

eXpert 1900 Series®

Servo-hydraulic Fatigue Testing Systems



Proven Fatigue Performance for Long-Life Validation

ADMET eXpert 1900 Series Servo-hydraulic Fatigue Testing Systems are engineered for applications requiring precise, repeatable cyclic loading under real-world conditions. Designed for **tension, compression, axial, and combined loading fatigue tests**, these systems deliver **stable waveform control, accurate load feedback, and long-term durability** for high-cycle and low-cycle fatigue testing. With robust hydraulic actuation, rigid load frames, and advanced control electronics, the eXpert 1900 series supports product durability testing, life prediction, and standards-based fatigue qualification in the most demanding environments.



▶ All eXpert 1900 fatigue systems can be equipped with furnaces, environmental chambers, safety enclosures, and custom fixturing to meet your exact testing needs.



While designed for fatigue applications, eXpert 1900 series machines can support high-force static testing.

System Highlights

Rigid, Fatigue-Rated Load Frames: Heavy-duty welded or bolted load frames minimize system compliance, ensure accurate stress transfer to the specimen and deliver repeatable results across test runs. Systems support sinusoidal, triangular, trapezoidal, and custom waveforms for accurate simulation of real-world loading conditions.

Stable Long-Duration Cycling: Engineered for continuous operation during long fatigue tests, maintaining consistent load amplitude and waveform fidelity over millions of cycles. Ideal for durability testing, endurance validation, and life-cycle assessment.

Designed with Safety In Mind: With dependable hardware, protective shielding, and other built-in safeguards, the eXpert 1900 series delivers safe and consistent performance in busy lab environments.

System Specifications

MODEL	Unit	1911 <i>Fatigue</i>	1912 <i>Fatigue</i>	1913 <i>Fatigue</i>	1914 <i>Fatigue</i>	1956 <i>Fatigue</i>
Load Capacity	<i>lbf</i> <i>kN</i> <i>kgf</i>	2,250 10 1,000	5,620 25 2,549	11,250 50 5,098	22,500 100 10,000	56,250 250 25,000
Piston Area	<i>sq.in</i> <i>sq.mm</i>	0.982 633.6	2.503 1,614.8	5.154 3,225.2	9.425 6,080.6	25.917 16,720.6
Position Control Resolution	<i>in</i> <i>mm</i>	0.0006 0.0152	0.0006 0.0152	0.0006 0.0152	0.0006 0.0152	0.0006 0.0152
Power Stroke ¹	<i>in</i> <i>mm</i>	6 152.4	6 152.4	6 152.4	6 152.4	6 152.4
Total Vertical Test Space ¹	<i>in</i> <i>mm</i>	48 1,219.2	48 1,219.2	48 1,219.2	48 1,219.2	48 1,219.2
Space Between Columns	<i>in</i> <i>mm</i>	19 482.6	19 482.6	19 482.6	19 482.6	19 482.6
Height ²	<i>in</i> <i>mm</i>	100 2,540.0	100 2,540.0	100 2,540.0	102 2,590.8	102 2,590.8
Working Height	<i>in</i> <i>mm</i>	32 812.8	32 812.8	32 812.8	35 889.0	35 889.0
Width	<i>in</i> <i>mm</i>	34 863.6	34 863.6	34 863.6	34 863.6	34 863.6
Depth	<i>in</i> <i>mm</i>	36 914.4	36 914.4	36 914.4	36 914.4	36 914.4
Maximum Test Speed	Engineered-to-order based on customer testing requirements.					
Servo-hydraulic Power Units	ADMET will engineer Servo-hydraulic Power Units (HPUs) to match the flow and pressure required for your testing application. All HPUs are based on 240 V three-phase power.					

1: Longer or shorter strokes are available upon request. Total vertical test space is the distance from the top surface of the piston rod to the bottom surface of the crosshead when fully extended, excluding load cell, grips and fixtures. Larger or smaller openings can be accommodated by varying the lengths of the columns.

2: Total machine height is measured with actuator adjusted to maximum height possible. Actual height may deviate from specification if actuator is positioned differently.

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 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.

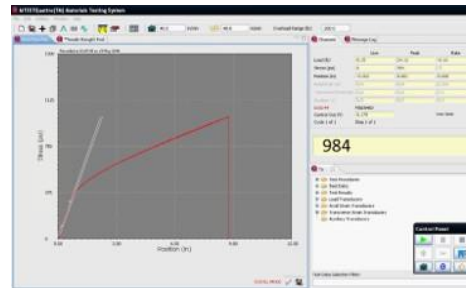


Crosshead Position Accuracy: The greater of +/- 0.01mm or +/- 0.05% of displacement.



MTESTQuattro® Windows-Based Controller and Software

ADMET Servo-hydraulic Testing Machines come equipped with **MTESTQuattro®**, our most advanced test controller, which is a PC-based unit that offers a wide range of flexibility in control, data acquisition, analysis, and reporting. This controller features 8 kHz servo update periods and programmable log rates to 1 kHz and is manipulated by a state-of-the-art Windows-based software.



Interface Area	MTESTQuattro® Control System Capabilities
Interface and Usability	- Native Windows-based software with intuitive graphical user interface - Designed for both novice users and advanced researchers - Customizable layouts with real-time plots, numeric displays, and system status indicators
Analysis	- Extensive built-in calculations library with support for ASTM and ISO specification analysis - User-defined calculations for custom research protocols, with real-time and post-test analysis
Test Methods	- Built-in test method creation tools with unlimited user-defined test procedures - Supports load, displacement, strain, and multi-channel control modes - Multi-step and multi-axis test sequencing for cyclic methods - Save, reuse, and modify test templates for consistent results
Multi-Axis Control	- Synchronized control of multiple actuators and feedback channels - Independent or ratio-based control across axes - Real-time closed-loop control for complex biaxial and multi-degree-of-freedom testing
Data Acquisition	- High-speed, synchronized data acquisition across all channels - Real-time plotting of force, displacement, strain, and auxiliary inputs - Configurable sampling rates and trigger conditions
Reporting	- Store, organize, and manage test data within the software - Fully customizable test reports with charts, tables, and calculated results - Print-ready and digital report output
Data Export and Integration	- Export data to common formats (CSV, Excel®, MATLAB®) - Supports integration with external sensors and devices - Digital and analog I/O for environmental chambers and accessories
Safety and System Control	- User-defined limits, interlocks, and emergency stop logic - Real-time monitoring of system status and fault conditions - Designed for safe operation during unattended or automated testing

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 1900 Series



Common ASTM and ISO Test Methods Include:

- ASTM E606: Strain-Controlled Fatigue Testing of
- ASTM E466: High-Cycle Fatigue Testing
- ASTM E647: Measurement of Fatigue Crack Growth Rates
- ASTM D3479: Tension Fatigue Testing of Matrix Composites
- ISO 1099: Axial Force-Controlled Fatigue
- ISO 3800: Axial Fatigue Loading of Threaded Fasteners
- ISO 14801: Dynamic Testing of Endosseous Dental Implants
- ISO 13003: Fatigue Testing of Fiber Reinforced Plastics



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

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6