

STACIS[®] iX LaserTable-BaseTM

Hybrid Piezoelectric/Air Active Vibration Cancellation System



STACIS[®] iX LaserTable-BaseTM is TMC's latest addition to our STACIS[®] iX line of piezoelectric active vibration cancellation systems. LaserTable-Base offers an extraordinary level of improvement over existing technology in the amount of vibration isolation attainable with an Optical Table.

Typically, Optical Tables are supported by low-frequency pneumatic vibration isolation systems. Though very effective at isolating high frequencies, these passive systems actually amplify vibration in the critical 1 to 3 Hz range.

TMC's STACIS[®] technology overcomes these limitations with piezoelectric actuators and inertial vibration sensors

which cancel, not amplify, very low-frequency vibration.

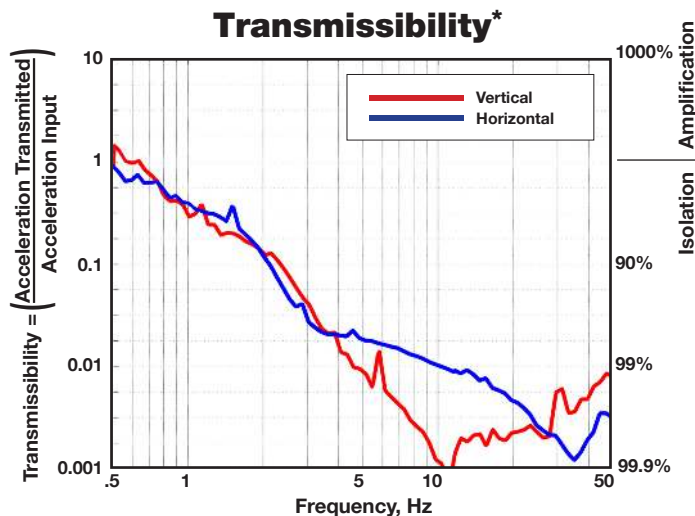
LaserTable-BaseTM combines these two technologies, air and STACIS[®], into one integrated cancellation system. The result is vibration cancellation at very low frequencies and unprecedented levels of high-frequency isolation due to the combined effect of two isolation systems in series.

Furthermore, STACIS[®] iX improves upon the original STACIS technology by the addition of extended travel piezoelectric actuators (to accommodate even the worst floors) and an updated design that significantly lowers total cost.

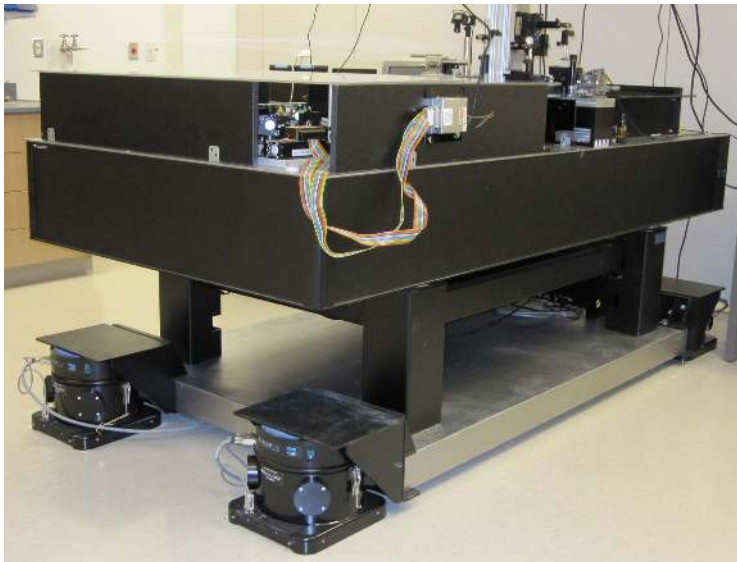
The upper pneumatic portion of LaserTable-Base consists of patented MaxDamp[®] Air Isolators. The modular design allows for customizing the air sub-system for specific application requirements.

