

The background features a blurred image of a laboratory setting with a microscope. A large, semi-transparent green hexagon is overlaid on the right side of the image. At the top center, there is a graphic of three interconnected hexagons in a light green color.

# MicroTester Series

**Precision Benchtop Microscale Mechanical Testing**

**Purpose-Built  
for Microscale  
Testing of Soft  
Materials**

**Test in  
Physiologically  
Relevant  
Conditions**

**Image-Based  
Deformation  
Measurement  
for Better Micro-  
Mechanical  
Insights**



**Biomaterials Testing | Hydrogels | Mechanobiology  
Tissue Engineering | Organoids & Spheroids**

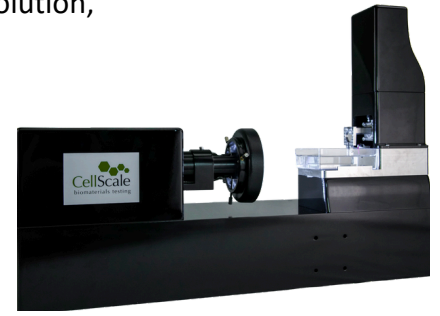
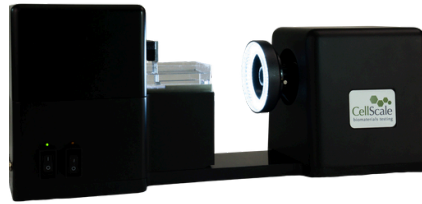
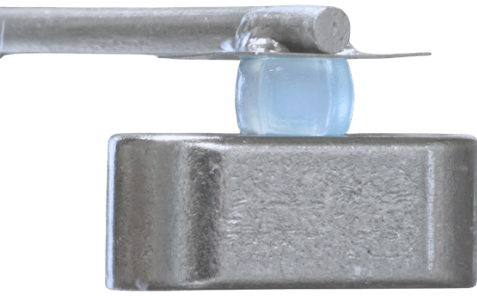
*Capture high-quality micro-mechanical data, run post-test analysis, and generate publication-ready figures all on one platform*

The CellScale biomaterials testing logo, consisting of a cluster of green hexagons above the text "CellScale" and "biomaterials testing" below it.

**CellScale**  
biomaterials testing

# Choose Your MicroTester Model

Select your configuration based on imaging needs, resolution, specimen size, and required workflows



## MicroTester LT

Compact micro mechanical tester with integrated imaging, heated media bath, and strain mapping capability

## MicroTester G2

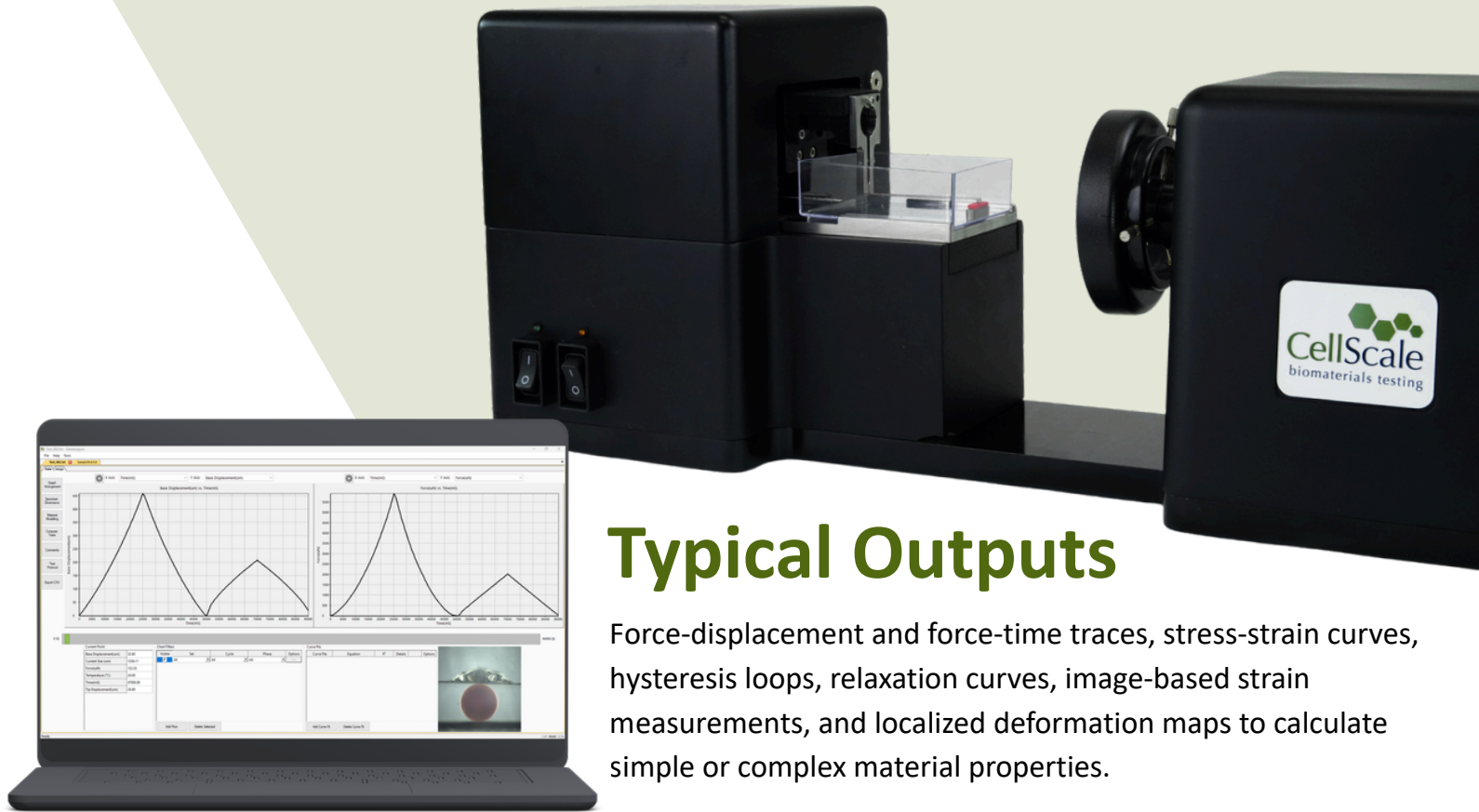
Advanced model with piezo-driven actuation, higher imaging resolution, wider sample range, and optional upgrades

