Enabling Nanoscale Advances

Park SYSTEMS

Accurion i4

Active Vibration Isolation Desktop Unit

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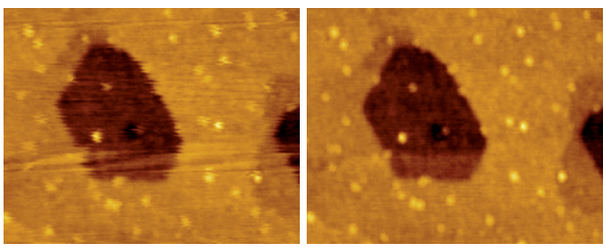
The Accurion i4 is a state-of-the-art active benchtop vibration isolation system. Aside from its low-profile carbon design, the Accurion i4 has expanded application capabilities. Main features are the automated transport locking mode and fully automatic load adjustment which makes the handling extremely straightforward.



AFM image of : SiC (0001) wafer with 1–3 monolayers of graphene, evaporated with gold – formation of approx. 1 nm high gold-clusters without and with active vibration isolation

It takes only a few seconds to start up the Accurion i4. No adjusting or tuning is required. The control panel is self-explanatory and the entire system is controlled by only three buttons. This enables the user to completely concentrate on the application.

Because of its slim dimensions and broad load range, the Accurion i4 is a multifunctional active vibration isolation system for a variety of applications. This allows you flexibility for future applications with just one model – the Accurion i4.

One accessory to our active vibration isolation systems are specially designed welded support frames. These frames feature a high horizontal and vertical stiffness and are the ideal basis for the optimal isolation performance of our systems. Different sizes of support frames are available to meet the requirements of our customers.

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 (¼"–20 tapped holes on 1" centers)

Selected Applications

- Scanning Electron Microscope on Accurion i4 Medium (JEOL Neoscope)

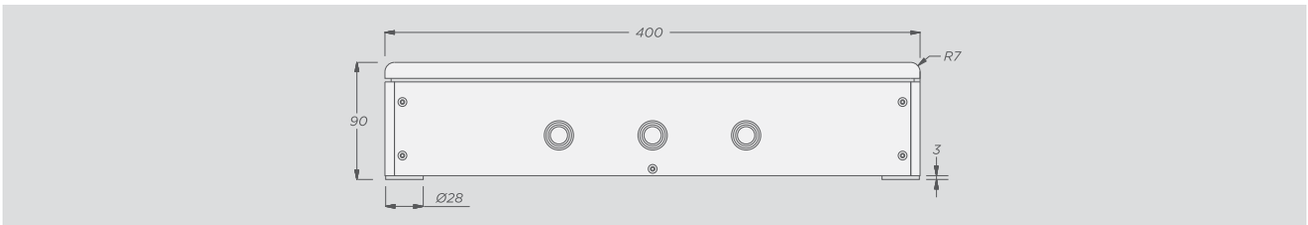
- 3D Optical Profilometer on Accurion i4 Medium (Sensofar Q vix)

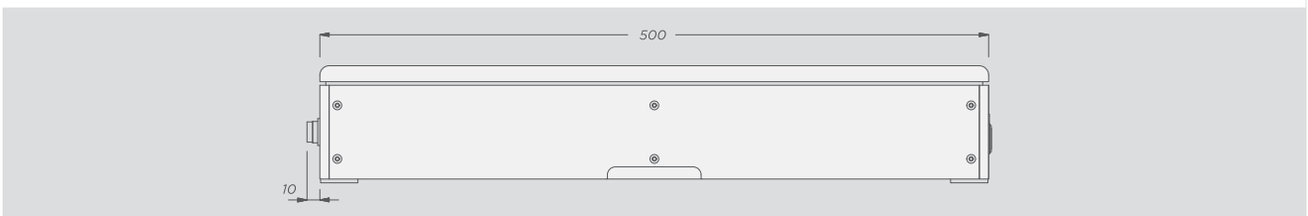
- Digital Microscope on Accurion i4 (Keyence VHX-6000)