Features

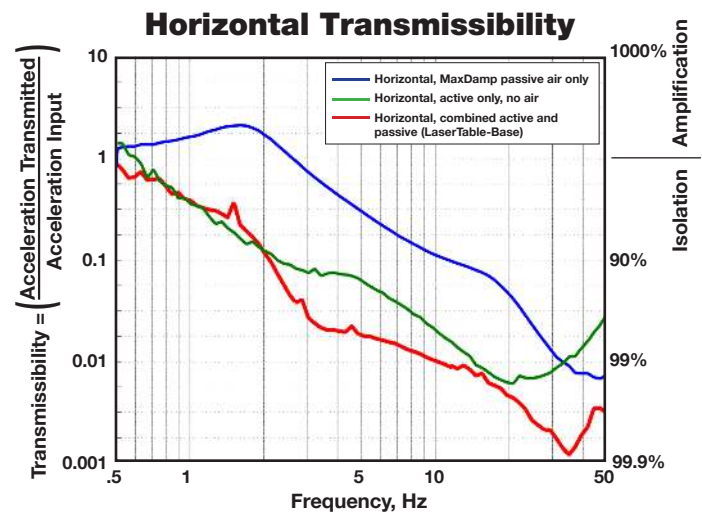
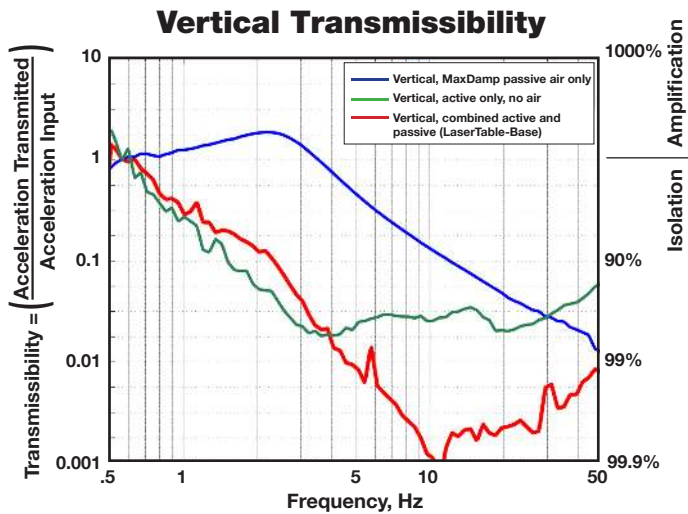
- Incorporates STACIS[®] technology
- Active inertial vibration cancellation system
- Vibration cancellation starts below 1 Hz
- Extended stroke piezoelectric actuators
- 6 active degrees-of-freedom
- Consists of two isolation systems in series for maximum vibration cancellation
- Incorporates patented MaxDamp[®] Air Isolators
- Simple, robust, and cost-effective
- Installs easily, minimal tuning required
- Optional shelves for mounting equipment under the table
- Includes TMC's DC-2000 Digital Controller



* 4,000 lb (1,800 kg) capacity LaserTable-BaseTM with MaxDamp[®] Isolation System.
Payload of 2,000 lbs (907 kg), tested with simulated floor vibration at VC-C
(500 micro-inches per second, 12.5 microns per second).



Until recently, researchers desiring the quietest possible vibration environment in a lab combined two independent products into a two-stage isolation system. This photo shows a 784 Series CleanTop[®] Optical Top supported by Gimbal Piston[™] Air Isolators. This air isolation system is, in turn, supported on a 65 Series Floor Platform cradled with STACIS[®] 2100 Isolators. LaserTable-Base[™] now combines these two independent isolators into one integrated system, with improved overall performance in a smaller footprint.



Combining the low frequency, passive MaxDamp[®] Air Isolators with a Piezoelectric Active Vibration Cancellation System in series results in an overall transmissibility curve that is the sum of the two individual transmissibility curves. The resultant vibration isolation performance is so dramatic that over some frequency ranges, we are limited by measurement instrumentation noise-floors and unable to measure and demonstrate the full isolation performance. That is, above 10 to 12 Hz, the actual performance of the combined system is expected to exceed that shown since the combined isolation is theoretically the sum of the isolation provided by the two sub-systems.