

HALCYONICS ISOLATION

ACTIVE VIBRATION ISOLATION
FOR SMALL AND LARGE SCALE
INSTRUMENTATION

i4 Series



Nano Series



Vario Basic Series



Workstation Series



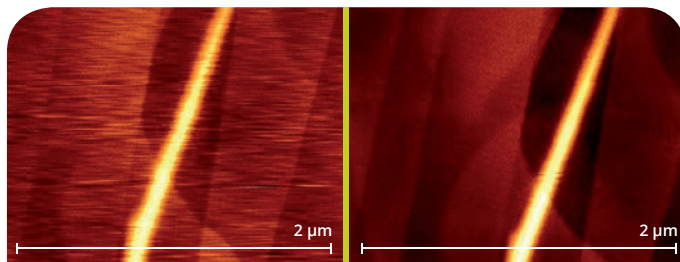
Heavy Load Series

PERFECT RESULTS WITH HIGH PRECISION EQUIPMENT: HALCYONICS_ISOLATION

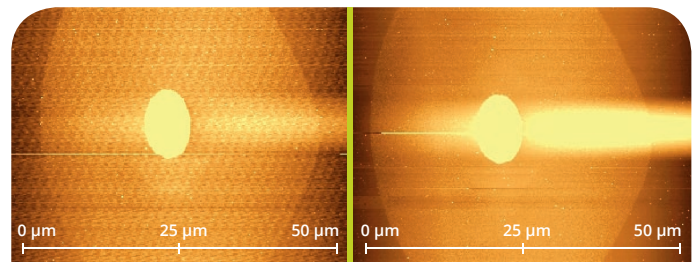
Ever since high-resolution measurements and manufacturing techniques have reached nanometer scales, vibrations have become a major problem. Effective elimination of disturbing vibrations can be the key to precise and repeatable results. The approach is to isolate the application from a vibration source. Typical sources of disturbing vibrations can be:

- Building and floor vibrations (vertical: 5 – 30 Hz, horizontal: 0.5 – 10 Hz)
- Acoustic vibrations (> 20 Hz)
- Motorized equipment and machinery (10 – 500 Hz)

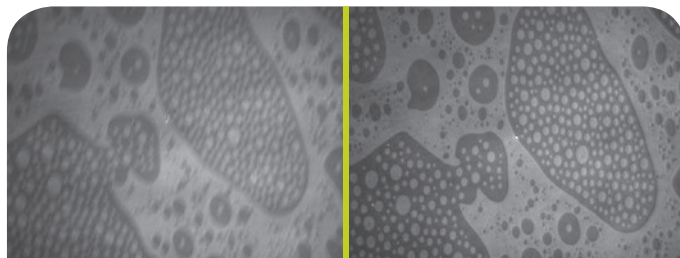
Active Vibration Isolation is the active compensation of disturbing vibrations by generating a counterforce.



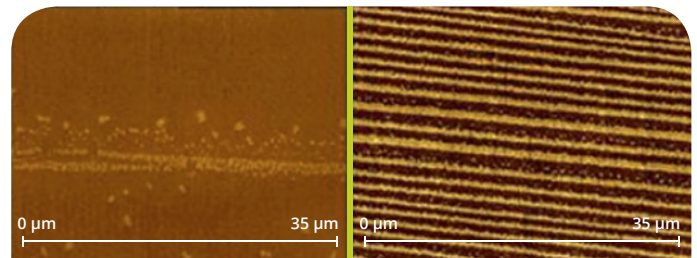
AFM image of HOPG without and with active vibration isolation