- Super Resolution Microscope on Accurion i4 (abberior STEDYCON)

i4

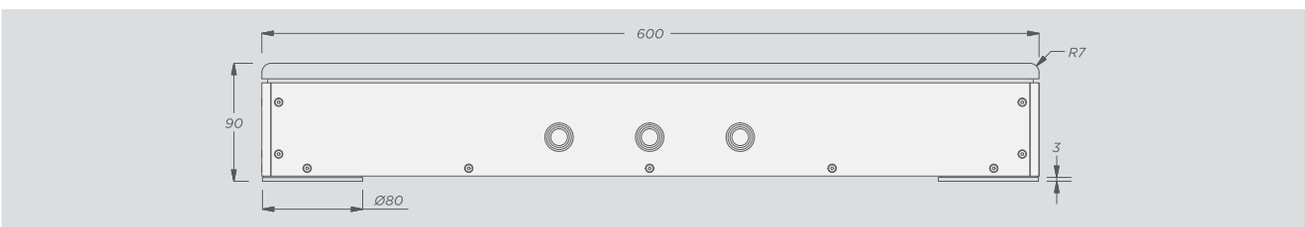
400 × 500 × 90 mm / 15.7" × 19.7" × 3.5"

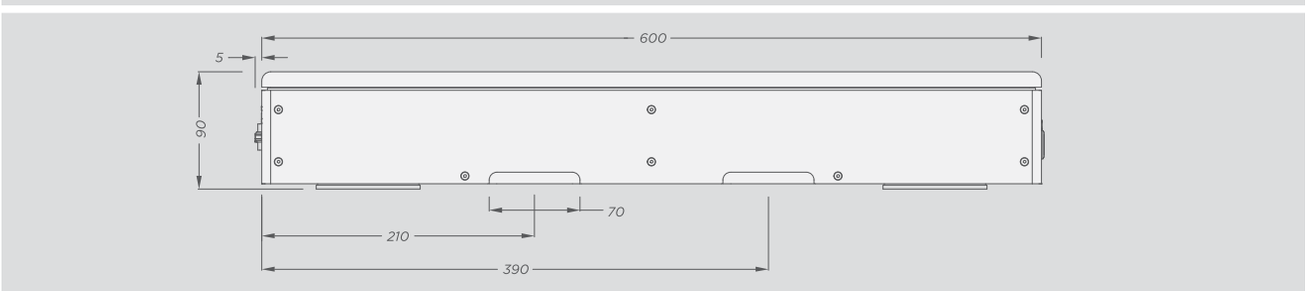




i4 Medium

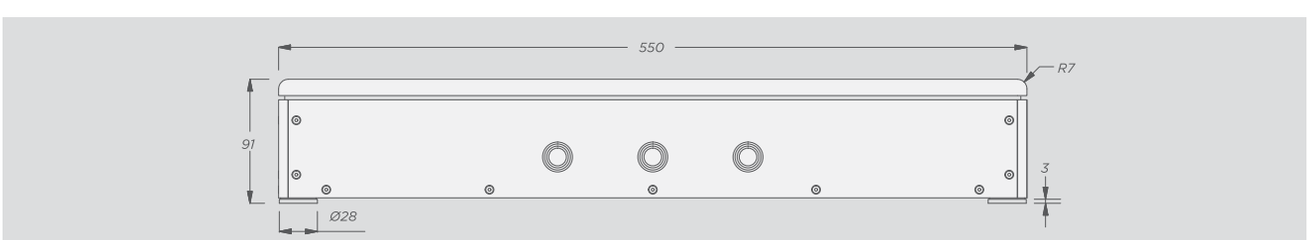
600 × 600 × 90 mm / 23.6" × 23.6" × 3.5"

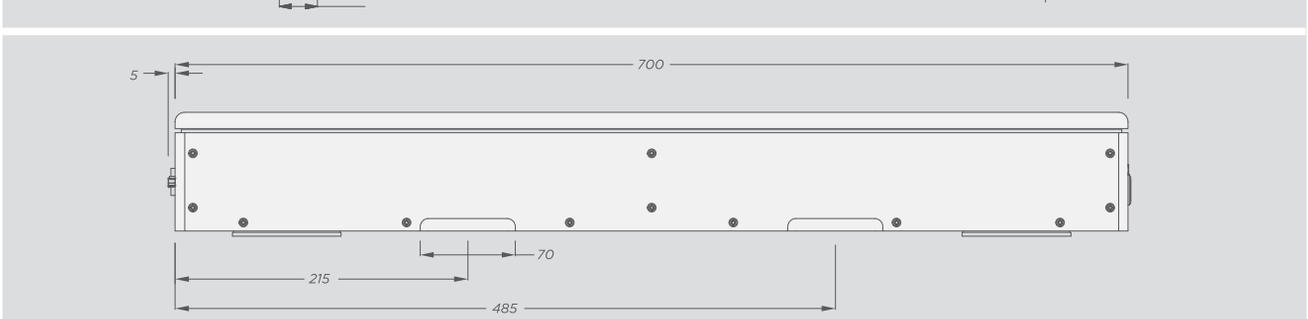




i4 Large

550 × 700 × 92 mm / 21.7" × 27.6" × 3.6"



