

Marketch Integrated Pte Ltd

Subsidiary
of



Marketch International Corp.

K&S

Advanced Vibration Isolation



Important of Vibration Isolation

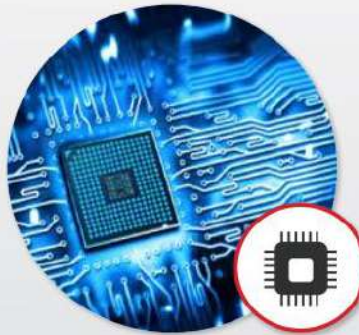
High-precisions tools are sensitive to vibrations and require vibration isolation for optimal performance by minimize the impact from sources such as pumps, fans, piping, and ducts within the building.

Especially Semiconductor equipment that are susceptible to floor vibrations, which can greatly diminish their performance. For example,

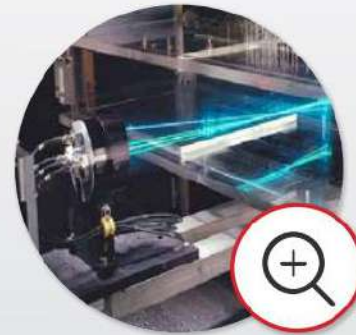
- **Scanning Electron Microscopes**
- **Transmission Electron Microscopes**
- **CD inspection tools**
- **Lithography tools**



Microscopes AFM, SEM, TEM, etc.



Semiconductors



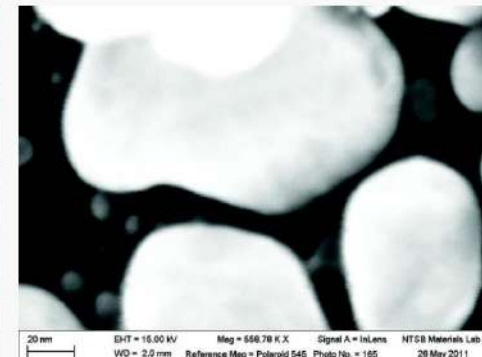
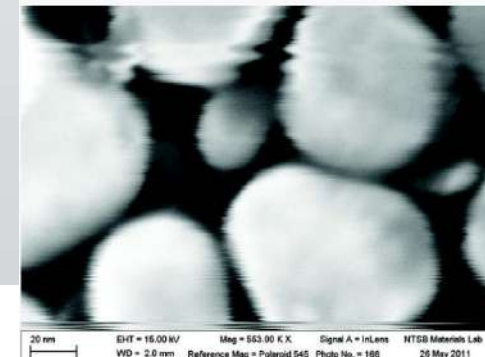
Metrology and Inspection