Polymer drop on a silicon substrate without and with active vibration isolation



Floating monolayer of ethyl stearate without and with active vibration isolation



LB-patterning of DPPC on mica without and with active vibration isolation

SELECTED APPLICATIONS



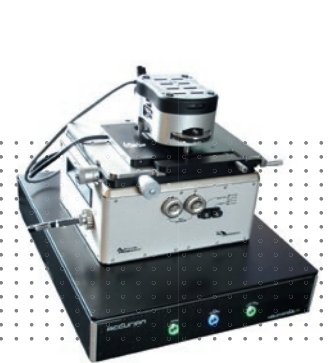
■ Atomic Force Microscope on Nano 20



■ Scanning Electron Microscope on Sandwich Platform



■ Coherence Scanning Interferometer on Vario Basic 40-600

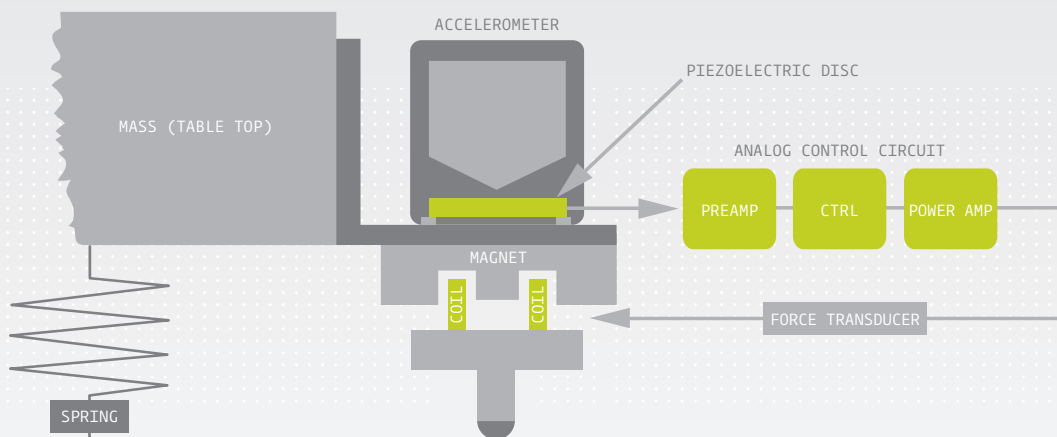
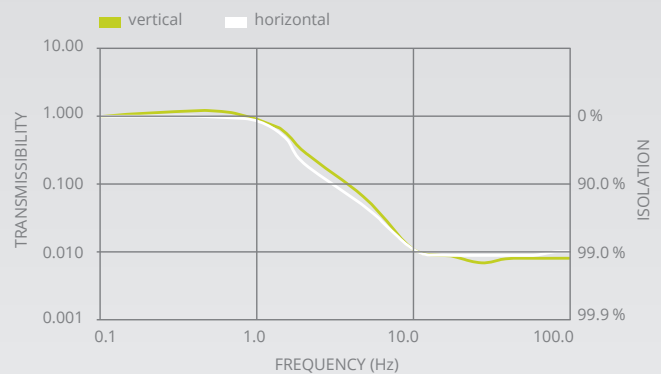


■ Atomic Force Microscope on i4

WORKING PRINCIPLE OF HALCYONICS SYSTEMS

The application and the carrying table top are supported by springs. The objective is to reach a floating condition as a requirement for the active vibration isolation. Movements of the top plate in any direction are possible. During operation, the application on the table top is isolated from it's environment.

Vibrations are detected by extremely sensitive piezoelectric accelerometers. Sensor output signals are analyzed and processed by a control circuit driving electro-dynamic actuators which generate a counter-force against vibrations in real-time. The active vibration isolation is effective in 6 degrees of freedom.



KEY FEATURES:

- In contrast to air-damped systems – no natural low frequency resonance, which results in excellent vibration performance even in the low frequency range.
- Extremely short settling time of 0.3 s (for comparison: common passive isolators have a settling time of 30 to 60 s).
- Active bandwidth 0.6 / 1 Hz to 200 Hz (beyond passive isolation).
- Active vibration isolation in six degrees of freedom.
- Instantaneous generation of a counterforce to compensate vibrations – real active vibration isolation.
- Ease of use – push-button solution.
- Compact design and low installation effort.
- High position stability – inherent stiffness is typically 20 to 30 times higher than that of a 1 Hz passive isolator.
- No compressed air required – just power supply.
- Ideal for isolating high-resolution measurement equipment from building vibrations.
- Wide range of standard versions and customizations available.



