

MTS Introduces the Bionix® EM Torsion Test System

Designed specifically to address orthopaedic and medical device testing needs



The new MTS Bionix ElectroMechanical (EM) Torsion Test System is a precision mechanical test system designed to meet the specific needs of orthopaedic and medical device developers. It integrates a compact electromechanical load frame, advanced MTS digital controls and powerful TestWorks® application software to provide safe, easy and reliable testing of components and tools subject to torque loading in biomedical service environments.

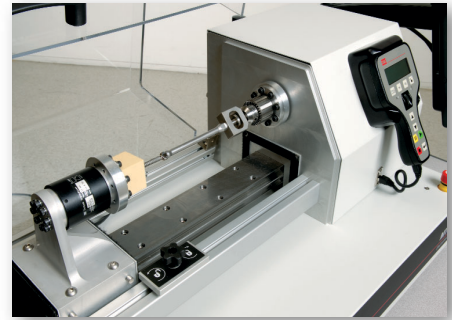
The system accurately applies low force monotonic and multi-cycle torsion, in conjunction with an optional static axial load, to test orthopaedic bone screws and surgical tools, and medical device components such as tubing,

catheters, torsion springs and lead wires. In addition to biomedical applications, this versatile system can also be used to test electronics, general materials and fasteners.

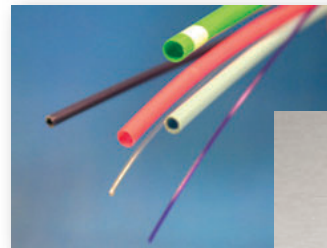
Compared to competitive torsion test systems, the Bionix EM Torsion delivers testing capabilities more commensurate with what orthopaedic and medical device developers actually need and use. Running easy-to-use TestWorks software, it provides all the test functionality required to generate the meaningful, high-quality test results necessary for pursuing device approval, production and continued development.

Precision Application of Torsional Loads

The tabletop Bionix EM Torsion system has been right-sized for orthopaedic and medical device testing applications. It is built to deliver the full range of



torsional loads necessary for accurately simulating bone screw insertion and head twist-off, or testing the performance and durability of torque limiting screws, needle bonds, tubing and fine lead wires. High-performance components - such as a slotless AC servo motor, a digital sine drive amplifier, and a high-accuracy direct drive - provide users with precision control over the amount of torque applied to specimens throughout testing.



The TestWorks Advantage

The Bionix EM Torsion system runs industry-leading TestWorks application software, a robust material and component testing package that combines easy operation with flexible test definition, superior data acquisition and powerful analysis and reporting.

TestWorks enables you to streamline testing procedures and adapt quickly to changing requirements. You can readily configure TestWorks to handle

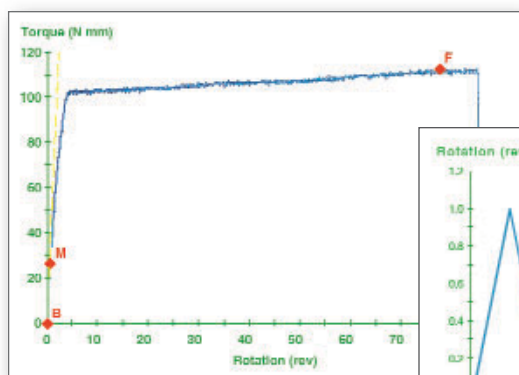
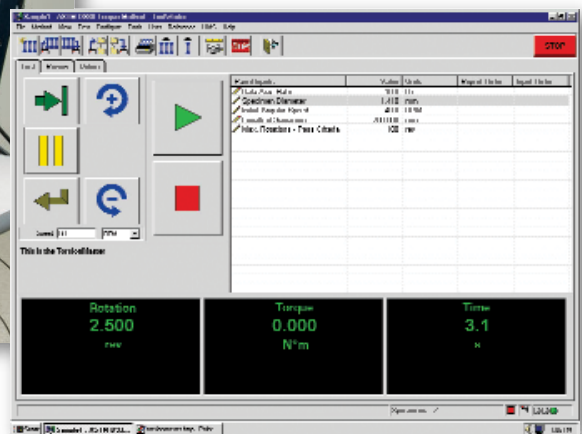
your most demanding requirements, while maintaining an easy-to-use user interface, even for the novice operator. Intuitive menus and controls make test definition, execution, and report generation easy for both simple and complex testing

