featured pc-based materials testing controller with software for manual or servo equipped machines.





MTESTQuattro® Test Report from a Tensile Pull on a Metal Sample.



MTESTQuattro® dynamic test waveform.

Digital Indicator Retrofits - Update your existing manually operated testing machine with an ADMET Gauge Buster 2 or Pi Peak Load Digital Indicator to increase the accuracy of your results and perform tests that were previously not possible.

Gauge Buster 2 Digital Indicator

Pi Peak Load Indicator

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Expand functionality for minimal investment.

Retrofits Meet New Standards

Testing requirements of major organizations such as ASTM, ASME, AASHTO, ISO, DIN, JIS, and others undergo regular changes and continuous revisions as materials science and its applications evolve. Machines that were designed decades ago may not have the correct capabilities to conduct the test and produce the data required by current and future standards.

ADMET addresses this problem by combining modern transducers, electronics, software, and full servo control with an older system. Retrofits enable users to conduct more sophisticated tests using better control of the testing machine and more thorough reporting.

For instance, Dexter Axle upgraded its Riehle electro-mechanical testing machine at its manufacturing plant, located in Fremont, Indiana, to perform modulus tests on rubber cords used in its Torflex axle system.

"Before the upgrade, I was using the manual system," James Bryan, Dexter Axle quality technician, said. "It was very difficult to accurately control the different speeds. Our results were all over the map and I had no confidence in the results. Now we get results that we can rely on and we can easily transfer them to our statistical quality control system or to a spreadsheet."

Above: Retrofit of an Instron Electromechanical UTM; Servo Hydraulic Console for Baldwin Testing Machine.

Left: MTESTQuattro® retrofit of Tinius Olsen 400K SL B.

Retrofit Options	Capabilities	Units Offered
Fully Automatic Closed-Loop Servo Control Upgrades	Upgrade static and fatigue based hydraulic testing machines with a new ADMET hydraulic power unit or incorporate an ADMET servo-manifold into the existing hydraulic power unit. Upgrade static and fatigue based electro-mechanical testing machines with new servo motors and amplifiers. Install a new ADMET controller with software on existing servo equipped hydraulic and electromechanical testers.	MTESTQuattro: full featured pc-based system for quality control and research. Provides cyclic and static testing capabilities. Generate comprehensive test reports according to ASTM/ISO test standards. eP2 Digital Controller: standalone push-button controller well suited for repetitive quality control testing.
Data Acquisition Upgrades for Manually Controlled Machines	Indicate load, load rate, stress, stress rate, position, position rate, axial strain, axial strain rate. Perform many ASTM/ISO test under manual control.	MTESTQuattro: gain all of the benefits of a full featured pc-based testing system minus the servo control capabilities. eP2 Digital Controller: standalone push-button controller well suited for repetitive quality control testing
Replace Existing Dial Gauges and Digital Indicators on Manually Operated Machines	Indicate load, load rate, stress, stress rate, position, position rate, axial strain, axial strain rate. Perform many ASTM/ISO test under manual control.	Gauge Buster 2 Load/Stress Indicator pi Peak Load Indicator

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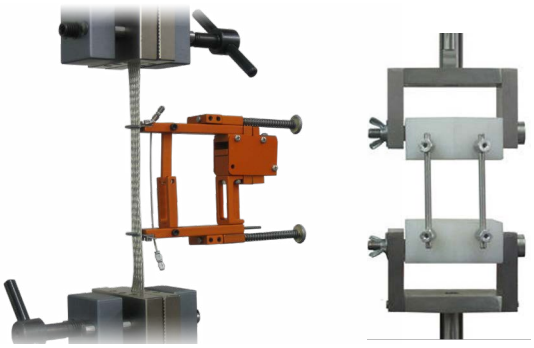
Accessories



Heated fluid baths are offered to facilitate testing in vitro. Environmental chambers are available for testing at sub-zero or elevated temperatures. Custom fixturing specific to an ASTM or ISO specification is also available. Both contact and non-contacting extensometers can be provided for improved strain measurement. In addition, ADMET offers a full line of standard grips and fixtures which can be viewed from our online catalog at www.ADMET.com.