Automotive

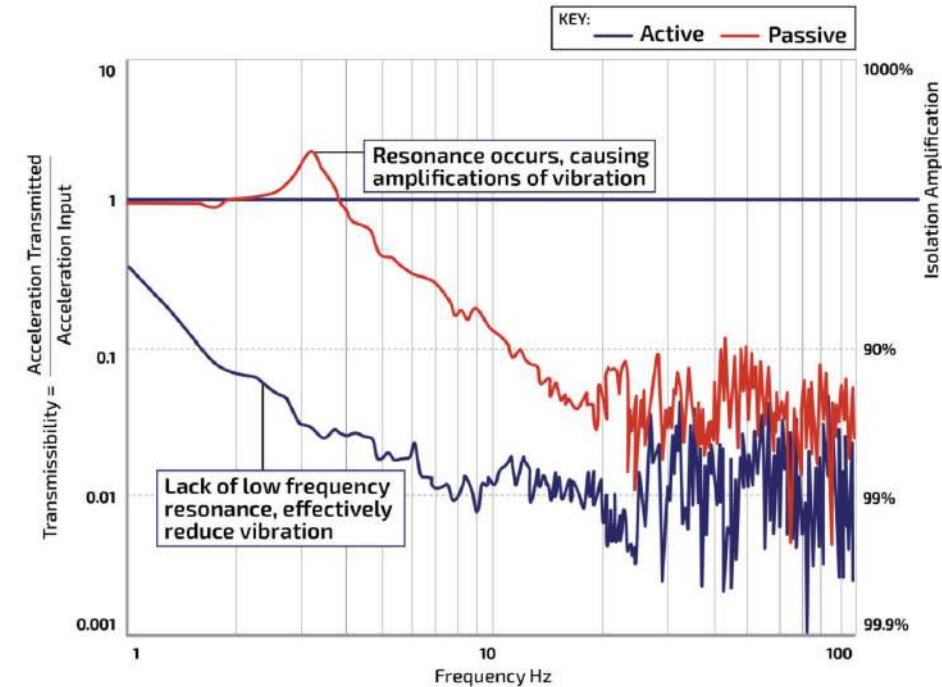


Medical



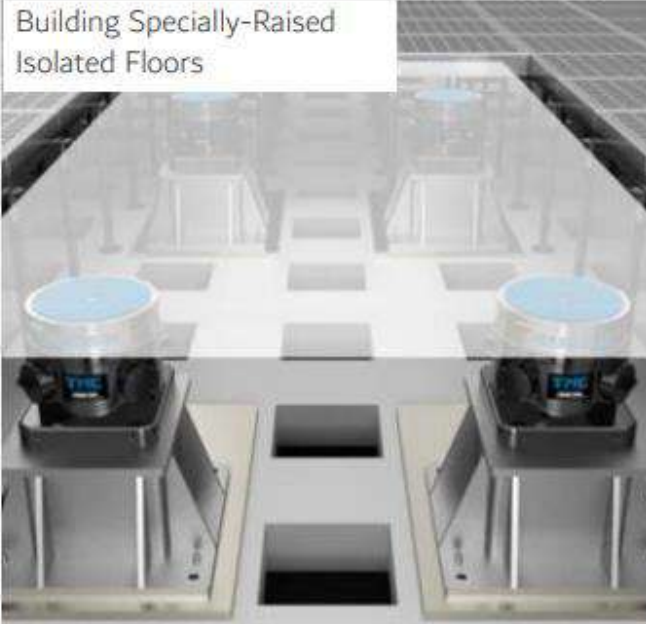
Passive Vs Active Vibration Isolation

FEATURE	PASSIVE	ACTIVE
System	Isolated mass (Payload), Spring (K), Damper (C)	Feedback & Feedforward Control System with integrated sensors and actuators
Isolation Range	>5Hz due to it low frequency resonance	>0.7Hz
Low Frequency Resonance	2 – 5 Hz, often increase it cause problem for instrument such as SEM & AFM	None
Amplification at Resonance	4-9 times	N/A
Load Sensitive	Yes, the load change mechanical structure of system	No
High Center of Gravity Decreases Efficiency	Yes	No
Stiffness	Soft	500x Stiffer than Passive
Isolation in All Six Degrees of Freedom	No, only isolate Z axis vibration / different isolation mechanism is employed	Yes
Air Supply Requirements	Hand Pump or Air Supply	None
AC Power	None	110-240 VAC
Settling Time	2 – 10 seconds	10-20 milliseconds
Price	Low to Moderate	Moderate to High



Conventional Method of Installation

Building Specially-Raised
Isolated Floors



Passive Damping
With Concrete Blocks



Fundamental
No possibility to
change tool location



Machine long
down time



No flexibility
no configurability



Expensive

K&S Advanced Systems

K&S Advanced Systems LTD developing and manufacturing systems that set the next-level industry standard of vibration isolation for precision instruments.



K&S China
CHANGZHOU INNOVATION PARK



K&S Israel Headquarters
Rehovot Horovitz Science Park



K&S Massachusetts - USA

Experienced – Team of Engineers, Physicists, and Industry Experts with vast experience in Automation, Electronics and Real Time Processing

Customized Solutions – Tailored to Customer and Industry Needs

Patented Top-Performing Systems – Innovative, User-Friendly

Design-Focused R&D – In-House Manufacturing



The professional technology service provider

Technology

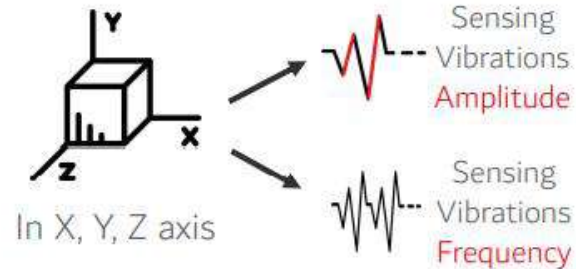
Attaching to the floor and
Continuously Sensing Floor Vibrations