TestWorks provides users the flexibility to create, customize and share test methods to meet industry standard testing requirements and perform a

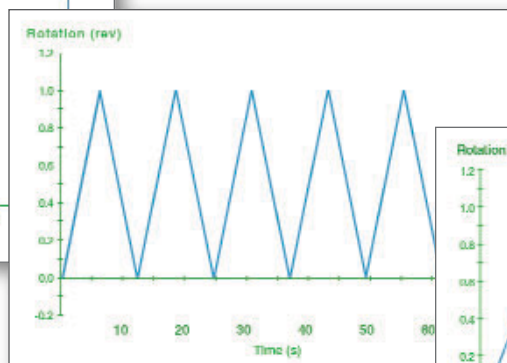
wide variety of more unique, advanced tests. Typical torque/rotation tests, creep testing, and bone screw testing are easy to configure using Testworks' powerful method creation tools.

Alternatively, test engineers can save development time and effort by turning to experienced MTS consultants for custom TestWorks methods.

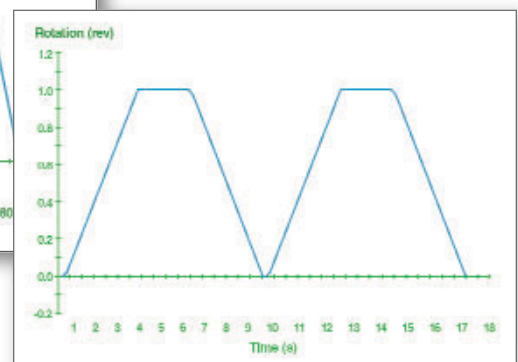
A suite of prepackaged torsion test methods is also available to help users quickly and easily meet the requirements of established orthopaedic and medical device testing standards, such as ASTM A938 (testing of wire), and ASTM F543 and ISO 6475 (mechanical testing of medical bone screws).



Torque vs. Rotary Displacement



Multicycle Test



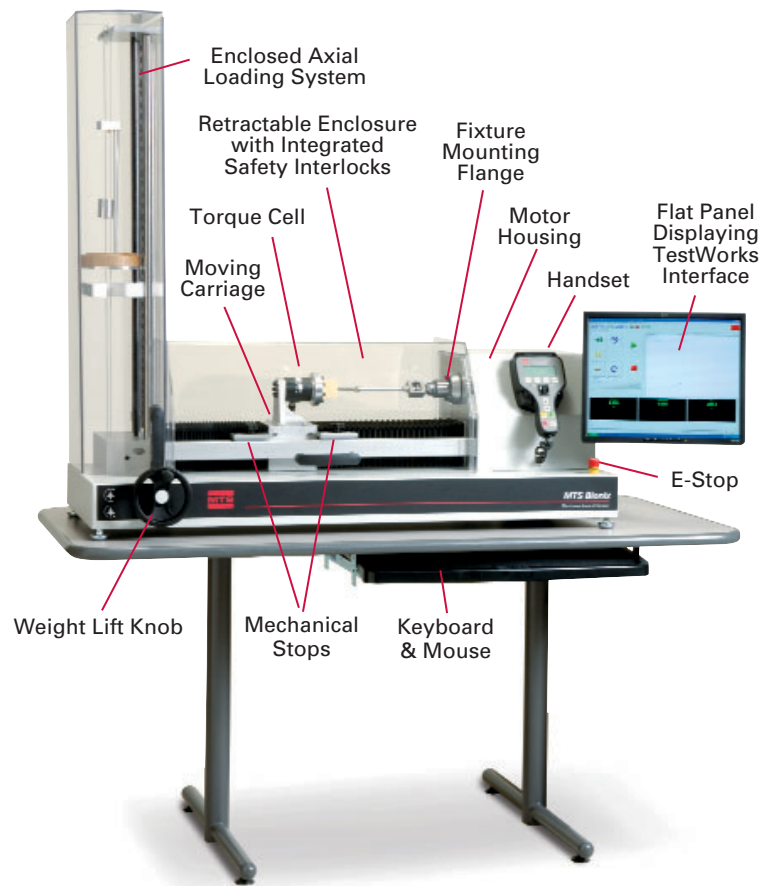
Cycle and Hold

User-friendly, Ergonomic Design

A large, user-friendly test space with an adjustable torque carriage accommodates changing test needs, while operator safety is ensured by a retractable test space enclosure with integrated safety interlocks. The system handset facilitates convenient test setup by allowing operators to perform standard functions such as start, stop and pause while preparing test specimens. The handset features a small, ergonomic design for both right- and left-handed operators and a large display for communicating test status messages, system performance messages and test results.