Service and Calibration

Training and Service - ADMET testing machines are configured and simplified for customers' needs as well as easy to install and utilize. We provide introductory online training along with on-site training and installation. A retrofit from ADMET can be quickly installed at the customer's site in one to three days. In addition, we offer phone and e-mail support throughout the lifetime of a system.

Calibration - Customers can setup calibration contracts with ADMET or a private third party. All services meet ISO/IEC Guide 17025 and ANSI/NCSL Z540.

Partial List of Organizations that have benefitted from an ADMET Retrofit

American Airlines
BAE Systems
Bell Helicopter/Textron
Bodycote Materials Testing
Boeing Company
Burton Snow Board
Brigham & Women's Hospital
Carnegie Mellon University
Caterpillar
Dexter Axle
Drexel University
Duke Energy
Ellison Surface Technology
Ford Motor Company
GAS Technology Institute
General Electric
Halliburton
Hamilton Sundstrand
Haynes International
Hexcel Composites
Honeywell
John Deere S.E. Engr Center
Johns Manville
Lawrence Livermore Ntl Lab
Lockheed Martin Aerospace
Los Alamos National Laboratory
Louisiana Tech University
Mass Institute of Technology
Minnesota DOT
Orton Ceramics
PCC Structurals
Philadelphia Water Department
Schlumberger
Special Metals Co.
Thai Airways Intl
US Naval Academy
US Dept of Agriculture
University of Connecticut
University of Miami
University of Pittsburg
University of Texas
University of Vermont
Virginia Tech
Weyerheauser
Woods Hole Ocean Institute

ADMET Retrofits have been installed on the following testing machine makes

Adelaide
ATS
Amsler
Baldwin
Chant
Chatillon
Dayco(Schenck)
Dillon
Denison
Detroit
ELE Soiltest
Forney
Galdabini
Instron
LAB Testing
Lansmont
Lloyd
Macom
Mayes
Mohr & Federhaff
Monsanto
MTS
Reihle
Roberts
Roell
Satec
Schenck Trebel
Scott Testing
Shimadzu
Shin Poong Works
Sintech
Smipo
Test Mark
Testing Machines
Thwing Albert
Tinius Olsen
ToniTechnic
United
Wolpert
Zwick

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Increase the accuracy and capability of your testing machine.

Give us a call at 800-667-3220 to find out how much we can save you over the cost of a new machine; or fill out the following four pages and email to sales@admet.com.

We will promptly contact you to discuss your retrofit project.

Testing Machine Retrofit Evaluation Form

Email (4) pages to: ADMET at sales@admet.com

Section 1.0

Name:_____ Phone: _____ Fax: _____

Company:_____ E-mail: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip Code: _____

Type of Retrofit:

a) Keep current machine controls and add a Digital Indicator or MTESTQuattro

b) Update machine to servo control and add a Digital Indicator or MTESTQuattro

Complete Sections 2.0, 4.0 and 5.0 if you have a hydraulic testing machine.

Complete Sections 3.0, 4.0 and 5.0 if you have an electromechanical testing machine.

Use the hydraulic and electromechanical testing machine diagrams on the following pages to help you determine the type of testing machine.

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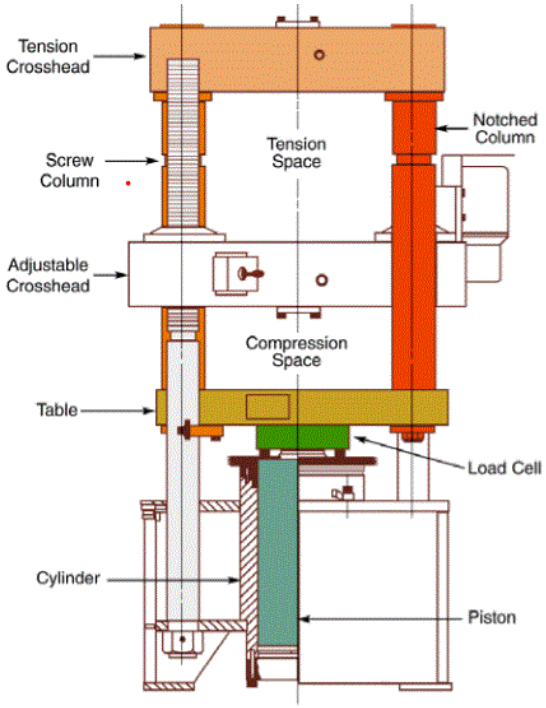
Increase the accuracy and capability of your testing machine.

