

Small Intact Muscle Test System

1500A | 1510A | 1530A



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Measure complete mechanical properties of small samples with a turnkey system for intact muscle and physiological tissues

This highly integrated, turnkey system was designed to provide physiology researchers a simple way to control and measure small tissue muscle mechanics.

The 1500A, 1510A and 1530A small intact muscle test systems provide researchers with the ability to accurately measure length-tension, force-velocity, work-loop and stiffness of small tissues with a high degree of confidence and repeatability. Offering limitless configuration options, these temperature controlled test systems have the versatility to precisely measure force and length of an array of small tissue types. All systems include XYZ micrometer stages with built-in mounts for our 400A series of force transducers, high speed length controllers (322C), and optionally our Dual Mode Lever Systems (300C).

The force transducer is attached to the muscle through a unique slot in the end of the bath. This provides an ideal configuration for artificial muscle constructs or oxygen consumption studies that require the chamber to be sealed with an available lid. Both force and length can be controlled and measured allowing simple tension tests as well as complete mechanical characterization.

Signal acquisition and data management is handled by our software that includes standardized protocols, which transform complex experiments into simple and straightforward measurement. Furthermore, a stand is included with each system for easy storage and for adaptation to a standard stereo or inverted microscope.

System Components

322C - High Speed Length Controller

400A - Fast Response, High Resolution Force Transducer

600A - Complete Data Acquisition and Digital Controller System

801C - Small Intact Muscle Apparatus

Features

Complete test system with integrated bath apparatus for small intact muscle

Temperature controlled bath plate (sizes from 400 μ L to 1900 μ L)

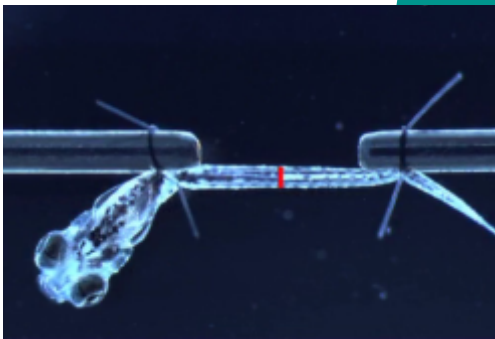
Control and measure both force and length

Compatible with standard and inverted microscopes

Can be integrated with our 900B/901C Sarcomere Length Software (VSL/HVSL)

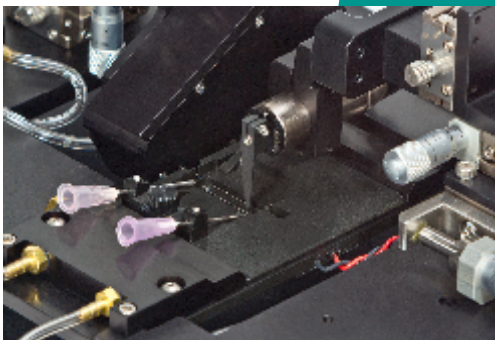
Resolution as low as 0.1 μ N

Range of peak forces from 0.5mN to 1000mN



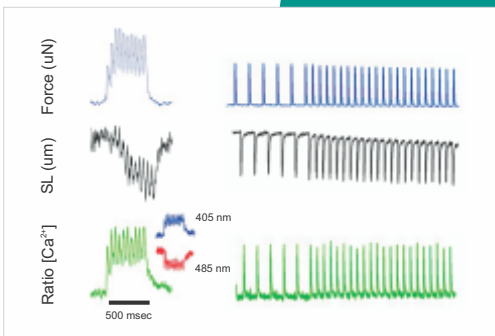
An Extremely Versatile Solution

With nearly limitless options and configurability the 1500A system is the ideal solution for researchers seeking to study several different muscle or tissue units and samples. From tissue engineered constructs to zebrafish the 1500A system is the serious choice for functional muscle measurements and beyond.



Novel Chamber Design

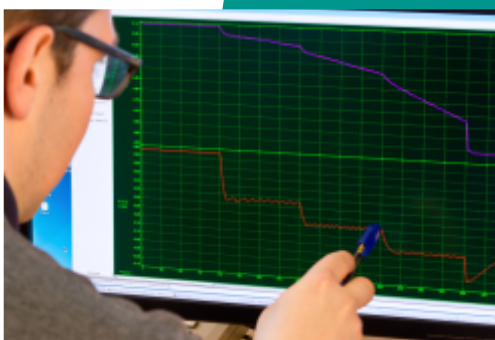
Our glass bottom bath chamber with integrated stimulation electrodes and perfusion permit imaging of the sample while maintaining tissue viability. The open top, horizontal design also permits a sealing lid to be mounted in place for oxygen consumption or hypoxia studies.



