

_active vibration isolation desktop unit halcyonics_nano series



Active vibration isolation desktop unit

halcyonics_nano series

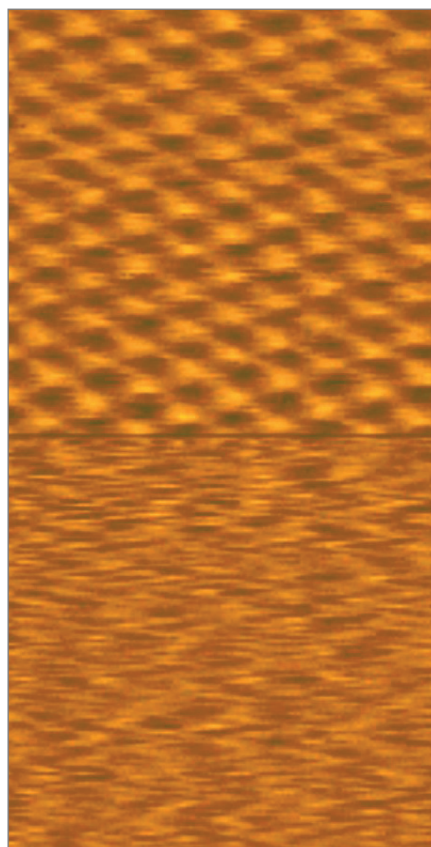
ABSTRACT

The halcyonics_nano series consists of two ultra-compact active vibration isolation systems: namely, the Nano_20, which is the world's smallest active isolation system, and a slightly larger version, the Nano_30.

The Nano systems are designed such that they are ideal for small and light-weight applications. One very good example is the use of these with entry-level atomic force microscopes.

The system does not require any load adjustment. Once the transportation lock is released, the isolator is ready to be used. No further action is required from the users. Because of its design simplicity, the price of the Nano series is very affordable.

In addition, the Nano systems have a small external controller. Major advantage of this is the isolator does not generate heat. This is important for heat critical applications and applications that are used inside an acoustic enclosure. Potential EMC interferences coming from the electronics are minimized, as the controller can be placed away from the application.



Atomic-scale image of highly oriented pyrolytic graphite (HOPG) obtained with scanning tunneling microscopy.

Image section: 2.5 × 5 nm, 250 × 500 pixels

From the top down to line 250, the active isolation system was active. Starting from line 251 to the bottom, the active isolation was deactivated. The decrease in image quality without active vibration isolation can clearly be observed.

APPLICATIONS

- Scanning probe microscopy
- Small LB troughs
- Nanoparticle Analysis
- Ultra-precise scales
- ...and many more

FEATURES & BENEFITS

- Active vibration isolation starts at 1 Hz (passive isolation above 200 Hz)
- Isolation in all six degrees of freedom
- No load adjustment or tuning required
- Ultra-compact and portable
- External control unit
- Easiest handling – no tuning or load adjustment required
- Provides better vibration isolation (> 99.0 % isolation above 15 Hz) than large optical tables
- No natural low frequency resonance and, as a result, excellent vibration characteristics also in frequency ranges below 5 Hz
- Ideal for small and light-weight applications
- No compressed air supply is needed, AC power from an electrical outlet is sufficient
- Excellent position stability and stiffness
- Low voltage electromagnetic actuators
- Two-year warranty
- Moderate pricing
- Long term tests and quality control procedures

Technical specifications

halcyonics_nano series

_AVAILABLE STANDARD VERSIONS

Nano_20

Nano_30

_PERFORMANCE SPECIFICATIONS

ISOLATION TECHNOLOGY:	halcyonics_nano control technology based on piezoelectric type acceleration pickup, fast signal processing and electro-dynamic force transducers.	
CONTROL ELECTRONICS:	External control unit	
FORCE DIRECTIONS:	Active compensation in all six degrees of freedom	
ISOLATION PERFORMANCE:	> 5 Hz = 23 dB (93.0 %) > 15 Hz = 40 dB (99.0 %)	> 5 Hz = 23 dB (93.0 %) > 15 Hz = 40 dB (99.0 %)
ACTIVE BANDWIDTH:	1.0–200 Hz*	1.0–200 Hz*
SETTLING TIME:	300 ms**	300 ms**
STROKE OF THE ACTUATOR:	1 mm	1 mm
MAX. CORRECTION FORCES:		
V. = Vertical	V. ± 8 N	V. ± 8 N
H. = Horizontal	H. ± 4 N	H. ± 4 N
LOAD CAPACITY:	0–8 kg 0–17.6 lbs	5–25 kg 11–55 lbs