Bionix EM Torsion System Components



Safe & Convenient Axial Loading

An innovative axial loading system, comprised of an enclosed weight hanger system located away from the test space, ensures safe application of loads and makes it easy to switch from tension to compression without disturbing test setups. Optional TEDS-enabled load cells and high-accuracy displacement measurement encoders provide accurate monitoring, data acquisition and readout of static axial loads and displacements.



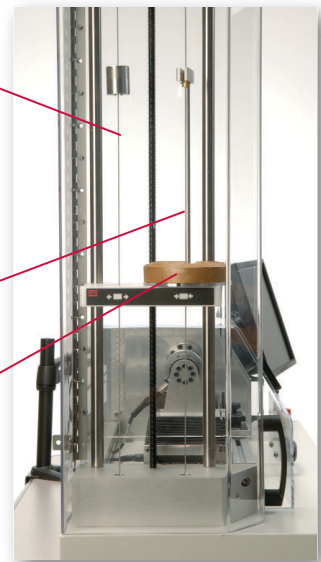
Tension

Continuous cable anchored on either side of carriage under rail

Weight hanger on tension side of closed loop cable

Weight hanger on compression side of closed loop cable

Standard, commercially available metric weights



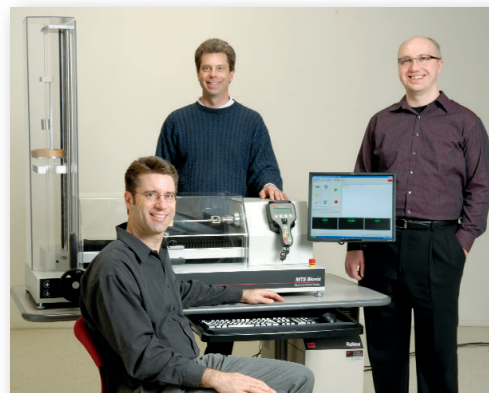
Compression

Unmatched MTS Service and Support

The Bionix EM Torsion System is supported by the largest, most experienced worldwide service and consulting staff of any biomedical testing solutions provider. This global team offers a wide range of on-site services to help maximize your test laboratory's productivity, such as preventive maintenance, system lifecycle management, problem solving, technology transfer, consulting engineering, and process optimization.

Be Certain with MTS

The MTS Bionix family of solutions is designed to meet a full spectrum of mechanical testing and simulation needs, accurately, easily and affordably. The introduction of the new EM Torsion system extends the scope of Bionix line and reinforces MTS' status as the world's leading supplier of orthopaedic and medical device testing solutions.



Bionix EM Torsion Specifications

Specifications	Units	
System Torque Rating, Peak @ Zero Speed	+/- N-m	45
Test Speed, Max (1)	RPM	175
Specimen Diameter Maximum (2)	mm	200
Test Space Maximum	mm	500
Max Rotations	#	26214
Rotation Resolution	arc-sec	7,9
Backlash, Max (3)	arc-sec	180
Torsional Stiffness, Frame Only	N-m/ deg	1691
Axial Preload/Axial Preload Max	+/- N	220
Preload Method		Deadweight, Closed System
Frame Length	mm	1185
Frame Depth	mm	460
Frame Height	mm	420
Weight Hanger Height	mm	1130
Frame Weight	kg	68
Torque Cells available	+/- N-m	50, 20, 10, 2 & 0.2
Fixture mounting		M5 bolt circle
Grips Included with System		Keyed Chuck
Grip options		Precision Keyless Chuck (0.5-9.5 mm) Precision Collet Grips (0.2-5.0 mm) Precision Miniature Collet Grips Block Fixture for simulated bone, etc.

- 1) Peak Test Speed, Max @ 110 V 100 rpm
2) 150 mm with protective bellows in place
3) Gearbox Only, rail/carriage not included

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