

## Composite Testing Systems

### ADMET Universal Testing Machines for Composite Testing

ADMET offers a full line of electromechanical and servohydraulic universal testing machines for determining the mechanical properties of composite materials. Each system comes equipped with MTESTQuattro® our pc-based materials testing software which is capable of performing tests under force, strain and displacement control. MTESTQuattro® will also generate stress vs. strain curves and determine strength, modulus and yield properties in tension, compression, shear and flexure according to common ASTM composite material test methods. ADMET offers manual and hydraulic tensile grips plus all specialized composite test fixtures for performing tests according to ASTM standards. We also offer contacting and non-contacting extensometers and bridge completion modules for measuring strain.



**eXpert 2600 Series Dual Column Electromechanical Testing Machines** are offered in table top units to 50kN and floor standing units to 250kN. These testers have the wide column spacings and force capacities to perform all of your composite material tests.

*eXpert 2654 100kN Extra Tall Floor Standing Unit equipped with moving body manual wedge grips which is the preferred grip style because they apply no compressive force to the specimen when tightened. Extra tall frame accommodates larger specimen sizes.*



**eXpert 7600 Series Single Column Testing Machines** are well suited for low force tests to 5kN. These testers are typically used for filament tests and matrix materials at lower forces.

*eXpert 7603 5kN Single Column Testing Machine equipped with pneumatic vise grips.*



*eXpert 1657 300kN Servohydraulic Testing System equipped with manual wedge grips and clip on extensometer.*

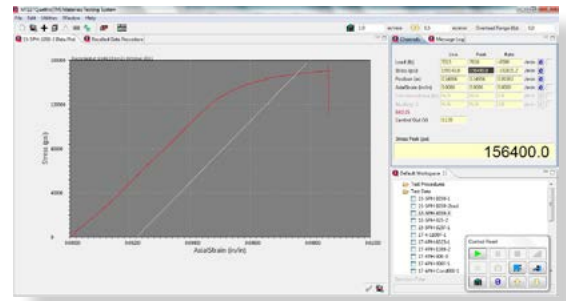


*eXpert 1912 25kN Servohydraulic Fatigue Testing System equipped with hydraulically actuated vise grips and clip on extensometer.*

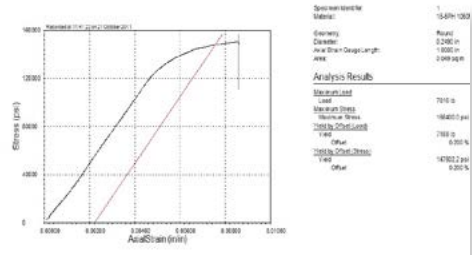
**eXpert 1000 Series Servo-Hydraulic Testing Machines** are offered in capacities to 600kN. eXpert 1600 series units are self-contained static testers while eXpert 1900 series units are dynamic fatigue testing systems.

All ADMET Composite Testing Machines are equipped with MTESTQuattro®, our PC-based controller that offers a wide range of flexibility in control, data acquisition, analysis, and reporting. It features 8 kHz servo update periods and programmable log rates to 1 kHz.

Controller	MTESTQuattro®
Interface	PC Software
Analysis	Extensive calculations library w/ built-in ASTM/ISO specification analysis.
Test Procedures	Use built-in or create an unlimited number of simple to complex procedures.
Reporting	Store and organize all data. View and print user customizable test reports with chart and tables.



MTESTQuattro® Live Screen Display



View and print test reports.

## Composite Testing at a Glance

Most composite tests are performed on Universal Testing Machines which accommodate both axial tensile and compressive loading. Specialized test fixtures are used to determine the tensile properties of single fibers and mechanical response of matrices, sandwich structures and laminates in tension, compression, shear and flexure. Strain measurements are made with clip-on extensometers, strain gages glued to the specimen and non-contacting optical extensometers. Stress vs. Strain curves are generated to determine ultimate strength, elastic modulus and Poisson's ratio. Common ASTM Tests include:

**ASTM D3379** Single Filament Tensile Test - Determines Tensile Modulus and Tensile Strength

### Matrix Tests

**ASTM D638** Tensile Tests - Determines Tensile Modulus, Tensile Strength and Yield Strength

**ASTM D695** Compressive Tests - Determines Compressive Modulus, Compressive Strength and Yield Strength

**ASTM D5379** Shear Tests - Determines Shear Modulus and Shear Strength

### Laminate Tests

**ASTM D638, D3039** Tensile Tests - Determines Elastic Modulus, Ultimate Tensile Strength and Poisson's Ratio

**ASTM D3410 (IITRI), D695, D6641** Compressive Tests - Determines Compressive Modulus and Compressive Strength

**ASTM D5379, D4255, D7078, D3518, D2344** Shear Tests - Determines Shear Modulus and Maximum Shear Stress

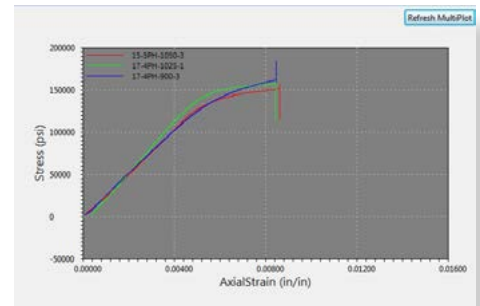
**ASTM D7264** Flex Tests - Determines Flexural Modulus and Maximum Stress

### Sandwich/Core Tests

**ASTM C393, C273** Core Shear and Face Tension and Compression Tests - Determines Core Shear Strength, Core Shear Modulus, Core Yield Shear Strength and Face Tensile/Compressive Strength

**ASTM C297** Core and Sandwich Tensile Tests - Determines Tensile Modulus and Strength of Sandwich or Core.

**ASTM C365 Sandwich Core Compression Test** - Determines Modulus and Strength in Compression that govern wrinkling.



View multiple test curves on a single plot.



ASTM D695  
Compression Testing



ASTM D790  
Bend Testing



Bridge Completion  
Module



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