■ Imaging Ellipsometer on Vario Basic 40



■ 3D Profilometer on i4large

HALCYONICS_I4

FLAT BENCHTOP ISOLATION SYSTEM

i4

Dimensions: 400 × 500 × 90 mm
Load capacity: 0 – 120 kg

i4 large

Dimensions: 550 × 700 × 92 mm
Load capacity: 0 – 105 kg or
40 – 150 kg



HALCYONICS_NANO

DESIGNED FOR SMALL AND LIGHTWEIGHT APPLICATIONS

Nano_20

Dimensions: 204 × 204 × 69 mm
Load capacity: 0 – 8 kg

Nano_30

Dimensions: 300 × 400 × 75 mm
Load capacity: 5 – 25 kg or 10 – 30 kg



HALCYONICS_VARIO

TWO MODULAR ISOLATION ELEMENTS AND CONTROL UNIT WITH AUTOMATIC LOAD ADJUSTMENT

Vario_45

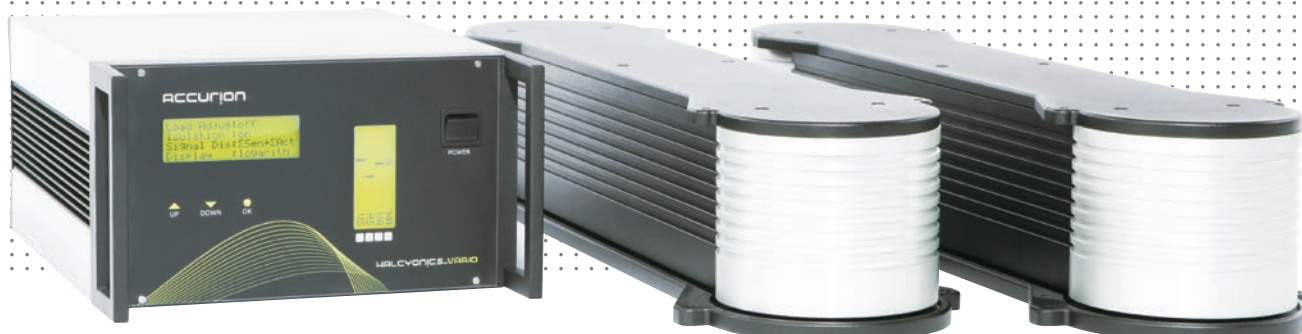
Element dimensions:
(481 × 165 × 114 mm)
Load capacity:
0 – 360 kg

Vario_60

Element dimensions:
(600 × 165 × 114 mm)
Load capacity:
0 – 360 kg

Vario_90

Element dimensions:
(900 × 165 × 114 mm)
Load capacity:
0 – 360 kg



HALCYONICS_VARIO BASIC

TWO OR FOUR MODULAR ISOLATION ELEMENTS AND
CONTROL UNIT WITH MANUAL LOAD ADJUSTMENT



VarioBasic_40

Element dimensions: (396 × 120 × 111 mm)

Load capacity: 0 – 300 kg, 0 – 600 kg

VarioBasic_60

Element dimensions: (636 × 130 × 111 mm)

Load capacity: 0 – 300 kg, 0 – 600 kg

VarioBasic_90

Element dimensions: (932 × 130 × 111 mm)

Load capacity: 0 – 300 kg, 0 – 600 kg

HALCYONICS_WORKSTATION I4

ERGONOMIC LABORATORY TABLE WITH
INTEGRATED I4

Workstation_i4

Overall dimensions: 1200 × 800 × 760 mm

Active isolated surface: 400 × 500 mm

Load capacity: 0 – 120 kg

Workstation_i4large

Overall dimensions: on request

Active isolated surface: 550 × 700 mm

Load capacity: 0 – 105 kg or
40 – 150 kg



HALCYONICS_WORKSTATION VARIO

ERGONOMIC LABORATORY TABLE WITH INTEGRATED VARIO SYSTEM

Workstation_Vario_600

Active isolated surface:

600 × 600 mm

Load capacity: 0 – 320 kg

Workstation_Vario_780

Active isolated surface:

780 × 600 mm

Load capacity: 0 – 310 kg

Workstation_Vario_900

Active isolated surface:

