

## New Ultralow-Frequency Vibration Isolated Workstation

Minus K® Technology, Inc., in a joint venture with Kinetic Systems, has released the MK26 Series Vibration Control Workstation™. The unit is specifically designed for ultralow natural frequency applications and negative stiffness vibration isolators to provide a compact, passive vibration isolation workstation with excellent vertical and horizontal isolation efficiencies. Based on field testing and user evaluations, the Minus K 1/2-Hz vibration isolation workstation performs about 10 to 100 times better than high-performance, pneumatically isolated tables, depending on vibration isolation frequencies. Better than active or electronic-cancellation systems, the MK26 Series can be configured for a wide variety of applications and customized with a broad range of vibration isolation workstation accessories.

Minus K negative stiffness vibration isolators employ a revolutionary concept in low-frequency vibration isolation. Vertical-motion isolation is provided by a stiff spring that supports a weight load, combined with a negative-stiffness mechanism (NSM). The net vertical stiffness is made very low without affecting the static load-supporting capability of the spring. Beam-columns connected in series with the vertical-motion isolator provide horizontal-motion isolation. The horizontal stiffness of the beam-columns is reduced by the “beam-column” effect. (A beam-column behaves as a spring combined with an NSM.) The result is a compact passive isolator capable of very low vertical and horizontal natural frequencies and very high internal structural frequencies. Minus K isolators (adjusted to 1/2 Hz) achieve 93% isolation efficiency at 2 Hz; 99% at 5 Hz; and 99.7% at 10 Hz.

Unique features of the MK26 Series Vibration Control Workstation include:

- Ultralow natural frequencies
- Vibration-damped frame
- Customizable accessories
- No air supply or electric power needed; easy to use
- Choice of tabletops
- Ergonomic styling
- Class 100 clean-room compatible
- Class 10 available
- No maintenance

The MK26 provides for easy adjustment. A vertical load adjustment crank is a simple manual adjustment that compensates for changes in vertical load; the vertical load adjustment indicator lets you easily determine the optimum setting using this simple visual indicator; the vertical stiffness adjustment screw lets you easily dial in a guaranteed 1/2-Hz or less vertical natural frequency.

The unit has a maximum load capacity of 700 lbs, a maximum tabletop width of 48 in, and maximum tabletop depth of 36 in. “The MK26 Workstation, as with all Minus K



Figure 1. MK26 Vibration Control Workstation.

products, represents an important enabling technology,” says Dr. David L. Platus, president and founder of Minus K. “By reducing building and floor vibrations to ultralow levels, these systems enable vibration-sensitive instruments and equipment to perform at unprecedented levels.”

Minus K Technology was founded in 1993 to develop, manufacture and market state-of-the-art vibration isolation products

### Vibration Measurement Services

Polytec, Inc., has announced a new Measurement Services Program that makes advanced non-contact vibration and topography measurements available for every budget. The innovative program provides engineers with measurement results using Polytec’s latest, non-contact measurement technology and, if needed, the expert advice and skill of a Polytec applications engineer. By eliminating the need for a capital purchase and/or the addition of dedicated manpower, the new Measurement Services Program gets precision results in the hands of engineers who have short-notice critical needs, require occasional measurements where a purchase is not justified, wish to evaluate Polytec products prior to purchase or prefer to contract a service.

Via the program, test structures are characterized with state-of-the-art equipment such as 1-D and 3-D scanning laser vibrometers, single-point vibrometers, microstructure (MEMS) motion analyzers and topography measurement systems, operated by knowledgeable and experienced application engineers. The measurement technology is fundamentally nondestructive, works on most surface finishes, eliminates mass-loading, improves data accuracy and minimizes contact transducer mounting, wiring, and signal conditioning. Vibrometer systems characterize virtually anything that vibrates up to 30 m/s or 30 MHz, down to picometer resolution. Tests may be run at the customer’s facility or in one of three Polytec labs in North America: Detroit, Los Angeles and Boston. Complete measurement results are provided to the customer and may include frequency response func-

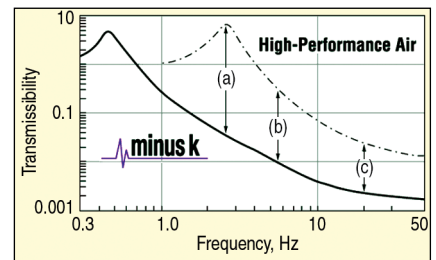


Figure 2. Transmissibility of Minus K workstation compared with a table equipped with conventional pneumatic vibration isolators.

based on the company’s patented negative-stiffness-mechanism technology. Minus K products, sold under the trade name Nano-K®, are used in a broad spectrum of applications including nanotechnology, biological sciences, semiconductors, materials research, zero-g simulation of spacecraft and high-end audio. The company is an OEM supplier to leading manufacturers of scanning probe microscopes, microhardness testers and other vibration-sensitive instruments and equipment. Minus K customers include private companies and more than 150 leading universities and government laboratories in 25 countries.

For more information please visit: [www.minusk.com](http://www.minusk.com).



tions, operational deflection shapes, time and frequency domain response, 3-D motion vectors, in-plane and out-of-plane MEMS dynamics, structure geometry and surface topography. Data can be exported in several formats for further processing such as FE correlation and modal analysis.

Polytec, Inc., is a wholly-owned subsidiary of Polytec GmbH (Waldbronn, Germany). The company has delivered high-performance light-based sensors, measurement solutions and instruments for R&D, industrial, medical, automotive, MEMS, data storage, semiconductor, photonics and aerospace markets for 30 years. Offering solutions in electro-optical instrumentation, Polytec’s commitment to “Advancing Measurements by Light” has earned the company numerous national and international awards. Global sales offices are located throughout Europe, the United States and Japan.

To learn more about vibration and topography measurements using Polytec’s laser vibrometry systems and the unique Measurement Services Program, please visit [www.polytec.com](http://www.polytec.com).