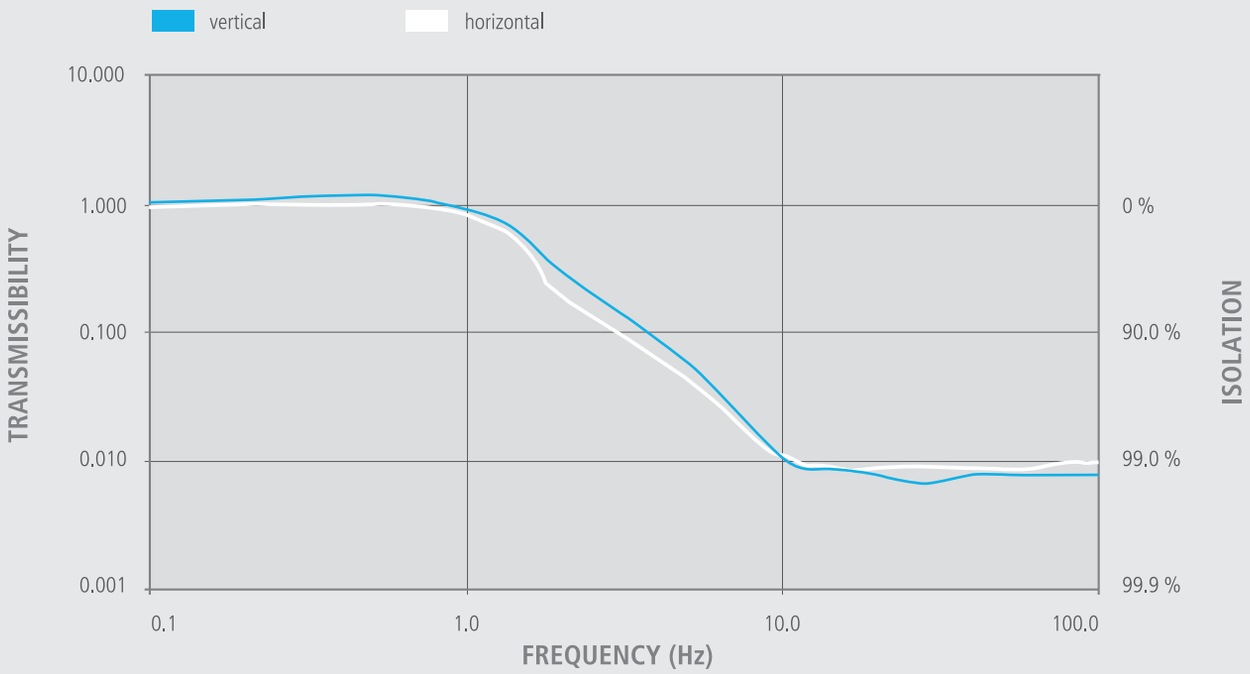


Specifications	i4	i4 Medium	i4 Large
Dimensions	400 × 500 × 90 mm 15.7 × 19.7 × 3.5 inch	600 × 600 × 90 mm 23.6 × 23.6 × 3.5 inch	550 × 700 × 92 mm 21.7 × 27.6 × 3.6 inch
Load capacity	0 – 120 kg / 0 – 265 lbs	0 – 105 kg / 0 – 232 lbs or 40 – 150 kg / 88 – 331 lbs	0 – 105 kg / 0 – 232 lbs or 40 – 150 kg / 88 – 331 lbs
Weight	20 kg / 44 lbs	37 kg / 82 lbs	40 kg / 88 lbs
Isolation technology	Accurion control technology based on piezoelectric type acceleration pickup, fast signal processing and electro-dynamic force transducers.		
Force directions	Active compensation in all six degrees of freedom.		
Isolation performance	> 5 Hz = 25 dB (94.4 %)	> 10 Hz = 40 dB (99.0 %)	
Active bandwidth	0.6 – 200 Hz* (passive isolation beyond 200 Hz)		
Settling time	300 ms**		
Response time	0.5 ms***		
Stroke of the actuator	1 mm		
Max. correction forces	Vertical ± 8 N	Horizontal ± 4 N	
Max. compensation level	500 µm / sec. at 6 Hz and 60 kg / 132 lbs**		
Repeatability of load adjustment	120 µm		
Table top material	Powder coated aluminum		
Top plate surface flatness	± 0.10 mm over complete surface		
Environmental and operational requirements	Electrical voltage: Power consumption: Operating temperature: Relative humidity: Operating altitude:	Input 100 – 240 V / 50 – 60 Hz AC; Output: +12V / 5.0 A - 60W DC Typically 40 – 45 W 15 – 40 °C / 59 – 104 °F 0 – 60 % < 2,500 m / 8,100 ft	
Certified according to:	2014/35/EU 2014/30/EU FCC Regulations Part 15.107 & 15.109 SI 2016:1091		

*The low-pass characteristics of the spring-mass combination dominate the dynamic behavior of the isolation system above 200 Hz. The part of the active isolation decreases with increasing frequency.

**The settling time and maximum compensation level depend on several conditions such as payload, vibration frequency and load distribution. The mentioned settling time value is exemplary for a centric load of 80 kg. The settling time defines the time until an incoming vibration is compensated.

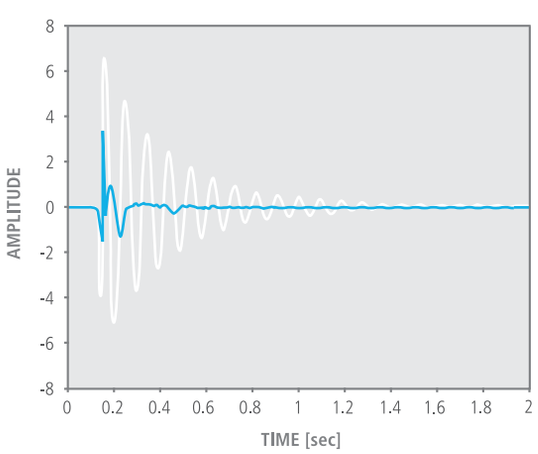
***The response time determines when the system starts to actively isolate an incoming vibration after detection by the sensors.



Transmission graph of the Park Accurion i4 measured at a velocity of 100 µm/s with a payload of 20 kg (44 lbs).

