



Distributed in Europe
by World Precision
Instruments

BioTester Series

Precision Benchtop
Biaxial Mechanical Testing

Purpose-Built
for Planar Biaxial
Testing of Soft
Materials

Image-Based
Strain
Measurement
for Better
Mechanical
Insights

Mimic
Physiological
Conditions
with Hydrated
Workflows



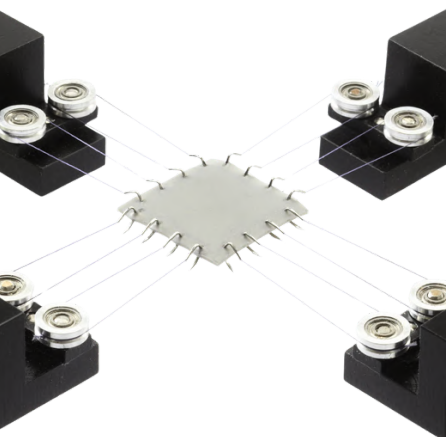
Tissue Biomechanics | Hydrogels | Biomaterials Testing
Mechanobiology | Tissue Engineering

*Capture high-quality mechanical data, run post-test
analysis, and generate publication-ready
figures all on one platform*


CellScale
biomaterials testing
www.cellscale.com

Choose Your BioTester Model

Select your configuration based on specimen size, expected force range, and the testing workflows you need



BioTester 3000

Compact, upgradeable, entry-point platform for biaxial testing of soft tissues and biomaterials



BioTester 5000

Full-featured system with integrated imaging and heated media bath for physiologically relevant testing



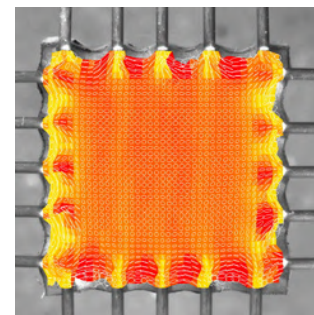
BioTester 6000

Higher-force model for larger and stronger specimens, and more advanced applications

Specification		3000	5000	6000
Dimensions	(cm)	46 x 46 x 13	60 x 60 x 80	86 x 86 x 80
Weight	(kg)	6	18	23
Force Capacity	(N)	10 (23 optional)	23	200
Load Cell Range	(N)	0.5 - 10 (23 optional)	0.5 - 23	0.5 - 200
Max Grip Separation	(mm)	50	80	300 (90mm stroke)
Max Velocity	(mm/s)	20	20	20
Max Data Rate	(Hz)	10 (100 optional)	100	100
Media Bath		Optional	Standard	Standard
Imaging (& Max Rate)	(Hz)	Optional (5 or 15)	Standard (15)	Standard (15)
Test Control Modes		Displacement (Force optional)	Force & Displacement	Force & Displacement

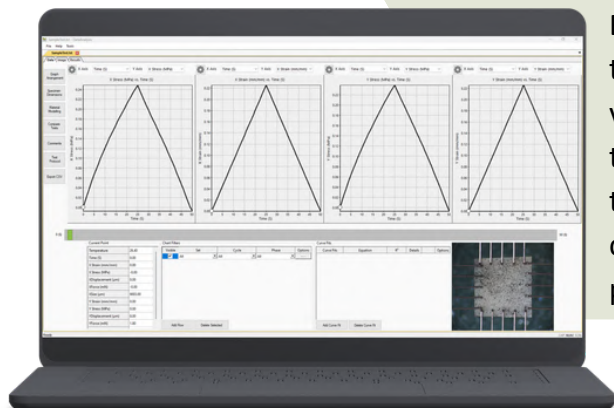
Configure Your Workflow

- **Force Sensing:**
Select low-force or high-force load cells matched to expected loads, specimen stiffness, and test sensitivity requirements
- **Specimen Mounting:**
Configure with BioRakes, clamps, or balanced pulley mounting to suit delicate tissues, biomaterials, and engineered constructs
- **Environmental Control:**
Test in hydrated and temperature-controlled conditions (up to 40°C) with an integrated media bath for biologically relevant workflows
- **Digital Image Correlation:**
Combine force and displacement data with image-based strain measurement, strain mapping, and optical deformation tracking
- **Integrated Software:**
Set up test methods, control and monitor outputs in real time, calculate mechanical metrics, generate plots, and export publication-ready figures from one platform

