

## **Using ATI Industrial Automation's Nano17 Force / Torque Sensor with Biomomentum's Mach-1™ Micromechanical Tester**

The Mach-1™ is a configurable micromechanical testing system used for property evaluation of biological tissue and biomaterials as well as for the stimulation of cultured tissue. The Mach-1™ platform, which can support up to 3 motorized stages, has the capability of performing compression, tension, shear and torsion tests in various modes including dynamic, static and waveform loading. Load measurements in the multiple axis configurations are performed using ATI Industrial Automation's 6 degrees of freedom (6DoF) Nano17 Force / Torque Sensor. The Mach-1 Motion software displays real-time measurements of all forces and torques, controls the automated test sequence and saves the results which can then be analyzed using the Mach-1 Analysis software.

Due to its small size, the Mach-1™ can also be placed within a standard incubator to provide both mechanical stimulation and characterization at high resolution. For example, Biomomentum's Mach-1™ Micromechanical Tester configured with ATI Industrial Automation's Nano17 Force / Torque Sensor can be used to perform multi-axial mechanical stimulation of engineered tissue, such as cartilage, to improve the quantity and quality of the developed tissue.<sup>1</sup>

The Mach-1 micromechanical tester brings out the full multi-axial capacities of the Nano17 Force / Torque Sensor.

<sup>1</sup> Waldman SD, Couto DC, Grynypas MD, Pilliar RM, Kandel RA. Multi-axial mechanical stimulation of tissue engineered cartilage: review. *Eur Cell Mater.* 2007;13:66–73.