



BiSS bioreactors provide a controlled, 3D environment for stimulating physiological conditions on your benchtop. The CartiGen system imparts mechanical compression to your construct to reveal cell function, to improve the quality of engineered tissues, or to act as a test bed for drug development.

### Chambers

Fabricated out of bioinert, autoclavable materials, the CartiGen bioreactor chambers apply oscillatory compressive/tensile stimulation to disc-shaped samples. The chambers can be used with a variety of construct materials by choosing one of our many sample platen options. For a standard single chamber sample, the maximum size is 10 x 5 mm. A custom silicone seal provides a mechanical feed-through and maintains a sterile environment while allowing axial motion with minimal resistance. Perfusion through a single construct is available with porous platens.

### Chamber Options

- C10-12 accommodates up to 12 samples per chamber, glass bottom for optical evaluation
- C9-x accommodates up to 9 samples per chamber, integrated perfusion with a common flow loop
- C1-x accommodates a single sample up to 25 mm in diameter

### Platen Options

- Smooth Platens: autoclavable, polypropylene, smooth flat face construction (10 x 5 mm)
- Porous Platens: sintered stainless steel (10 x 5 mm) enables perfusion through platen and into construct bottom face
- Hydrogel Platens: porous polymer (10 x 5 mm) design allows the sample to be cast into platens, preventing the gel from moving
- Custom Platens: a modified version of the standard platen, built to your specifications.

### Mechanical Stimulator

The CartiGen bioreactor system includes the tension/compression (T/C) mechanical stimulator. Featuring a 200 N servo electric motor, the stimulator is lightweight, compact, corrosion resistant, and compatible with most standard incubators. The TC stimulator controls both load and displacement, and can be used with any of the CartiGen bioreactor chamber. Straightforward and adaptable, GrowthWorks provides the ideal control platform for mechanically stimulated tissue growth.



CartiGen C9-x Chamber and Stimulator

### GrowthWorks® Control System

This intuitive software runs on Windows® OS and features a simple user interface. User-defined stimulation profiles are controlled by the software and readily monitored using graphical displays. Integrated data acquisition routine capture and record data at user prescribed intervals. The controller with integrated motor drives, communicates with the laptop using a network cable. GrowthWorks can be configured to run four stimulators and monitor up to 8 transducers, allowing the researcher to customize the system functionality. The controller can be customized with additional modules for applications requiring automation features or additional axes of mechanical stimulation. Simple and adaptable, the GrowthWorks provides an ideal control platform for mechanically stimulated tissue growth.

### Stimulator Specifications

Height	mm	266
Foorprint (L x W)	mm	127x1177
Peak Force	N	44
Continuous Force	N	20
Weight	kgs	2.2



Tissue Growth Technologies (TGT), a premier supplier of commercial bioreactors to grow and stimulate developing tissues is now part of BISS. With this, BISS will be providing solutions for tissue engineering and regenerative medicine fields.

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