_OTHER SPECIFICATIONS

WEIGHT:	Nano_20 Isolator: 5.6 kg 12.3 lbs Nano_30 Isolator: 11.3 kg 24.9 lbs Nano Control unit: 2.1 kg 4.6 lbs
MAXIMUM COMPENSATION LEVEL:	55 µm/sec. at 2 Hz and 8 kg 17.6 lbs** 350 µm/sec. at 6 Hz and 8 kg 17.6 lbs**

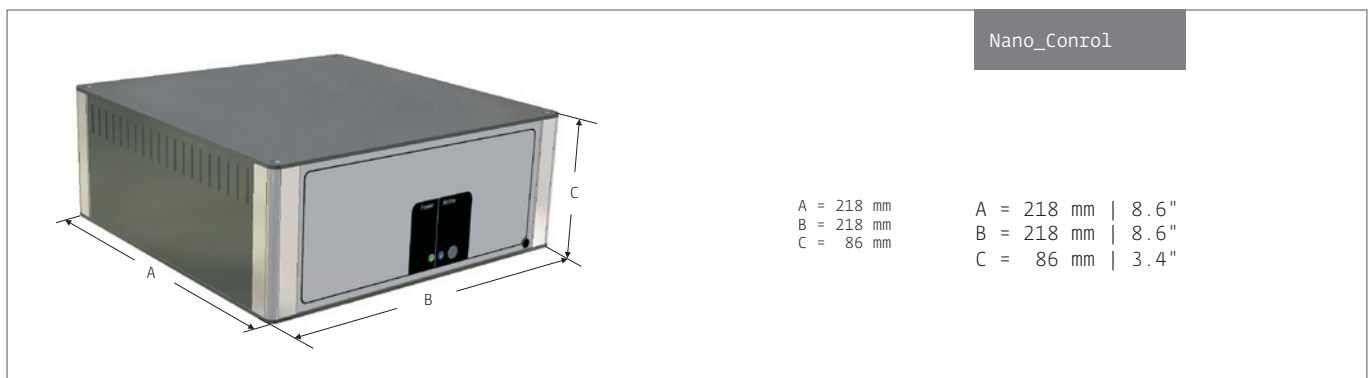
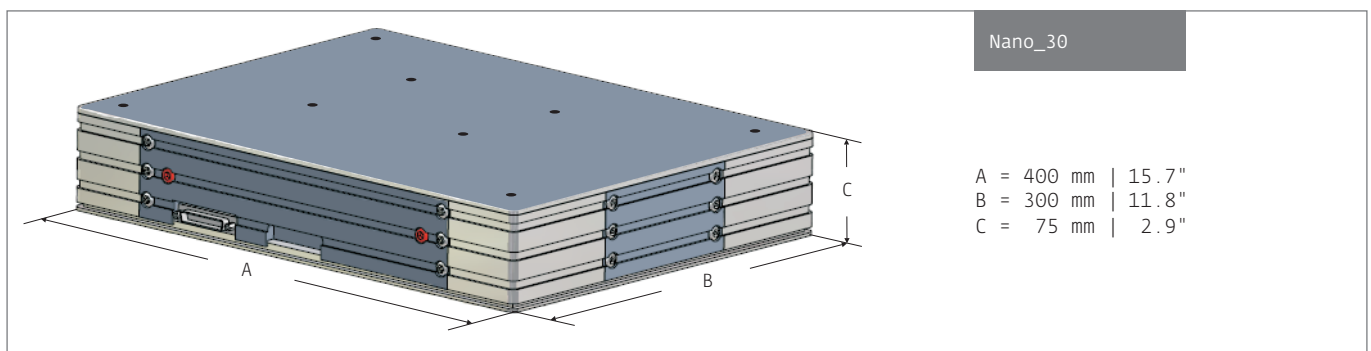
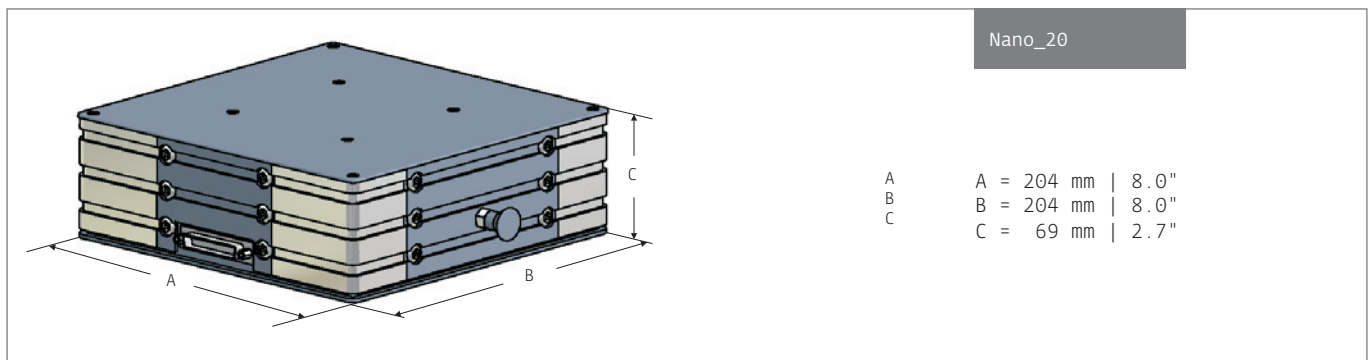
ENVIRONMENTAL AND OPERATIONAL REQUIREMENTS

