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Minus K delivers Negative-Stiffness tabletop vibration isolation platform

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Minus K Technology (Minus K) has released its latest Negative-Stiffness vibration isolation platform - the ultra-thin, low-height model CT-1 passive isolator - designed for low-frequency vibration isolation in micro- and nano-microscopy applications where space constraints are critical.

The passive tabletop unit is just 2-1/4 inches in height, yet delivers 1/2 Hz vertical natural frequency, and 2 to 2-1/4 Hz horizontal natural frequencies, more low-hertz vibration isolation performance compared to air tables and active systems.

“Vibration isolation options for microscopy instrumentation such as scanning probe microscopes, interferometers and stylus profilers have been limited to systems of several inches or more in height, which for many labs can be too tall,” says Erik Runge, Director of Engineering at Minus K. “This can make for tight working conditions, which limits employing adequate vibration isolation, and compromising the functionality of the instrumentation. The new CT-1ultra-thin, low-height isolator solves this problem.”

Image: Negative-Stiffness CT-1 ultra-thin, low-height, low-frequency vibration isolation platform mitigates space constraints in microscopy applications.

According to Minus K, Negative-Stiffness isolators employ a unique and completely mechanical concept in low-frequency vibration isolation.

The isolators do not require electricity or compressed air, and there are no motors, pumps or chambers, and no maintenance because there is nothing to wear out.

The Negative-Stiffness CT-1 isolator achieves a high level of isolation in multiple directions. It has the flexibility of custom tailoring resonant frequencies vertically.

The transmissibility of the CT-1 is substantially improved over air and active isolation systems.

When adjusted to 1/2 Hz vertical natural frequency, the CT-1 Negative-Stiffness isolator achieves approximately 93 percent isolation efficiency at 2 Hz; 99 percent at 5 Hz; and 99.7 percent at 10 Hz.

“With the increased sensitivity in instrumentation, particularly at the nanometer level, more precise vibration isolation technology was needed to deal with lower-hertz vibrations,” says Runge. “Negative-Stiffness isolation, integral to the CT-1, was specifically designed to isolate these low-frequency perturbations without having to deal with compressed air or electricity.”

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