

Mechanical Testing

BioTester – Planar Biaxial Testing

Since its introduction in 2008, continuous improvements and collaboration with users around the world have made the BioTester the gold standard for biomaterials testing. The BioTester brings together all the features needed for quality biomaterials testing including a temperature-controlled media bath, a variety of attachment methods, an integrated imaging system for non-contact strain measurement, and removable components for easy cleaning.



Force Capacity	Available Load Cells	Maximum Grip Separation
23N	0.5, 1.5, 2.5, 5, 10, 23N	80mm

UniVert – Uniaxial Tension, Compression and Bending Testing

The UniVert is ideal for a wide range of mechanical testing applications in the laboratory and in the classroom. Consuming only a small base footprint, the UniVert is capable of up to 3 modes of testing and comes equipped with various specimen grips and imaging systems.

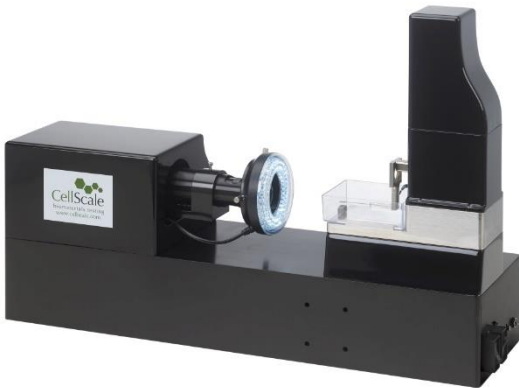


Force Capacity	Available Load Cells	Maximum Grip Separation
200N	10, 20, 50, 100, 200N	140mm

Mechanical Testing

MicroTester G2 – High-precision Micro-scale Mechanical Testing

The MicroTesterG2 is a fully capable micro-scale tension-compression test system. It can be used to determine the mechanical properties of a variety of materials including tissue samples, cell aggregates, hydrogels, and tissue engineering scaffold materials. Powered by a piezo-electric motor actuator, the MTG2 delivers displacement and force with exceptional resolution.



Force Capacity	Test Modes	Actuator Resolution
500mN	Compression, Tension, Bending, Indentation, Shear	0.1um

MicroTester LT – Quality Micro-scale Mechanical Testing

Similar to the MicroTester G2, the MicroTester LT delivers reliable micro-scale tension and compression testing. Using stepper motor actuators, quality displacement and force readings are output at an affordable price point. Both the MTG2 and MTLT are outfitted with a temperature-controlled fluid bath, superior imaging system and up to 5 test modes.



Force Capacity	Test Modes	Actuator Resolution
500mN	Compression, Tension, Bending, Indentation	1um

Mechanical Testing

UStretch – Precision Tension Testing

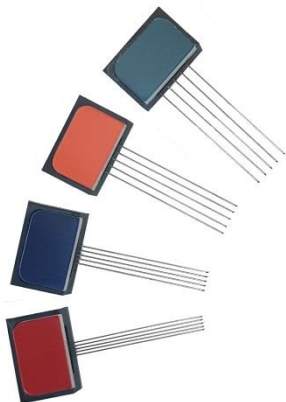
The UStretch is a versatile and robust instrument, operating in a vertical or horizontal setup and facilitating submersion of the specimen in a temperature controlled media bath. A variety of gripping methods are available, including our patented BioRakes.



Force Capacity	Available Load Cells	Maximum Grip Separation
50N	0.5, 1, 2.5, 4.5, 8.9, 22, 44N	135mm

BioRakes

The BioRakes sample mounting system is CellScale's patented method for attaching soft tissues and biomaterials. Each tine is electrochemically sharpened to easily pierce the tissue samples and the BioRakes are magnetically mounted for easy removal.



Tine spacing

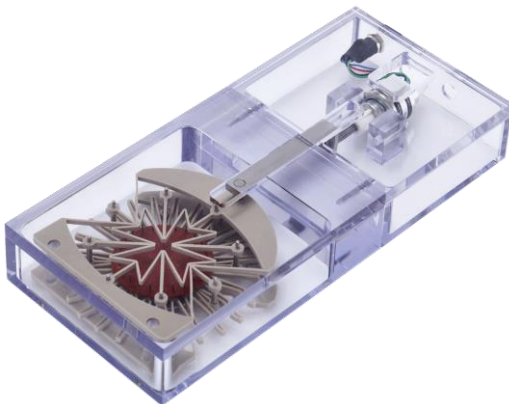
0.7 – 2.2mm

Other attachment methods such as [balanced pulleys](#) and [clamps](#) are available.