Section 2.0 - Complete this Section if you have a Single or Dual Acting Hydraulic Testing Machine



Anatomy of a Single Acting (RAM) Hydraulic Testing Machine

Section 2.0 - Hydraulic Testing Machine (fill out Section 3 for electromechanical machine)

Manufacturer: _____ Model#: _____ Age: _____

Serial Number: _____ Machine Capacity: _____

Piston Diameter: _____ Piston Stroke: _____

Is the hydraulic console fixed to the machine?: ☐ yes ☐ no

Is the machine currently servo controlled?: ☐ yes ☐ no

Does the machine use hydraulic grips?: ☐ yes ☐ no

Does the machine have a transducer to measure piston position?: ☐ yes ☐ no

If yes: Manufacturer: _____ Model#: _____

Does the machine have an electric motor to move the crosshead?: ☐ yes ☐ no

If yes: Manufacturer: _____ Model#: _____

Motor: Voltage: _____ Current: _____ Horsepower: _____

Complete Sections 4 and 5 on following pages prior to faxing.

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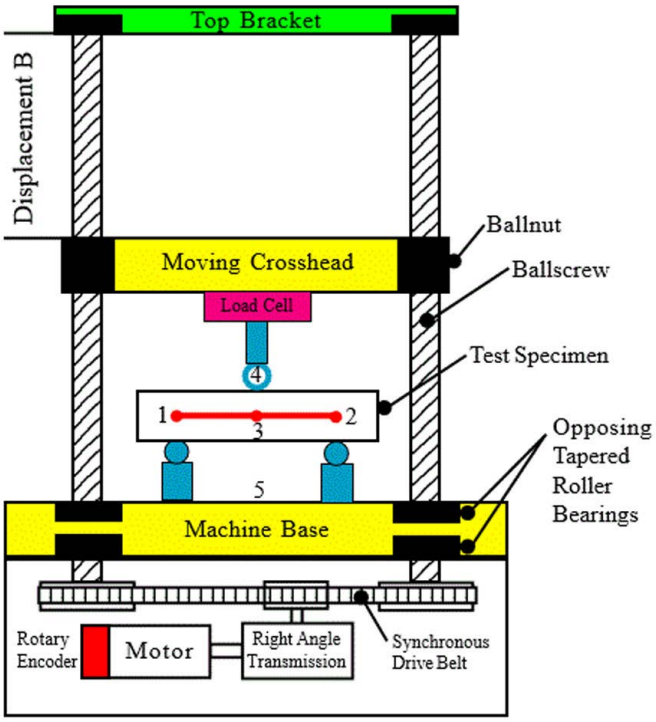
Section 3.0 - Complete this Section if you have an Electromechanical Testing Machine



Anatomy of an Electromechanical Testing Machine

Section 3.0 Electromechanical Testing Machines **(fill out Section 2 for hydraulic machine)**

Manufacturer: _____ Model#: _____ Age: _____

Serial Number: _____ Machine Capacity: _____

Speed Range(s): _____ How many gear ratios on the machine: _____

Motor Manufacturer: _____ Motor Model#:_____

Motor Ratings: Voltage: _____ Current: _____ Horsepower: _____

Motor Tachometer: ☐ yes ☐ no Type: ☐ Analog ☐ Encoder

Motor Amplifier Mfg: _____ Motor Amplifier Model#: _____

How does the machine measure the position of the crosshead?

