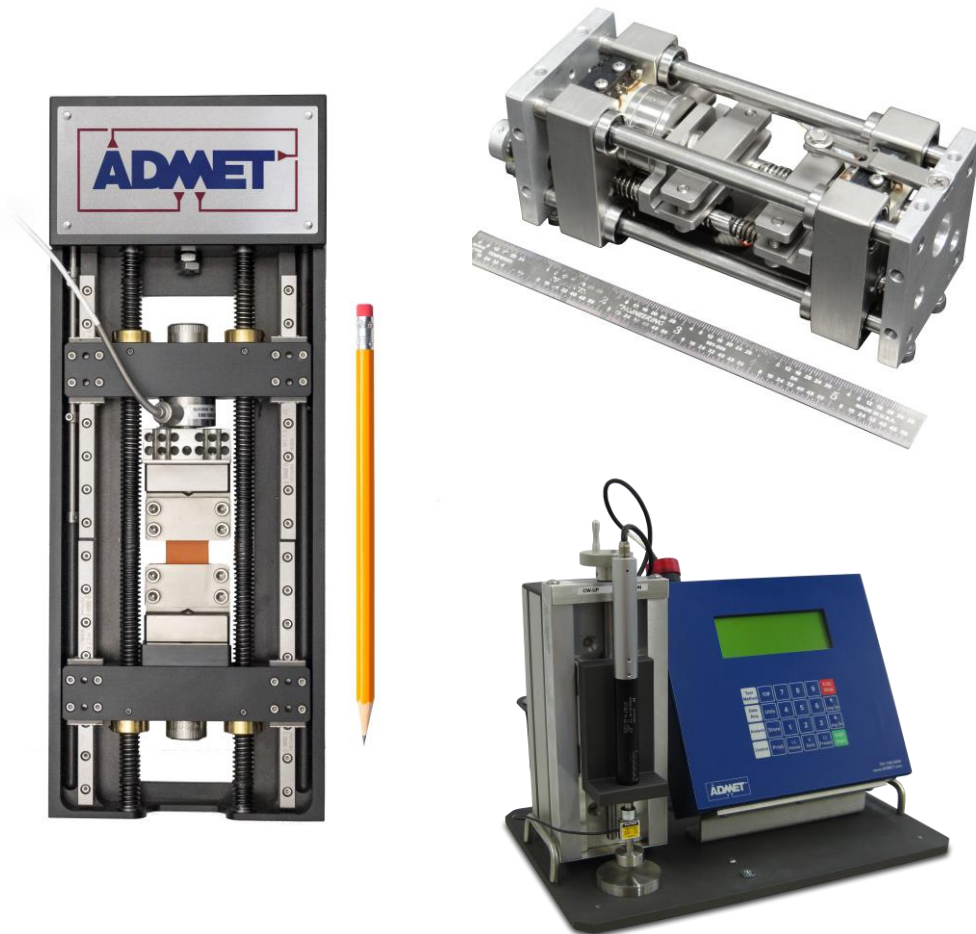


eXpert 4000 Series®

Static and Dynamic MicroTesters



Micro-Scale Testing for Innovative Materials Research

ADMET **eXpert 4000 Series MicroTesters** deliver exceptional value for small specimen, low-force applications where conventional Universal Testing Machines fall short. As innovation accelerates across biomaterials, bone, fibers, thin films, wire, and more, researchers and quality professionals increasingly need precise measurement of miniature specimens.

Testing at this scale introduces real challenges: very low forces, infinitesimal displacements, and samples that are delicate and difficult to grip. Many conventional testing systems lack the sensitivity and control required, especially when combined with the need to observe microscopic material behavior under load. The eXpert 4000 Series is purpose-built to solve these problems. These systems integrate seamlessly with high-magnification imaging tools, including **optical microscopes, SEMs, and vacuum-based environments**. Optional **heating, cooling, and environmental baths** enable testing under a wide range of in-situ conditions.

With capacities up to 5 kN, versatile fixturing, and advanced controllers, the eXpert 4000 supports **static, quasi-static, and cyclic fatigue testing** for a wide range of small-scale materials, from tissues and biomaterials to metals and thin films.

