

Why Negative-Stiffness is better

Negative-stiffness isolators provide a simple, reliable and highly effective isolation solution for sensitive instruments at the low frequencies and amplitudes of floor and building vibrations. They are passive, relatively small, light weight, stable, and cost-effective. The isolators are easy to use and adjust. They can be more economical than air systems, take up less space, provide better isolation at very low vibration amplitudes, and require no air, electricity or maintenance.

How they work

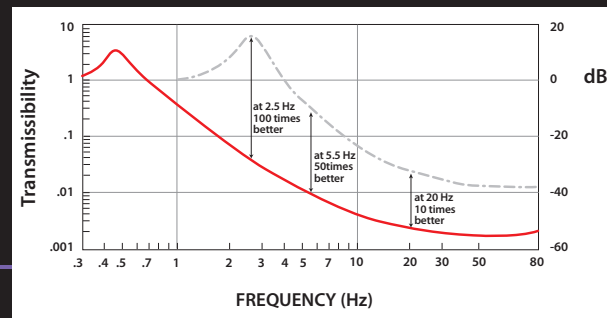
Minus K negative-stiffness isolators are completely mechanical. Isolation is achieved using an arrangement of springs and negative-stiffness mechanisms. These systems provide isolation in six degrees of freedom with resonant frequencies as low as 0.5 Hz or lower. The result is a compact passive isolator capable of very low vertical and horizontal natural frequencies and very high internal structural frequencies.

Other advantages

Multiple isolators can be used together while still acting as one with respect to vibration, which allows great versatility in designing for a range of applications. Minus k's negative-stiffness technology has successfully isolated sensitive instruments that range from a few pounds to thousands of pounds. Isolators can be adapted for Cleanroom or Vacuum environments.

Performance

The transmissibility curves, which compare top-performing air tables with the typical Minus K 1/2-Hz performance, are shown below. Minus K isolators (adjusted to 0.5 Hz) achieve 93% isolation efficiency at 2 Hz, 99% at 5 Hz, and 99.7% at 15 Hz. Isolation performance closely follows that of an ideal undamped single DOF (Degrees Of Freedom) system up to about 10 Hz and reaches a floor in the transmissibility curve with some resonances at the higher frequencies.



Applications

- Audio**
 - Audio reproduction
 - High End Audio
- Biology/Neuroscience**
 - Electrophysiology measurements
 - Fluorescent dye imaging
 - Patch clamping
 - TIRFM: Total Internal Reflection
- Fluorescence Microscopy**
- Electron Microscopes**
 - SEM: Scanning Electron Microscope
 - TEM: Transmission Electron Microscope
 - STEM: Scanning Transmission Electron Microscope
- Microelectronics/MEMS Fabrication**
- Metrology**
 - Analytical Balances
 - Fluorescent dye imaging
 - Micro Hardness Testers
 - Nano Indenters
 - Stylus Profilers
 - Thermogravimetric
- Photonics**
 - Laser Interferometer
 - Laser and Optics
 - Optical Profilers
 - White Light Interferometer
- Scanning Probe Microscopes**
 - AFM: Atomic Force Microscope
 - NSOM-SNOM: Near-Field Scanning Optical Microscope
 - STM: Scanning Tunneling Microscope
- Spacecraft Ground Testing**

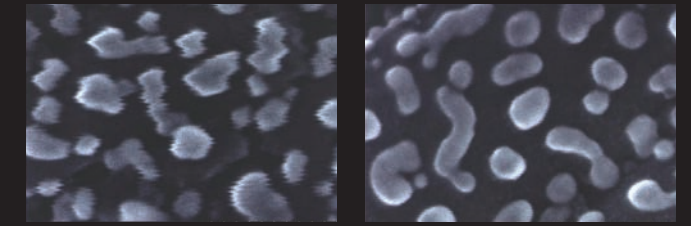
No Air or Electricity Needed



OEM Suppliers to many of the world's leading manufacturers of SPMs, micro hardness testers and interferometers



Improve your images with patented Negative-Stiffness technology



Without Vibration Isolation

With Vibration Isolation



Benchtops



Workstations

Minus K[®] vibration isolation systems deliver 10x to 100x better performance than high-performance air systems and even better than active systems.



Floor Platforms



Custom Applications

Give us your *Vibration Isolation* challenge

Over 2,000 scientists in 42 countries selected Minus K[®] vibration isolators.

Bench Tops



BM-1

- Our largest benchtop platform
- 0.5 Hz vertical and horizontal
- Payloads up to 1000 lbs
- Auto-adjust option for special applications



BM-4

- Perfect for AFMs
- 0.5 Hz vertical and horizontal
- The most cost effective bench top platform for 0.5 Hz vertical & horizontal performance



BM-6

- Easy to use...only one adjustment
- 2.5 Hz vertical; 1.5 Hz horizontal
- Exceeds air table performance in a small package



BM-8

- Best product for high-end audio
- Low profile, 0.5 Hz vertical; 1.5 Hz horizontal
- Ideal for larger AFM/inverted optical systems



BM-10

- Smallest isolator to offer 0.5 Hz
- Low profile, 0.5 Hz vertical; 1.5 Hz horizontal
- Ideal for today's small AFMs

Workstations & Optical Tables



WS-4

- Payloads up to 1000 lbs
- Compact Vibration Isolation Workstation
- 0.5 Hz vertical and horizontal
- Table works with other models



MK26

- Multiple table top options
- Low-frequency vibration control workstation
- 0.5 Hz vertical and horizontal
- Large selection of accessories



MK52

- Multiple table top options
- Low-frequency isolated optical tables
- 0.5 Hz vertical and horizontal
- Large selection of accessories
- 3-leg configuration for tables over 5'

Multi Isolator Systems



CM-1

- Compact high capacity isolator
- Capacities up to 800 lbs
- 0.5 Hz vertical and horizontal
- Can be combined into multi isolator systems to support heavy payloads
- Air table retrofits for better isolation



SM-1

- Heavy capacity isolator
- 0.5 Hz vertical and horizontal
- Capacities up to 4200 lbs
- Can be combined into multi isolator systems to support heavy payloads



FP-1

- Floor platforms for SEMs, TEMs and other large payloads
- 0.5 Hz vertical and horizontal
- Standard or custom size platform can be designed
- Platform designed to fit your lab space
- Vertical or horizontal only isolation available
- Only raises your instrument a few inches
- Platform designs available for purchase
- Solve low frequency vibration problems on upper floors of buildings



Custom

- Custom payload weights
- Cleanroom or vacuum compatibility
- Large displacement systems
- OEM product isolation integration
- Different vertical, horizontal or tilt stiffness
- Different vertical, horizontal or tilt damping
- Mildly magnetic or nonmagnetic behavior
- Large temperature variations
- Lock-unlock feature