In Real Time



Continuously



Integrated Floor level sensors showing Input vibrations values before active vibration isolation



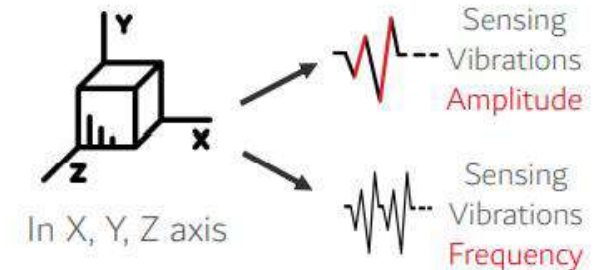
Attaching to machine/instrument frame and Sensing Frame Vibrations



In Real Time

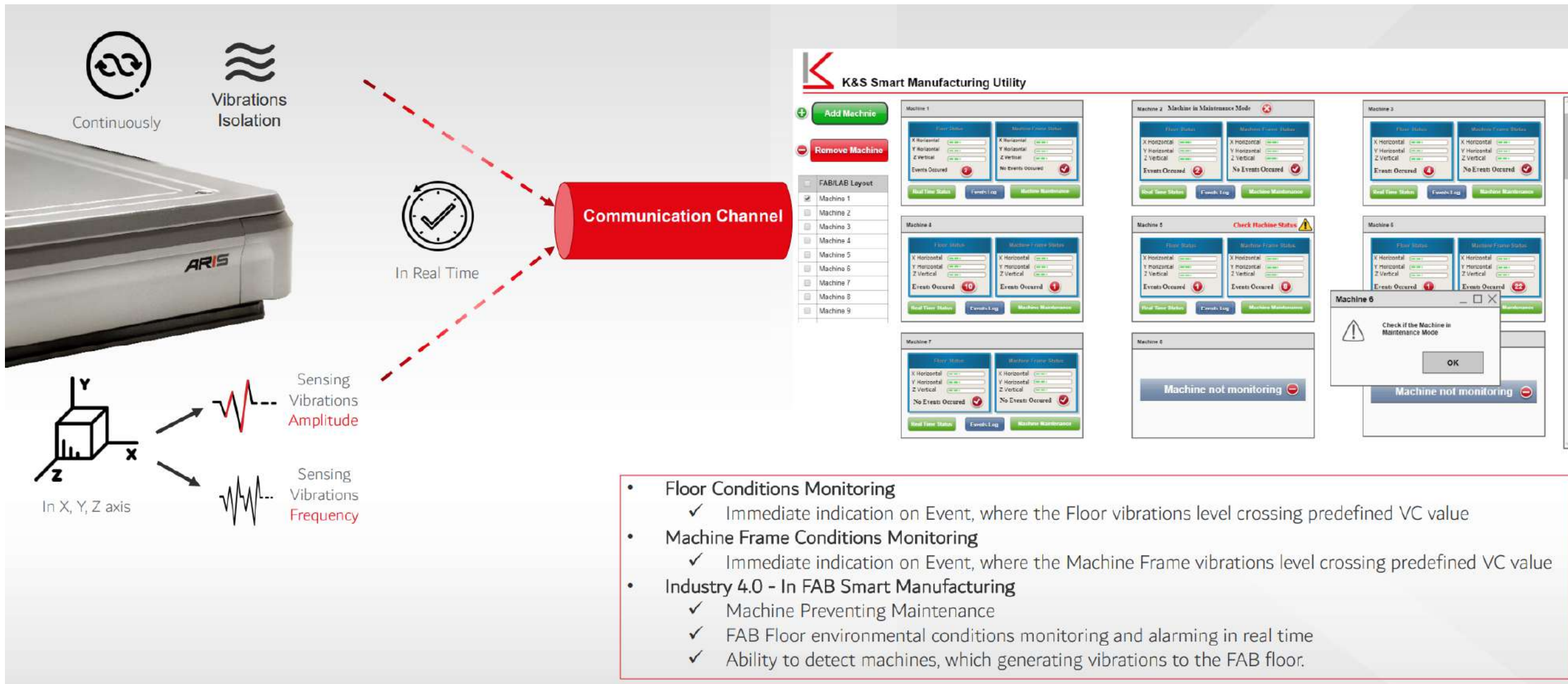


Continuously



Integrated Machine Frame level sensors showing vibrations values after active vibration isolation system functioning

