Intact Myocardial Slice System

1515A

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The 1515A Intact Myocardial Slice System is a highly integrated, turnkey system providing physiology researchers a simple way to control and measure intact or living myocardial slice samples.

Our Intact Myocardial Slice System has precise temperature control and several bath and instrument configurations providing versatility to precisely measure force and tissue length in an array of various tissue types in addition to Myocardial slices. From intact heart slices to engineered tissue constructs, whole skeletal muscle and zebrafish, the 1515A system is the serious choice for muscle function measurements. The glass bottom bath chamber seamlessly integrates adjustable stimulation electrodes and perfusion needles permit imaging of the sample while maintaining tissue viability. The apparatus includes XYZ micrometer stages with built-in mounts for our 400C series of force transducers, high-speed length controllers (322D), and optionally the Dual-Mode lever systems (300E). The standard system configuration includes everything required to start testing immediately including apparatus, length controller, force transducer, cardiac slices holders, stimulator, data acquisition hardware and our new real-time Linux control and analysis software (602A) specifically designed for cardiac research based upon the powerful 4-element windkessel model.

Optionally, the 1515A system can be configured to include the world-class Campden Instruments vibratome, the 9000SMZ, to produce high quality cardiac slices for living myocardial slice mechanics.

The slice system will work with most inverted microscopes with a flat, 3-plate stage, which allows integration of sarcomere length and imaging measurements. These advanced features allow researchers to completely characterize living cardiac slice tissue performing all of the standard measurements including twitch, length-tension, pressure-volume (PV) loops, cardiac cycle, stiffness, force-velocity and more using our 602A CardioLoop Data Acquisition and Analysis system.

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

Variants

1500A	Standard variant
1510A	Isometric Force only variant
1530A	Dual-Mode Lever System variant

Features

Complete system with integrated bath for living myocardial slices (LMS)

Accurate cardiac cycle modeling using windkessel model

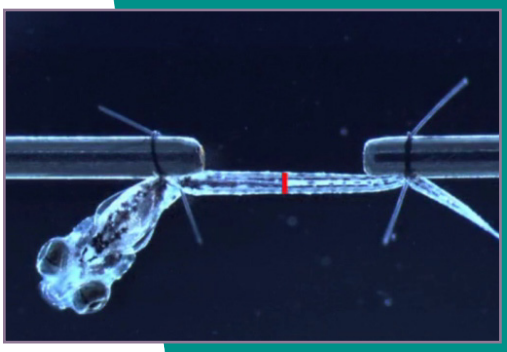
Fast and accurate length and force control

Adjustable electrode spacing for varying tissue sizes

Pair with industry leading Vibratome from Campden Instruments

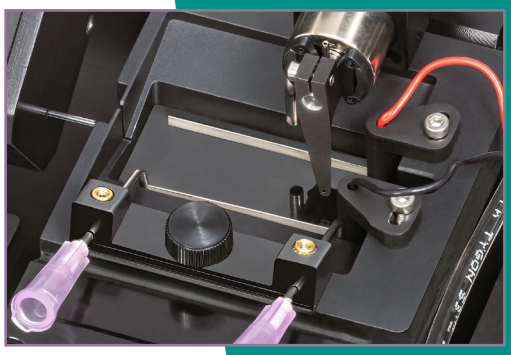
Temperature controlled bath plate with adjustable electrode spacing (5000uL) measure twitch, length-tension, pressure-volume (PV) loops, cardiac cycle, stiffness, force-velocity and more

Inverted microscope mountable



An Extremely Versatile Solution

With nearly limitless options and configurability the 1515A system is the ideal solution for researchers seeking to study several different muscle or tissue units and samples. From intact myocardial slices and tissue engineered constructs to whole skeletal muscle and zebrafish, the 1515A system is the serious choice for functional muscle measurements and beyond.

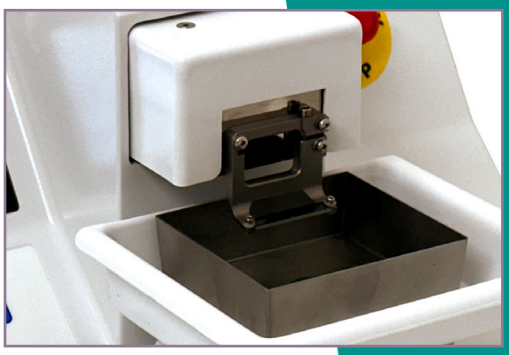


Novel Chamber Design

Our glass bottom bath chamber with integrated, adjustable stimulation electrodes and perfusion permit pacing and imaging of various sample sizes while maintaining tissue viability.