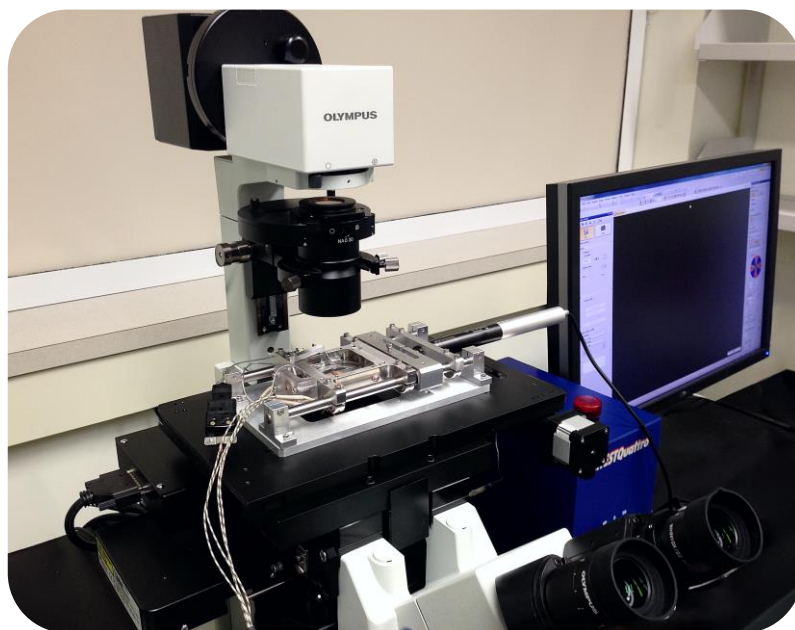
Common test applications include:

- Soft biological tissues
- Bone samples
- Engineered fibers
- Thin films
- Wire

eXpert 4000 integrates easily to:

- Scanning electron microscopes
- Optical microscopes
- Vacuum-based environments
- Heating and cooling chambers
- Saline-compliant baths
- BioReactor environments

eXpert 4000 MicroTester on Microscope Stage



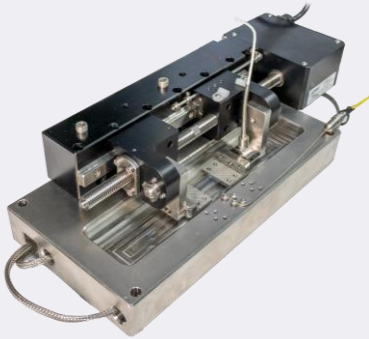
Common ADMET MicroTester Configurations

eXpert 4100 – Linear Actuator with Single Moving Crosshead



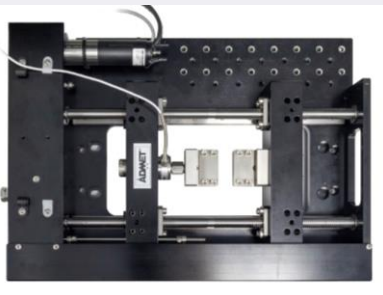
- High displacement resolution with strokes to 25mm
- Integrates with bath, heating elements, and bioreactors
- Vertical or horizontal test orientations available
- Force capacities available up to 100 N

eXpert 4200 – Single-Screw Actuator with Dual Opposing Crosshead



- Center of specimen remains stationary throughout test
- Best for high-speed cyclic fatigue testing
- Integrates with baths, heating, vacuums, microscopes
- Force capacities available up to 1,000 N

eXpert 4200 – Dual-Screw Actuator with Dual Opposing Crosshead



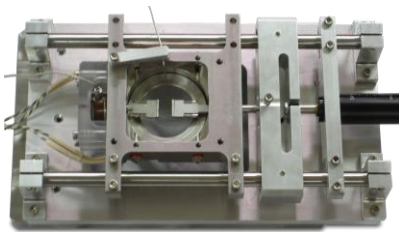
- Center of specimen remains stationary throughout test
- Best for larger samples and higher elongations
- Integrates with baths, heating, vacuums, microscopes
- Force capacities available up to 5,000 N

Standard¹ MicroTester Specifications

MODEL		4100 <i>Linear Actuator</i>	4200-1 <i>Single-Screw</i>	4200-2 <i>Single-Screw</i>	4200-3 <i>Dual-Screw</i>	4200-4 <i>Dual-Screw</i>
Load Capacity	<i>lbf</i> <i>N</i>	10 45	112 500	225 1,000	562 2,500	1,124 5,000
Maximum Speed ¹	<i>in/min</i> <i>mm/min</i>	2 50	40 1000	20 500	40 1000	20 500
Crosshead Travel ^{1,2}	<i>in</i> <i>mm</i>	1 25	4 100	4 100	6 150	6 150
Lateral Test Space ¹	<i>in</i> <i>mm</i>	3 75	1.1 28	1.1 28	4 100	4 100
Position Resolution	<i>μin</i> <i>nm</i>	0.2 4.6	3.9 100	3.9 100	3.9 100	3.9 100
Single Phase Voltage	<i>VAC</i> <i>Hz</i>	100-240 50-60	100-240 50-60	100-240 50-60	100-240 50-60	100-240 50-60

1: Specifications for standard system configurations are listed. Alternate specifications can be provided to meet a customer's specific testing application needs.