Specification		LT	G2
Dimensions	(cm)	52 x 17 x 21	56 x 14 x 24
Weight	(kg)	6.5	9
Force Capacity	(mN)	25	
Force Transducer Range	(mN)	0.005 - 25	
Force Accuracy		0.3% of transducer capacity	
Max Grip Separation	(mm)	10	
Sample Thickness Range	(mm)	0.25-5	0.05-10
Max Velocity	(mm/s)	0.5	
Max Cycle Frequency	(Hz)	0.1	0.5
Max Data Rate	(Hz)	5	15
Actuator Technology		Stepper	Piezo-electric
Actuator Resolution	( $\mu\text{m}$ )	1	0.1
Camera Resolution	(px)	1536 x 1536	2048 x 2048
Camera Field of View	(mm)	0.8 - 5.5	0.4 - 11.0
Secondary Camera Option		No	Yes
Shear Axis Option		No	Yes

## Configure Your Workflow

- Microbeam Force Sensing:**  
 Select from interchangeable microbeams spanning ultra-low force ranges to match specimen stiffness, sensitivity requirements, and expected loading conditions
- Fixtures:**  
 Configure for parallel-plate compression, 3-point tension, spherical indentation, and other low-force workflows for soft, delicate, and microscale specimens
- Environmental Control:**  
 Test in hydrated and temperature-controlled conditions (up to 40°C) with included media bath
- Integrated Imaging & Strain Mapping:**  
 Combine force and displacement data with non-contact strain mapping and digital image correlation
- Software & Analysis:**  
 Create protocols, control tests, monitor force and displacement, run data analysis, review image-enabled datasets, and export publication-ready results
- Advanced G2 Upgrades:**  
 Expand capability with optional shear testing and secondary imaging for improved setup accuracy and specialized workflows





## Typical Outputs

Force-displacement and force-time traces, stress-strain curves, hysteresis loops, relaxation curves, image-based strain measurements, and localized deformation maps to calculate simple or complex material properties.

## Mechanical Tests

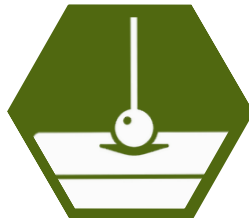
Use the MicroTester for physiologically-relevant microscale mechanical testing and image-enabled workflows on very small, soft, and delicate specimens

### Compression



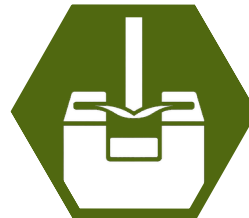
hydrogels, spheroids, organoids, microbeads, microtissues, soft constructs

### Indentation



local stiffness measurement, spherical indentation on hydrogels, scaffolds, bioprints

### Tension / Flexural



fibers, films, delicate strip specimens, soft engineered materials, micro-scale tensile and bending response

### Shear



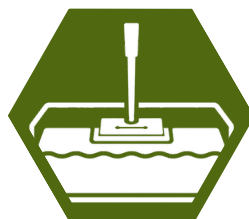
lateral loading, detachment force, interfacial response, soft material interfaces

### Digital Image Correlation



non-contact strain measurement, strain mapping, deformation tracking, localized response analysis

### Hydrated & Temperature Controlled



immersed testing in liquid media, soft living samples, physiologically relevant workflows

### Viscoelastic & Time-Dependent



creep, stress relaxation, cyclic loading, hysteresis, recovery behaviour

# MicroTester Applications

## Hydrogels, Bioinks, Cell-Laden Materials

Measure stiffness, viscoelastic response, and local deformation in:

- hydrogels
- bioinks
- bioprinting constructs
- regenerative biomaterials
- living soft materials

## Organoids, Spheroids, Microtissues

Characterize compression response, time-dependent behaviour, and treatment-related mechanical changes in:

- organoids
- spheroids
- microtissues
- tissue-mimetic systems
- small 3D biological models

## Biomaterials, ECM-Derived Materials, Polymers

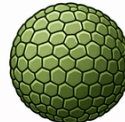
Evaluate modulus, indentation response, strain distribution, and comparative material performance in:

- biomaterials
- scaffolds & ECMs
- soft polymers
- compliant engineered constructs
- layered soft materials

## Common Sample Types



Hydrogels



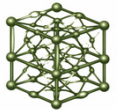
Spheroids



Organoids




Bioinks




Scaffolds

and microgels, microcarriers, fibers, filaments, microneedles, films, ECMs, ophthalmic samples, PDMS structures, 3D printed microstructures, colloidal materials, microtissues, and many more!

 [www.cellscale.com](http://www.cellscale.com)

 +1-519-342-6870

 5-564 Weber Street N  
Waterloo, ON N2L 5C6  
Canada

## Book A Demo!

Talk with our team about sample handling, fixture selection, and recommended configurations for your specimens, protocols, and research