Technology- K&S ARISMD PRO



Technology



Artificial
intelligence



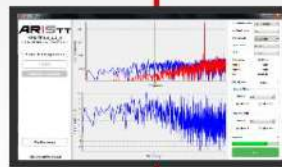
IoT



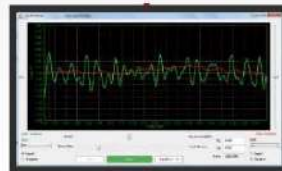
Vibration
isolation



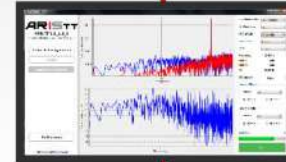
Sensing
vibrations
sources



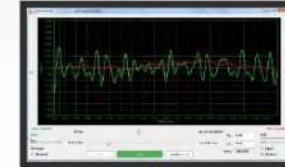
Machine 1



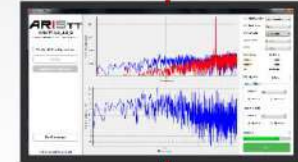
Machine 2



Machine 3



Machine 4



Machine 5

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Main Products

ARIS TTXXX
Table Top Active Vibration
Isolation System



ARIS MDXXX
Modular Active Vibration
Isolation System



ARIS Integra
Flexible Length



SOTO TTXXX

Table Top
Passive Vibration
Isolation System



SOTO MDXXX

Modular
Passive Vibration
Isolation System



Active Vibration System - ARIS TT

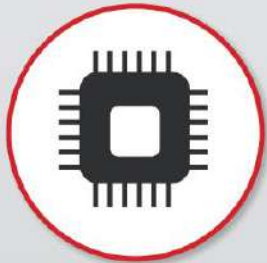
A **lightweight** and compact **Table Top active vibration isolation systems** that counteracts unwanted vibrations for sensitive equipment. The streamlined design allows it to seamlessly become part of the workstation environment, and its straightforward composition requires no follow-up tuning.

Device	ARISTT 75I	ARISTT 75	ARISTT 75X	ARISTT 100	ARISTT 150	ARISTT 180	ARISTT 200
Dimensions (WxDxH) mm	300x450x65	300x450x80	400x500x80	400x500x80	400x500x80	500x600x80	600x800x80
Load Capacity (kg)	15-75	15-75	15-75	40-100	70-150	80-180	90-200
Actuator Force	Vertical: 50 N ; Horizontal 25 N						
Active Isolation Range	0.5 – 100 Hz						
Architecture	MVIS - Multi-layer Vibration Isolation Structure						
Degrees of Freedom	4 degrees	6 degrees					
Vibration Isolation Performance	~8db gain on 1Hz ~20db gain on 2Hz						
Settling time	≤0.1 sec						
Real-Time Diagnostic Tools	Built-in Real-Time 2 channels Oscilloscope, Real Time 2 channel Spectrum Analyzer						
Real-Time performance adjustment	Adaptive Control in ALL 6 degrees of freedom in real-time. Remote Access						
Input Voltage	AC 80-260V/50-60Hz						