2: Total crosshead travel is calculated without load cells, grips and fixtures. Systems with longer or shorter total crosshead travel can be provided upon request



eXpert 4000 series horizontal 45N MicroTester equipped with a heated fluid bath and spring-loaded pin grips for testing mouse tendons. The base of the MicroTester is compatible with the XYZ stage of an imaging system for high magnification viewing of material behavior.

Measurement Performance – ADMET offers best-in-class accuracies for repeatable and reliable testing



Load Measurement Accuracy: +/- 0.5% of reading down to 1/500 of load cell capacity. Meets or exceeds ASTM E4, BS/EN/ISO 7500-1: 2004, DIN 51221 and JIS B7721 standards. ADMET self-identifying load cells are offered with all systems.

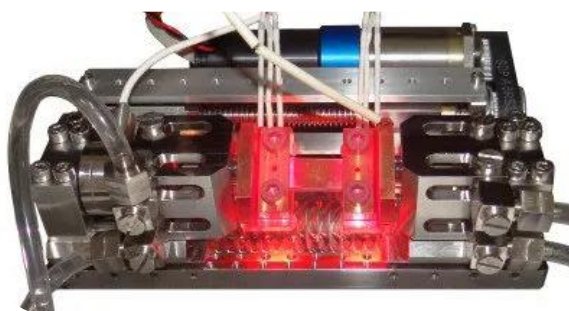


Strain Measurement Accuracy: +/- 0.5% of reading down to 1/50 of full scale with ASTM E83 class B extensometers. Meets or exceeds ASTM E83 and BS/EN/ISO 9513:2002 standards.



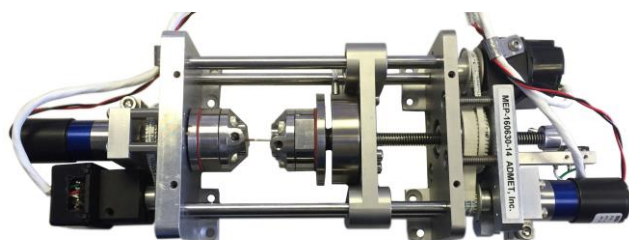
Crosshead Position Accuracy: ADMET eXpert 4000 MicroTesters are commonly offered with nanometer resolution. Exact measurement characteristics will vary based on system design.

Precise Micro-Scale Materials Testing, Tailored for You.



The ADMET Advantage:

At ADMET, we recognize that standard, "off-the-shelf" testing systems often fall short of the rigorous and unique demands of specialized research. That is why the **eXpert 4000 Series** is built on a foundation of total customization. We don't just sell equipment; we partner with you to tailor every MicroTester design to your precise experimental requirements.



As such, ADMET can **customize MicroTester designs** to suit each customer's specific testing requirements. We can adjust the performance specifications of our test systems, provide options for high/low temperature testing, heated baths, and geometry/mounting modifications to fit seamlessly into various specific devices like optical microscopes, SEMs, and vacuum chambers.

MTESTQuattro® Windows-Based Controller and Software Capabilities:

ADMET eXpert 4000 MicroTesters are also equipped with our powerful **MTESTQuattro Controller and Software** which allows for a wide range of flexibility in test control, data acquisition, analysis, and reporting. This versatile closed loop PID controller allows unlimited possibilities in terms of test procedures and **extremely tight actuator response** with its **8 kHz servo update rate**. With MTESTQuattro driving the eXpert 4000 MicroTester, you can be assured of **precise and repeatable results each and every time**.

Control and Accuracy	Analysis and Reporting	Integration and Safety
✓ 8 kHz closed-loop PID control	✓ ASTM/ISO calculation library	✓ Export to CSV, Excel, MATLAB
✓ Multi-axis/Multi-step sequencing	✓ Real-time plotting capability	✓ Digital, analog I/O for accessories
✓ Load, displacement, strain control	✓ Fully customizable digital reports	✓ User-defined limits & interlocks

Service and Training

ADMET strives to make its materials testing products powerful and easy-to-use. Free technical support is standard with the purchase of any ADMET product. We also offer an array of services to help you use your ADMET system to its fullest potential.