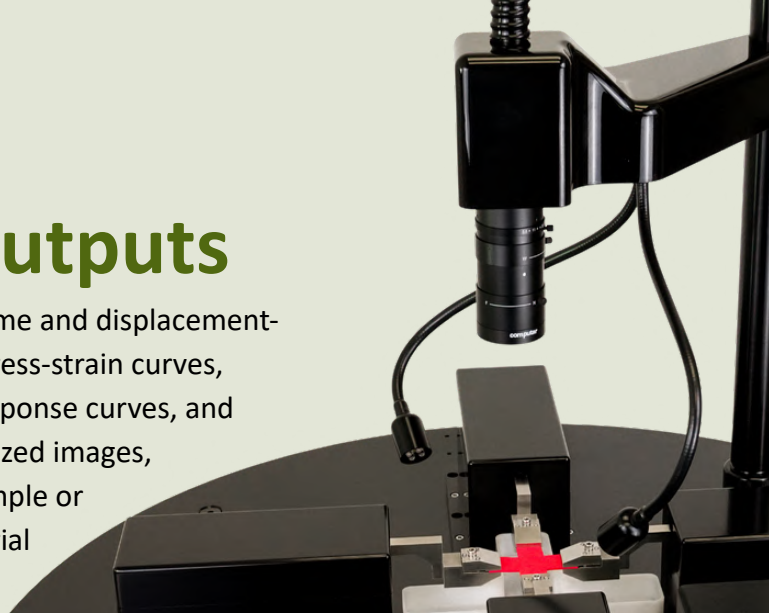


Biaxial strain image tracking using DIC

Typical Outputs



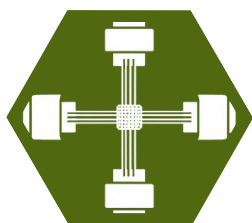
Biaxial force-time and displacement-time traces, stress-strain curves, viscoelastic response curves, and time-synchronized images, to calculate simple or complex material properties.



Mechanical Tests

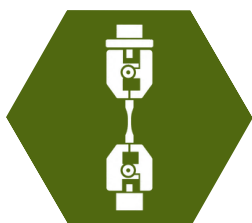
Use the BioTester for biaxial tensile, hydrated, and imaging-based workflows for soft tissues and biomaterials

Biaxial



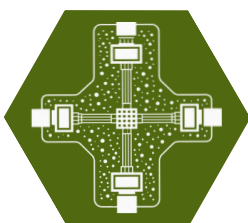
planar biaxial loading, anisotropy, equibiaxial and non-equibiaxial response

Tensile



soft tissue strips, membranes, thin biomaterials, engineered constructs

Hydrated



soft tissues, hydrogels, decellularized matrices to mimic physiological conditions