Application and Actual Set Up - ARIS TT



Microscopes AFM



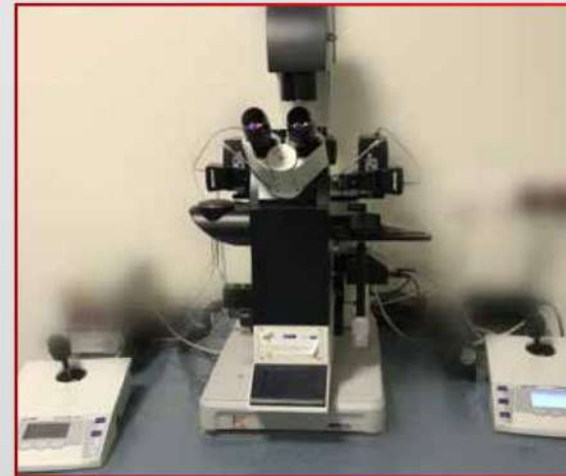
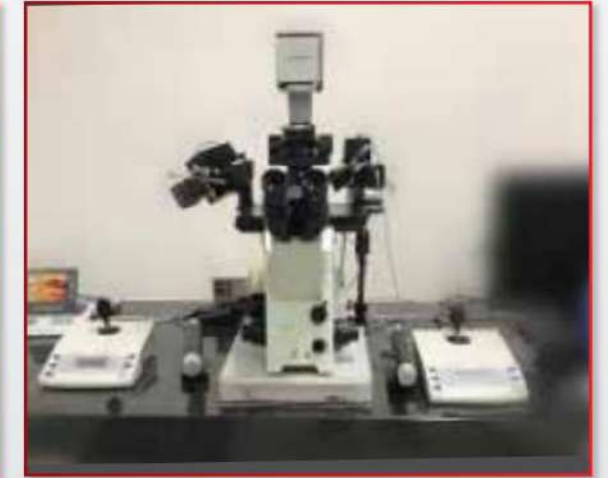
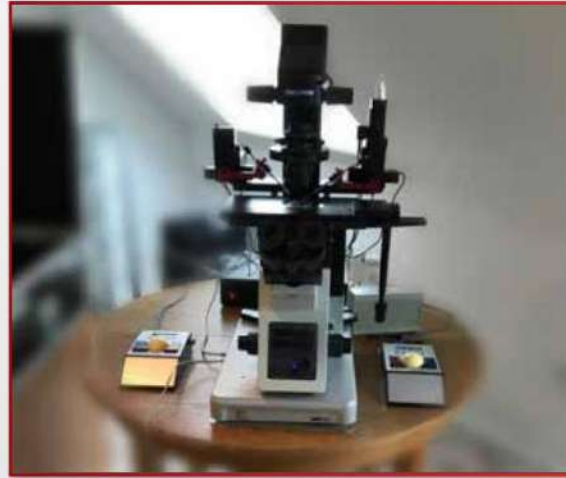
Semiconductors



Application and Actual Set Up - ARIS TT



IVF



Active Vibration System - ARIS MD

Device	ARIS_{MD} 300	ARIS_{MD} 500	ARIS_{MD} 1000	ARIS_{MD} 300^{pro}	ARIS_{MD} 500^{pro}
Dimensions (WxDxH) mm	270x230x75	270x230x75	370x230x75cm	270x230x75 230x230x75	270x230x75 230x230x75
Load Capacity (kg)	100-300 per Isolator (Module) Number of Modules unlimited	200-500 per Isolator (Module) Number of Modules unlimited	500-1000 per Isolator (Module) Number of Modules unlimited	100-300 per Isolator (Module) Number of Modules unlimited	100-300 per Isolator (Module) Number of Modules unlimited
Actuator Force	Vertical = 50N Horizontal = 25N	Vertical = 50N Horizontal = 25N	Vertical = 50N Horizontal = 25N	Vertical = 150N Horizontal = 75N	Vertical = 150N Horizontal = 75N
Active Isolation Range	0.5 – 100 Hz				
Architecture	MVIS - Multi-layer Vibration Isolation Structure				
Degrees of Freedom	All 6 degree for System				
Vibration Isolation Performance	~8db gain on 1Hz ~20db gain on 2Hz				
Settling time	≤0.1 sec				
Real-Time Diagnostic Tools	Built-in Real-Time 2xChannels Oscilloscope, Real Time 2xChannel Spectrum Analyzer per Module and per System				



The professional technology service provider

Active Vibration System- ARIS Integra

Device	ARIS Integra 500	ARIS Integra <i>pro</i> 500	ARIS Integra 1000	ARIS Integra <i>pro</i> 1000
Dimensions (WxDxH) mm	800mm (Flexible Length) x300x75mm	800mm (Flexible Length) x300x75mm	800mm (Flexible Length) x300x75mm	800mm (Flexible Length) x300x75mm
Maximum load (kg)	500	500	1000	1000
Actuator Force	Vertical = 50N Horizontal = 25N	Vertical = 150N Horizontal = 75N	Vertical = 50N Horizontal = 25N	Vertical = 150N Horizontal = 75N
Active Isolation Range	0.5 – 100 Hz			
Architecture	MVIS - Multi-layer Vibration Isolation Structure			
Degrees of Freedom	All 6 degree for System			
Vibration Isolation Performance	~8db gain on 1Hz ~20db gain on 2Hz			
Settling time	≤0.1 sec			
Real-Time Diagnostic Tools	Built-in Real-Time 2xChannels Oscilloscope, Real Time 2xChannel Spectrum Analyzer per Module and per System			