Available Services

- ✓ On-site installation and training.
- ✓ Custom analysis and report generation.
- ✓ Creation of, or connectivity to, your in-house database program.
- ✓ Online training with WebEx.
- ✓ On-Site ISO/IEC 17025:2017 Calibration Services.
- ✓ Preventative Maintenance Planning.
- ✓ Install, Operational Qualification (IQ/OQ) Documentation.

ISO/IEC 17025:2017 On-Site Calibration Services

ADMET provides a full range of calibration and maintenance services designed to fit your needs and budget. Our in-house calibration and service team has deep, hands-on knowledge of ADMET systems and is equipped to support you in any situation. Customers who require accredited calibrations in their laboratories or production facilities can establish calibration contracts with ADMET, ensuring automatic service at customer-defined calibration intervals. Proven maintenance programs help minimize downtime on production testing equipment, and each contract can be customized to match your specific equipment and operational requirements.

As a matter of course, we provide all calibration passwords to you at the time of your instrument or machine purchase. This enables you to choose who performs calibration and maintenance on your systems.

ASTM Calibration Standards offered:

- ASTM E4 – Tension/Compression Force Verification
- ASTM E2309 – Crosshead Displacement Verification
- ASTM E2658 – Crosshead Speed Calibration
- ASTM E83 – Extensometer Verification and Classification
- ASTM E2624 – Torque Calibration



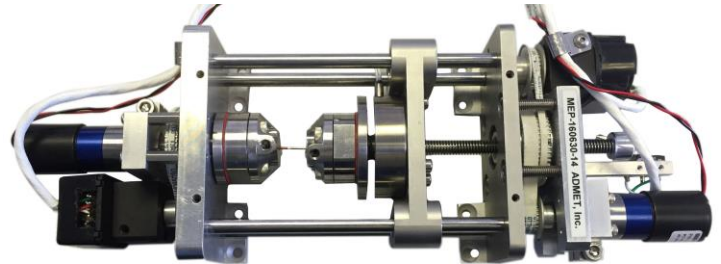
Submit An Inquiry At:
calibration@admet.com



Application Gallery: eXpert 4000 Series



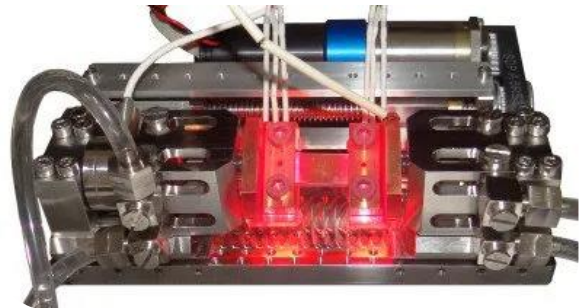
Vertical Design with Compression Platens



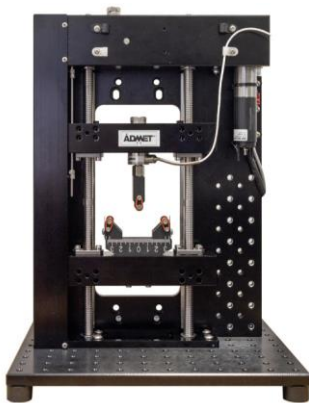
Axial Torsion Dual-Actuator Design



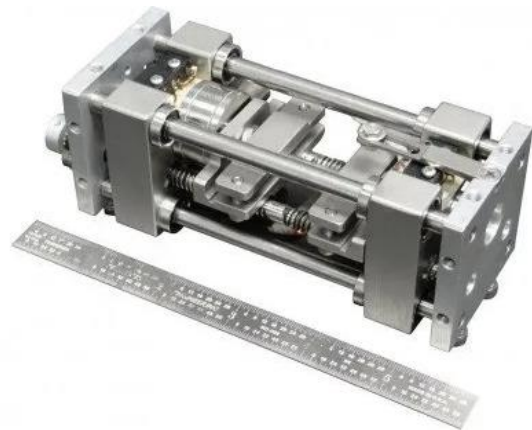
MicroTester with Optional Microscope



SEM-Mounted High Temperature Design



MicroTester with Bend Fixture Accessory



Ultra-High Vacuum (UHV) Design



All ADMET systems and software are designed, engineered, and manufactured in the United States.

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www.ADMET.com



Test with Certainty.

www.admet.com

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