Viscoelastic



preconditioning, creep, stress relaxation, hysteresis, time-dependent response

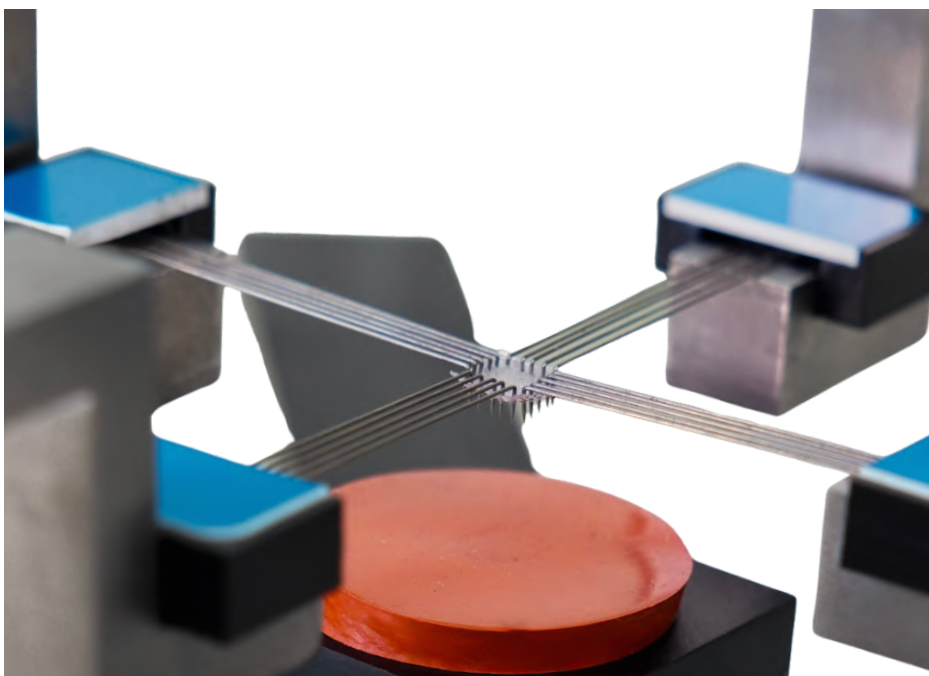
Digital Image Correlation



optical strain tracking, strain mapping, local deformation measurement

BioRakes

CellScale's patented multi-point specimen mounting system for fast, repeatable attachment of soft materials. BioRakes help reduce setup variability and improve consistency in biaxial testing workflows where slippage, tearing, or uneven mounting can affect results. Clamps and pulley mounting also available.



BioTester Applications

Soft Tissues, Natural & Engineered Biomaterials

Measure anisotropy, nonlinear response, and local strain behaviour in:

- heart valves
- skin
- tendons
- ligaments
- ocular tissues
- myocardium
- engineered soft tissue constructs

Membranes, Scaffolds, Hydrogels

Characterize stiffness, viscoelastic response, and deformation behaviour in:

- electrospun materials
- stiff hydrogels
- soft biomaterials
- thin films
- other compliant research samples

Remodeling, Matrices, Comparative Studies

Compare how structure, treatment, processing, or disease state changes mechanical response in:

- native tissues
- engineered matrices
- regenerative materials
- soft material systems

Common Sample Types



Heart
Valves



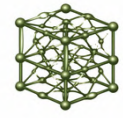
Hydrogels



Ocular
Tissues



Skin

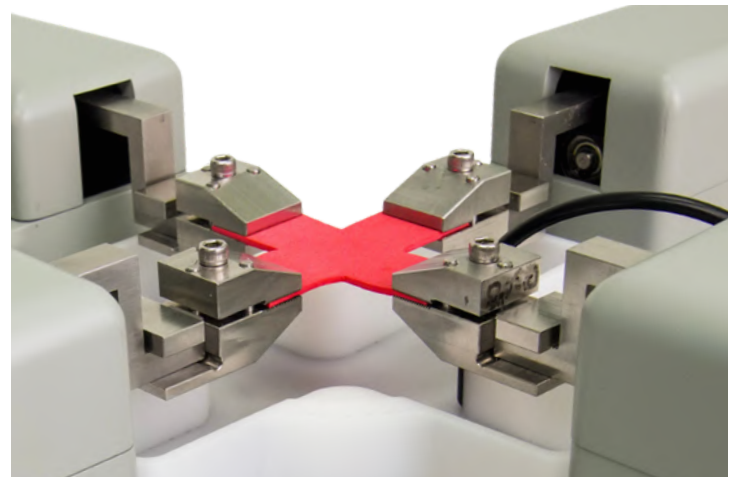


Scaffolds



Membranes

and aortic tissue, stents, vascular tissues, intervertebral disc tissues, cartilage, cornea and sclera, pleural tissues, gastrointestinal tissues, decellularized matrices, electrospun materials, nanofiber mats, soft polymers, elastomers, engineered tissues, thin films, and many more!



Book A Demo!

Talk with our team about specimen handling, mounting options, and the right BioTester configuration for your research workflow



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