ELECTRICAL VOLTAGE:	100-250 V~/47-63 Hz
POWER CONSUMPTION:	Typically 30-50 W
OPERATING TEMPERATURE:	16-40 °C 61-104 °F
RELATIVE HUMIDITY:	0-60 %
OPERATING ALTITUDE:	< 2.500 m 8.100 ft

CERTIFICATION

ELECTRICAL SAFETY:	CE certified according to directive 2006/95/EC
EMC:	CE certified according to directive 2004/108/EC

- * Floating table top is supported by steel springs; low-pass characteristics of spring-mass combination dominates the dynamic behaviour above 200 Hz.
- ** The settling time and maximum compensation level depend on several conditions, such as payload, frequency, load distribution and height of the payload. For that reason this value should be considered as an estimation.

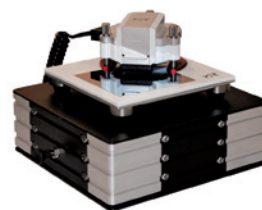




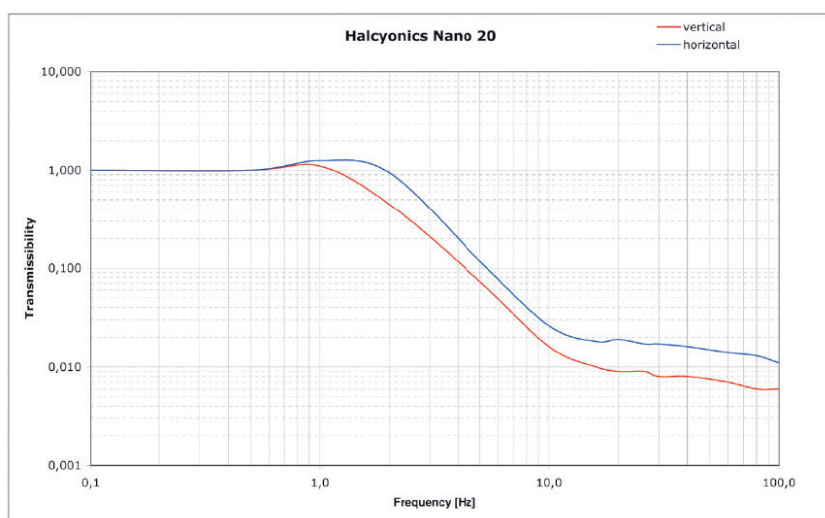
NT-MDT NANOEDUCATOR on Nano_20



Nano_20 with acoustic Enclosure_200



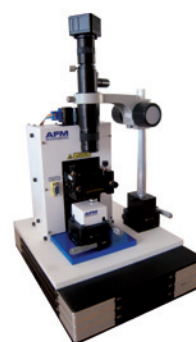
Nanosurf mobile S on Nano_20



Transmission graph of the halcyonics_nano_20 measured at a velocity of 100 $\mu\text{m/sec.}$ with a payload of 8 kg (17.6 lbs)



Bruker multimode on Nano_20



AFM Workshop TT-AFM on Nano_30

ACCESSORIES AND OPTIONS

- Steel support frame
- Acoustic enclosure
- Metric mounting holes in top plate (M6 tapped holes on 25 mm centers)
- Imperial mounting holes in top plate ($\frac{1}{4}$ "-20 tapped holes on 1 inch centers)