Add FluoroTrack and Sarcomere Length

The 1500A system works with most inverted microscopes, allowing integration of Sarcomere Length and biofluorimetry measurements. Pair your 1500A with our FluoroTrack and Video Sarcomere Length Modules for force, calcium and sarcomere length measurements all synchronized in real time.

(Data courtesy of Chris Ward, University of Maryland)



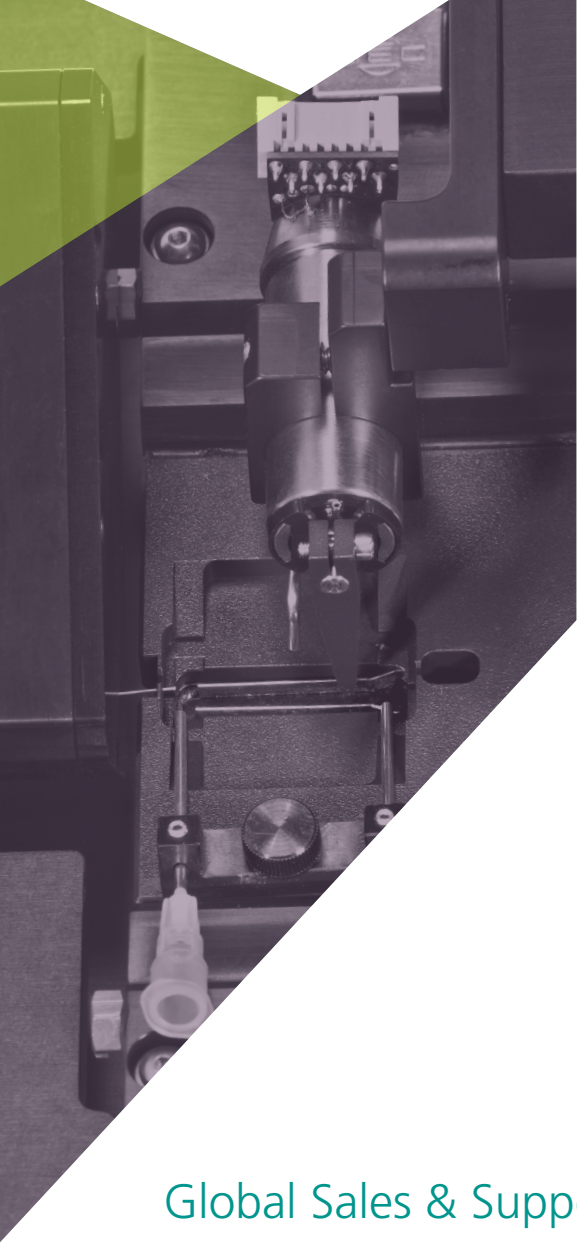
Powerful Software with Standard Protocols

The software's protocol library includes a variety of experiments for skeletal, cardiac and smooth muscle tissue with easy to use applets for adjusting system settings. Powerful, pre-written functions allow you to add your own custom protocols as well as streamline system operation with multiple lab members.



Friendly and Reliable Support

We stand by our products and by our customers. We can provide complete onsite installation, full service training and detailed instruction regarding software controls. As your partner in research we do all we can to ensure your studies stay on track and deliver the data you need.



Select Publications

Reactive oxygen species formation during tetanic contractions in single isolated *Xenopus* myofibers.

Zuo, Li, Leonardo Nogueira, and Michael C. Hogan. *Journal of Applied Physiology* 111.3 (2011): 898-904. PMID: 21700897

Ablation of cardiac myosin-binding protein-C accelerates contractile kinetics in engineered cardiac tissue.

de Lange, Willem J., et al. *Journal of General Physiology* 2013 Jan; 141(1): 73-84. PMID 23277475

Tumor growth increases neuroinflammation, fatigue and depressive-like behavior prior to alterations in muscle function.

Norden, Diana M., et al. *Brain, Behavior, and Immunity* 43 (2015): 76-85. PMID: 25102452

Investigation into the cardiotoxic effects of doxorubicin on contractile function and the protection afforded by cyclosporin A using the work-loop assay.

Gharanei, Mayel, et al. *Toxicology in Vitro*. 2014 Aug; 28(5):722-731. PMID: 24509045

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