☐ Motor Encoder ☐ Crosshead Encoder ☐ Crosshead Potentiometer ☐ Screw Drive Encoder

Manufacturer: _____ Model#: _____

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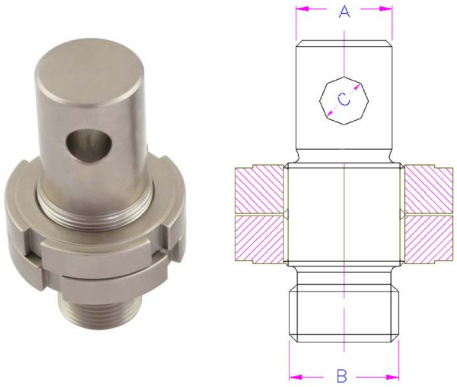
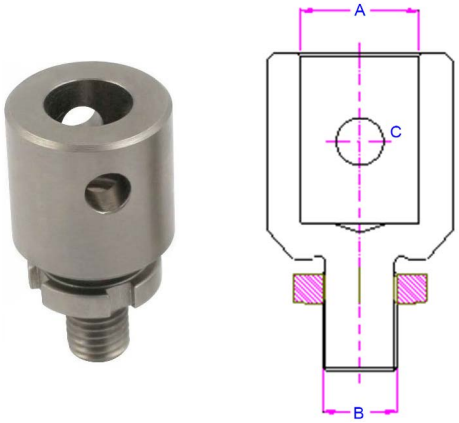
Section 4.0 Transducers and Test Methods



Male (M) threaded Male (M) Adapter



Male (M) threaded Female (F) Adapter

Load Measuring Transducers

What type of transducer is used to measure force? ☐ Pressure Transdcuer ☐ Load Cell

Transducer 1: Manufacturer: _____ Model #: _____ Capacity: _____ Thread Size:_____

Adapter 1: Adapter [A] (M or F, Diameter): ___,_____ Thread [B] (M or F , Size): ___,_____ Pin Hole Diameter [C]: _____

Transducer 2: Manufacturer: _____ Model #: _____ Capacity: _____ Thread Size:_____

Adapter 2: Adapter [A] (M or F, Diameter): ___,_____ Thread [B] (M or F , Size): ___,_____ Pin Hole Diameter [C]: _____

Transducer 3: Manufacturer: _____ Model #: _____ Capacity: _____ Thread Size:_____

Adapter 3: Adapter [A] (M or F, Diameter): ___,_____ Thread [B] (M or F , Size): ___,_____ Pin Hole Diameter [C]: _____

Transducer 4: Manufacturer: _____ Model #: _____ Capacity: _____ Thread Size:_____

Adapter 4: Adapter [A] (M or F, Diameter): ___,_____ Thread [B] (M or F , Size): ___,_____ Pin Hole Diameter [C]: _____

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Strain Measuring Transducers (Extensometers)

Transducer 1: Manufacturer: _____ Model #: _____ Gage: _____ Range: _____

Specimen Geometry (Flat or Round) : _____

Transducer 2: Manufacturer: _____ Model #: _____ Gage: _____ Range: _____

Speciment Geometry (Flat or Round) : _____

Transducer 3: Manufacturer: _____ Model #: _____ Gage: _____ Range: _____

Specimen Geometry (Flat or Round) : _____

Transducer 4: Manufacturer: _____ Model #: _____ Gage: _____ Range: _____

Specimen Geometry (Flat or Round) : _____

Test Procedures

Types of materials being tested: _____

_____

ASTM/DIN/etc. specifications being followed: _____

_____

_____

Other specialized test procedures: _____

_____

_____

Section 5.0 Control Panel Functions and Power

Functions present on control panel (check all that apply)

☐ ON/OFF ☐ E-Stop ☐ Up/Down Jog ☐ Load Cell Select ☐ Auto/Manual ☐ Speed Potentiometer

☐ Other: _____

What Power is available in your facility?

☐ 120 VAC 1ph ☐ 220 VAC 1 ph ☐ 208 VAC 3 ph ☐ 220 VAC 3 ph ☐ 440 VAC 3 ph

Is the machine in good working order or is something damaged?: _____

_____

Other Information: _____

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