Key Features

- Isolation in all six degrees of freedom.
- Active vibration isolation starts at 0.6 Hz (passive isolation above 200 Hz).
- Automatic load adjustment and transportation lock.
- Settling time only 0.3 s.
- AC power from an electrical outlet is sufficient; no compressed air supply is needed.
- No natural low frequency resonance and, as a result, excellent vibration characteristics also in frequency ranges below 5 Hz.
- Excellent position stability – inherent stiffness typically 20 – 30 times higher than that of a 1 Hz passive isolator.
- Exceptionally compact dimensions.
- Two-year warranty.
- Long term tests and quality control procedures.



Settling time i4 (blue) compared to a conventional air vibration isolation system (white).

- Leica DCM8 on Accurion i4 Large

Park Systems Global

● Regional headquarters
● Distribution partners

Park Systems GmbH - Accurion

Park Systems GmbH previously known as Accurion GmbH is a leading provider of high-end, state of the art imaging ellipsometry and active vibration isolation products. Accurion was merged into Park Systems Corporation in 2022 to boost its R&D resources and expand its sales network to better serve its customers.
Park Systems is a world leading manufacturer of nano metrology-microscopy solutions including the atomic force microscopy (AFM), white light interferometry and infrared spectroscopy systems.
It provides complete range of nano metrology and microscopy products for researchers and engineers in the chemistry, materials, physics, life sciences, semiconductor, and data storage industries.

Prior to merger with Park Systems, Accurion was previously known as Nanofilm Technology GmbH, a spin-off from the Max Planck Institute for biophysical chemistry in Goettingen. In 1991, the company began designing the Brewster angle microscope for the characterization of ultrathin films. In 1996, the company's division of active vibration isolation was established. In 2009, Halcyonics GmbH, a specialist in active vibration isolation solutions, merged with Nanofilm Technology GmbH to form Accurion GmbH.

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