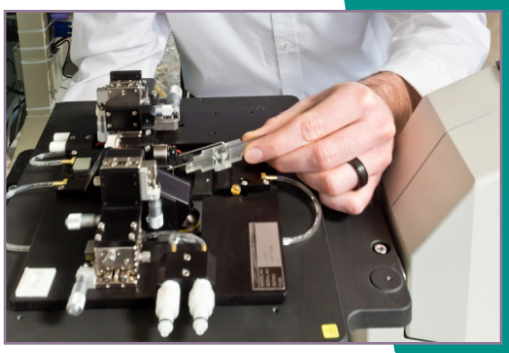
Powerful Software with Windkessel Model

CardioLoop is a powerful new software system specifically designed to pace heart tissue and enable real-time, iterative force and length profile convergence through a powerful 4-element windkessel model to produce a responsive cardiac cycle that can accurately model disease and dysfunction of the heart.



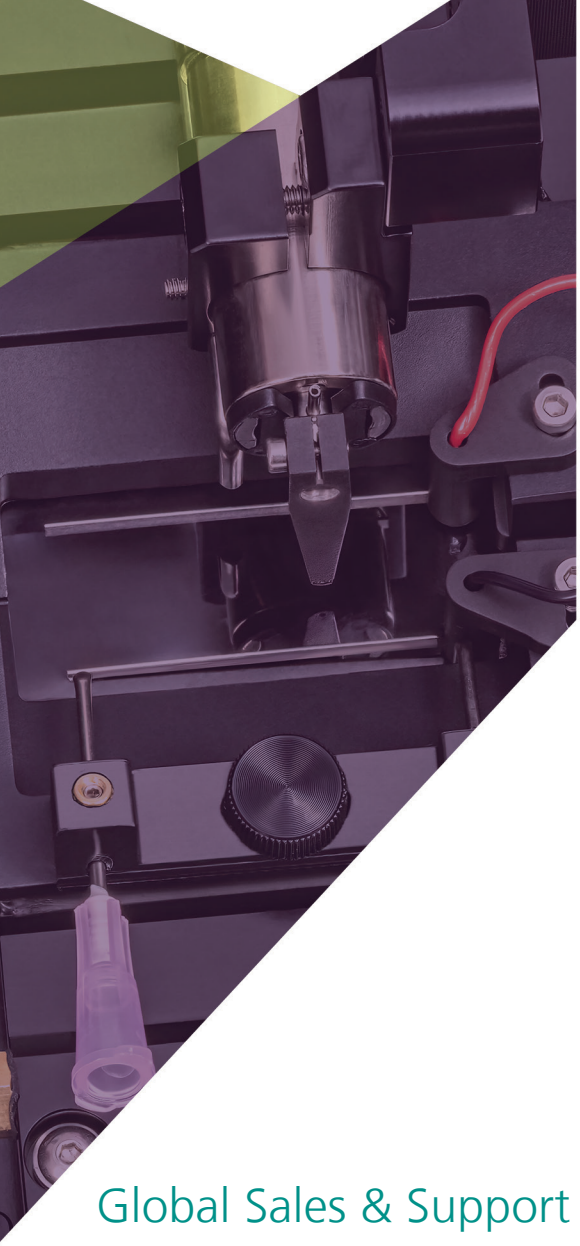
Package with World Class Vibratome

The Campden 9000smz Vibrating Microtome is engineered for precise sectioning of living cardiac tissue. Trusted by cardiac research labs worldwide, it delivers exceptional control, slice quality, and tissue viability—making it the optimal choice for intact myocardial slice mechanics.



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

Susceptibility to innate immune activation in genetically mediated myocarditis.

Selgrade, Daniel F. et al. J Clin Invest. (2024) 134.13: e180254.PMID: 38768074

Comprehensive phenotypic characterization of an allelic series of zebrafish models of NEB-related nemaline myopathy.

Lacramioara, Fabian et al. Hum Mol Genet. (2024) 33.12: 1036-1054. PMID: 38493359

Inhibition of the skeletal muscle Lands cycle ameliorates weakness induced by physical inactivity.

Shahtout, Justin L et al. J Cachexia Sarcopenia Muscle. (2024) 15.1: 319-330. PMID: 38123161

Ca2+ and force during dynamic contractions in mouse intact skeletal muscle fibers.

Fukutani, Atsuki et al. Sci Rep. (2024) 14.1: 689. PMID: 38184730

Mechanical Control of Relaxation using Intact Cardiac Trabeculae.

Bukowski, Melissa et al. J Vis Exp. (2023) 192:10.3791/64879. PMID: 36876939

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