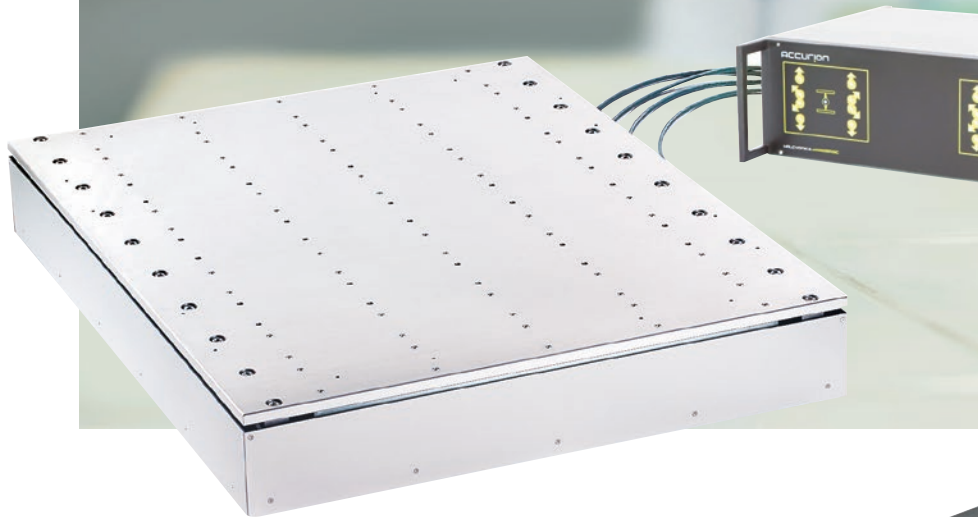
900 × 750 mm

Load capacity: 0 – 290 kg



HALCYONICS_SANDWICH

HEAVY LOAD ISOLATION PLATFORM



Sandwich_800-4.0

Dimensions: 800 × 800 × 130 mm
Load capacity: 0 – 600 kg

Sandwich_1000-4.0

Dimensions: 1,000 × 800 × 130 mm
Load capacity: 0 – 600 kg

Sandwich_1000-6.0

Dimensions: 1,000 × 800 × 130 mm
Load capacity: 0 – 900 kg

Sandwich_1000-8.0

Dimensions: 1,000 × 800 × 130 mm
Load capacity: 0 – 1,200 kg

HALCYONICS_DUO

HEAVY LOAD ISOLATION ELEMENTS

Duo_73

Dimensions: 730 × 210 × 12 mm
Load capacity: 0 – 800 kg



HALCYONICS_ACOUSTIC ENCLOSURE SERIES

FOR AIRBORNE NOISE ISOLATION

Acoustic_Enclosure_200

Internal dimensions: 352 × 352 × 415 mm

Acoustic_Enclosure_600

Internal dimensions: 600 × 600 × 800 mm

Acoustic_Enclosure_780

Internal dimensions: 780 × 600 × 940 mm

Acoustic_Enclosure_900

Internal dimensions: 950 × 750 × 940 mm

Acoustic_Enclosure_1000

Internal dimensions: 950 × 1,050 × 942 mm



PRODUCT SELECTION GUIDE

| PRODUCTS | LOAD CAPACITY | DIMENSIONS OF ISOLATED SURFACE | LOAD ADJUSTMENT |
|--|--|--|---|
| Nano_20 Nano_30 | 0 – 8 kg 5 – 25 kg / 10 – 30 kg | 204 × 204 × 69 mm 400 × 300 × 75 mm | None None |
| i4 i4large | 0 – 120 kg 0 – 105 kg / 40 – 150 kg | 400 × 500 × 90 mm 550 × 700 × 92 mm | Automatic Automatic |
| Vario_45 -360 Vario_60 -360 Vario_90 -360 | 0 – 360 kg 0 – 360 kg 0 – 360 kg | max: 1,200 × 600 mm max: 1,200 × 800 mm max: 1,200 × 1,100 mm | Automatic Automatic Automatic |
| Vario_Basic_40 -300 Vario_Basic_40 -600 Vario_Basic_60 -300 Vario_Basic_60 -600 Vario_Basic_90 -300 Vario_Basic_90 -600 | 0 – 300 kg 0 – 600 kg 0 – 300 kg 0 – 600 kg 0 – 300 kg 0 – 600 kg | max: 1,200 × 500 mm max: 1,200 × 1200 mm max: 1,200 × 800 mm max: 1,200 × 1400 mm max: 1,200 × 1,100 mm max: 1,200 × 2,200 mm | Manual Manual Manual Manual Manual Manual |
| Workstation_i4 Workstation_i4large Workstation_Vario_600 Workstation_Vario_780 Workstation_Vario_900 | 0 – 120 kg 0 – 105 kg / 40 – 150 kg 0 – 320 kg 0 – 310 kg 0 – 290 kg | 400 × 500 mm 550 × 700 mm 600 × 600 mm 780 × 600 mm 900 × 750 mm | Automatic Automatic Automatic Automatic Automatic |
| Duo_73 | 0 – 800 kg | max: 1,500 × 1,000 mm | Manual |
| Sandwich_800-4.0 Sandwich_1000-4.0 Sandwich_1000-6.0 Sandwich_1000-8.0 | 0 – 600 kg 0 – 600 kg 0 – 900 kg 0 – 1,200 kg | 800 × 800 × 130 mm 1,000 × 800 × 130 mm 1,000 × 800 × 130 mm 1,000 × 800 × 130 mm | Manual Manual Manual Manual |

YOU DID NOT FIND A SUITABLE SOLUTION?
PLEASE FEEL FREE TO CONTACT US FOR A SPECIAL DESIGN!

Errors and omissions excepted.

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