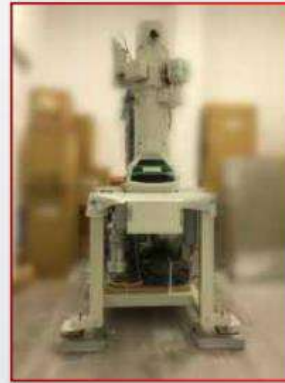


The professional technology service provider

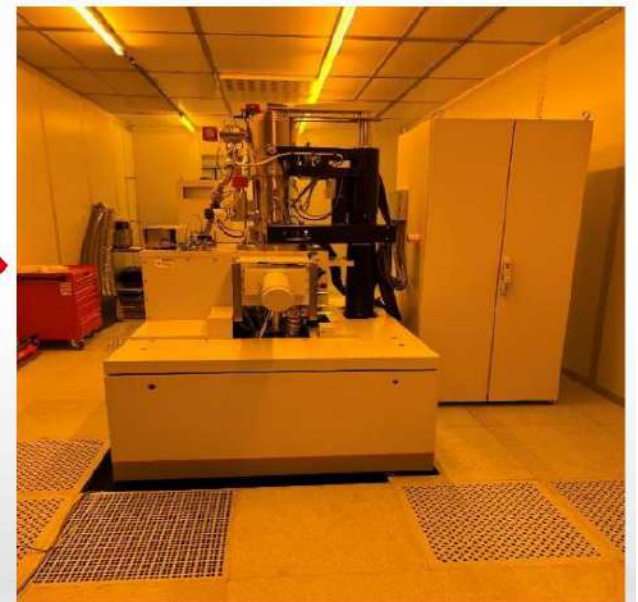
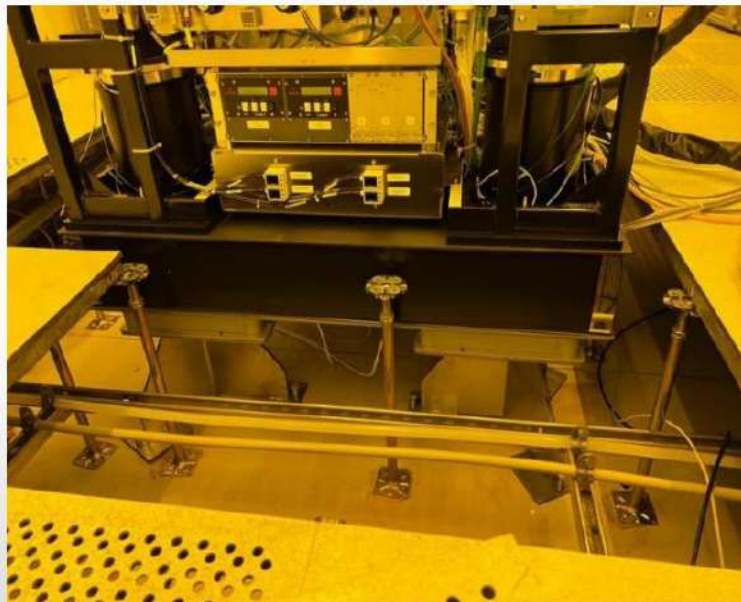
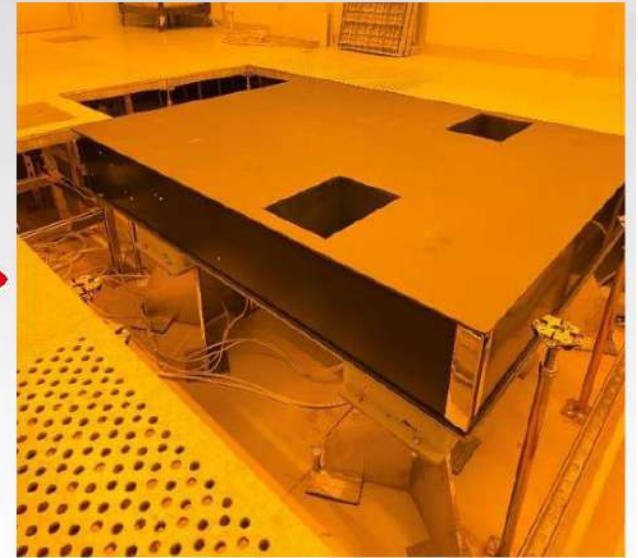
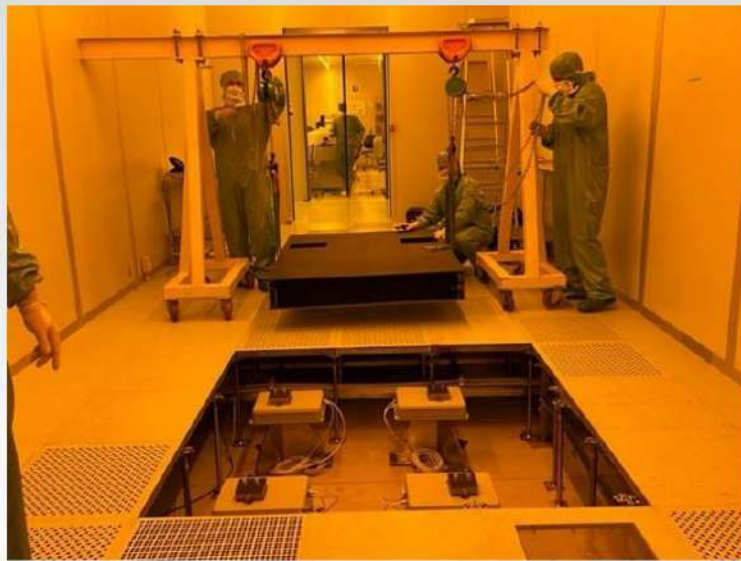
Application and Actual Set Up - ARIS MD



