



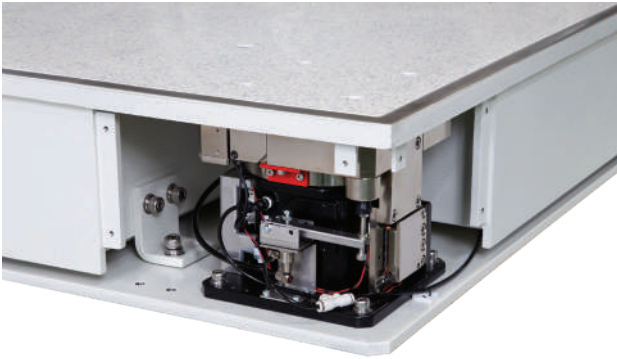
Active Vibration Isolation System

DVIA-ML Series



DVIA-ML Series

Advanced active vibration isolation system for electron microscopes.

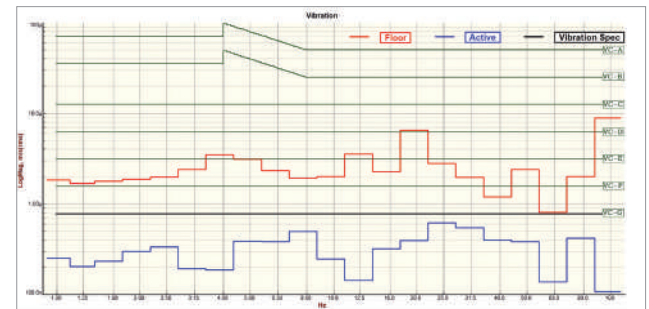


Setting a new standard for active vibration isolation systems.

The DVIA-ML series represents an advanced evolution of the DVIA-MB series, incorporating cutting-edge active vibration control algorithms to achieve superior vibration isolation performance at low frequencies. Additionally, the DVIA-ML series features a lower platform height, providing increased clearance for tall electron microscopes in space-constrained environments. With its sophisticated feedback and feedforward control algorithms, along with the best-in-class components, the DVIA-ML series outperforms other active vibration isolation systems available on the market in every aspect.

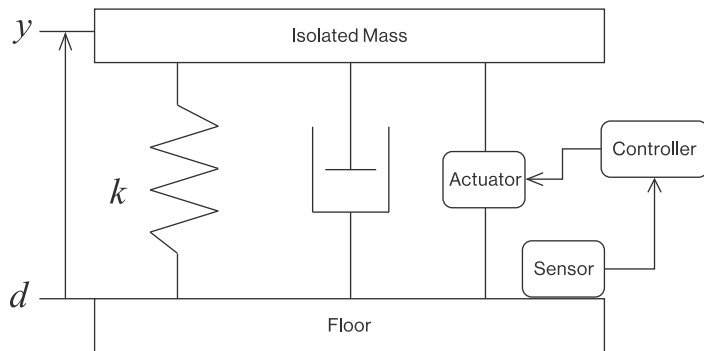
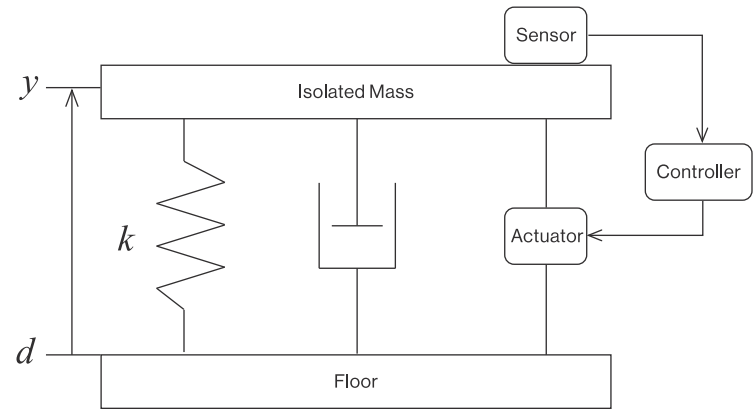
The world's most advanced active vibration isolation system.

The DVIA-ML series system incorporates eleven highly sensitive Geophone sensors with the excellent low frequency response starting at 0.3 Hz and eight electromagnetic actuators. These components are delicately designed to accurately measure and cancel out vibrations. This configuration combined with the advanced embedded feedback and feedforward algorithms, enables the system to achieve 90% vibration isolation at 2 Hz and meet the stringent vibration specification VC-G below 2 Hz.



Feedback Control

The feedback control system constantly measures the isolated mass vibration and uses the electromagnetic actuators to create an equal and opposite force, attenuating vibration on the isolated mass. Although the isolation system works well out of the box, tuning the feedback loops optimizes the isolation performance by adjusting the gains based on the isolated mass and using the new, advanced notch filters to account for structural resonances or vibration sources.

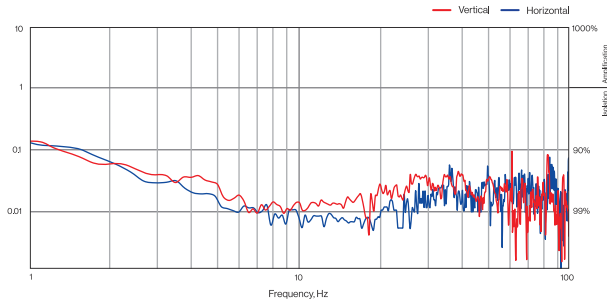


Feedforward Control

The feedforward control uses real-time ground sensor measurements to detect vibration and sends a signal to the actuators to cancel floor vibrations before they transmit to the isolated mass. The feedforward control dramatically improves the vibration isolation performance. With dynamic control, the feedforward system easily adapts to the changing vibration levels in facilities and does not require constant re-tuning to deliver the outstanding performance.

Performance

The DVIA-ML series starts to isolate vibration from 0.5 Hz, providing 80 – 90% vibration isolation at 1 Hz.



Specifications

Model	DVIA-ML1000	DVIA-ML3000
Dimensions	Customizable (fixed height: 173 mm)	Customizable (fixed height: 178 mm)
Maximum Load Capacity	1700 kg	3500 kg
Vibration Isolation Technology	Feedback and Feedforward Control	
Degrees of Freedom	6 Degrees	
Active Isolation Bandwidth	0.5 – 200 Hz	
Vibration Isolation	80 – 90% at 1 Hz	
Actuator	Electromagnetic Actuator	
Maximum Actuator Force	Vertical 40 N, Horizontal 20 N	
Vibration Sensor	Geophone, Sensitivity: 2.55 V/in/s (100.4 V/m/s) $\pm$ 10%	
Leveling Repeatability	Repeatability: $\pm$ 0.1 mm	
Controller	Built-in	
Environmental Protection Requirements	CE and TUV	
Power Requirements	Line Voltage: 100 – 240V AC, Line Frequency: 50/60 Hz	
Air Requirements	Air Pressure: 4 – 6 bar, Air Delivery: 10 L/min	
Environmental Requirements	Temperature: 5 – 50 °C, Humidity: 20 – 90 %	