Cell and Tissue Stimulation

MechanoCulture B1 – Biaxial Stimulation of Cell Monolayers and 3D Constructs

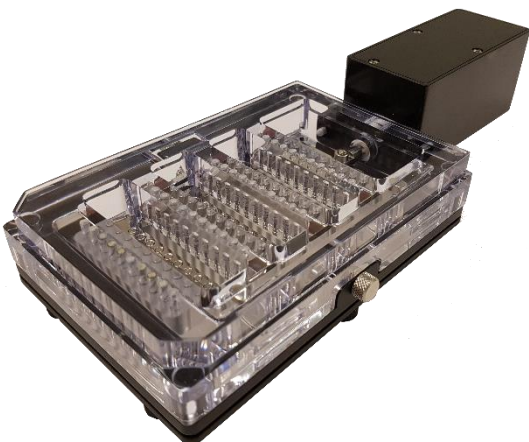
The MechanoCulture product group allows culturing of cells in a mechanically active environment. The MCB1 imposes a biaxial stretch on a circular sample and supports 3D scaffolds with embedded cells or 2D membranes with adhered cells. Fully sterilizable, the entirely assembly can be operated in an incubator.



Culture Area	Maximum Strain
1 well, 35mm diameter	20% biaxial

MechanoCulture FX – Uniaxial Stimulation of Cell Monolayers with Imaging

The MCFX uses a single-use flexible silicone well plate to culture cells and develop adhesion to the well bottom. Users can then execute a stretch protocol to the well plate, causing the cells to deform. The well plates are fully sterilizable and the system is incubator compatible while also allowing imaging with an inverted microscope.

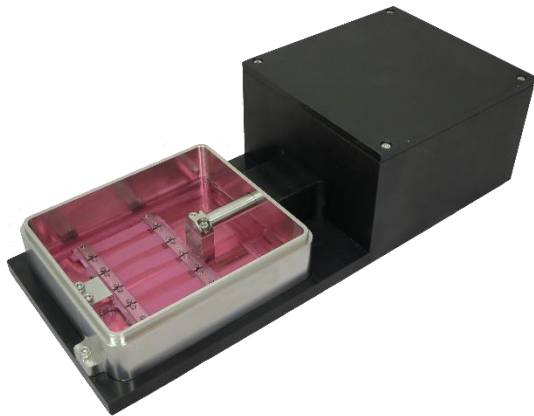


Culture Area	Maximum Strain
16 wells, 8x8mm	12.5%

Cell and Tissue Stimulation

MechanoCulture T6 – High-Force Uniaxial Stimulation of 3D Constructs

The MCT6 uses a powerful actuator and screw-driven clamp grips to apply uniaxial stretch to sheet-like specimens and fibers, as well as decellularized tissues, membranes, decellularized hydrogels, and electrospun materials. Cell-contacting materials are fully autoclavable and the system is incubator compatible.



MechanoCulture TR – High Throughput Hydrostatic Pressure Stimulation

The MCTR can apply pressure of up to 700 kPa on 9 culture wells in a hydrostatic pressure stimulation. The specimen chamber is ideal for imaging and the device suitable for the incubator.



MechanoCulture TX – High Throughput Uniaxial Compression Stimulation

The MCTX is can uniaxially compress 3-dimensional specimens up to 20 mm in diameter and 25 mm thickness in 6 independent wells.





Custom Solutions

For more than a decade, CellScale has been building custom equipment for a wide range of applications. Our team works with a proven internal design process that leverages our experience to streamline projects from needs analysis right through to final installation and training. In many cases we can modify or extend the capabilities of previous projects in order to minimize technical risks, shorten development timelines, and reduce project costs.

If our current suite of products is not ideally suited to your application, please contact us to discuss your specific needs and goals.