SEM/TEM/FIB



Active Vibration Control System- Installation



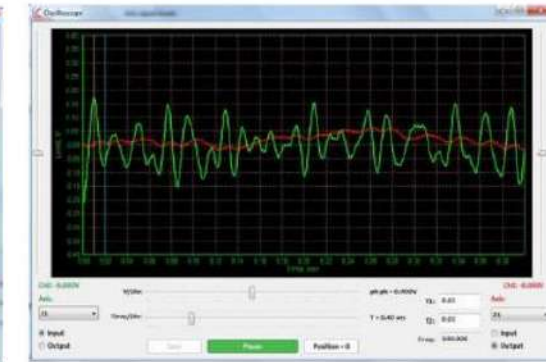
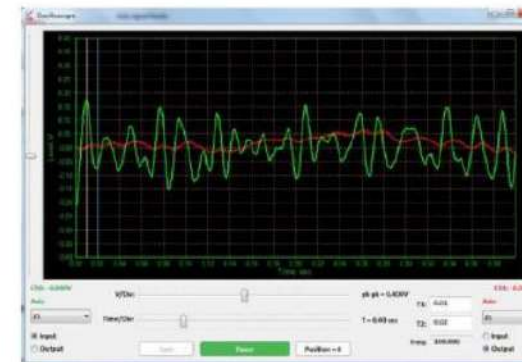
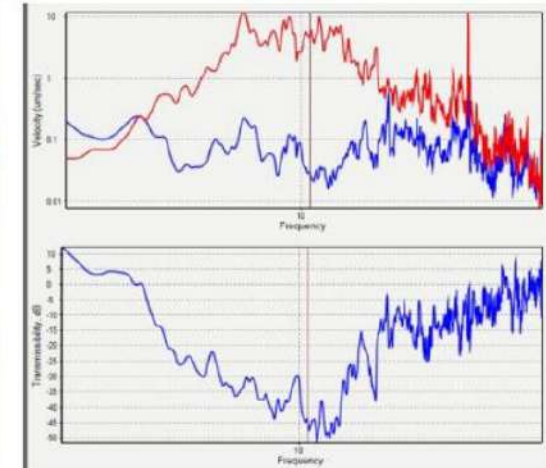
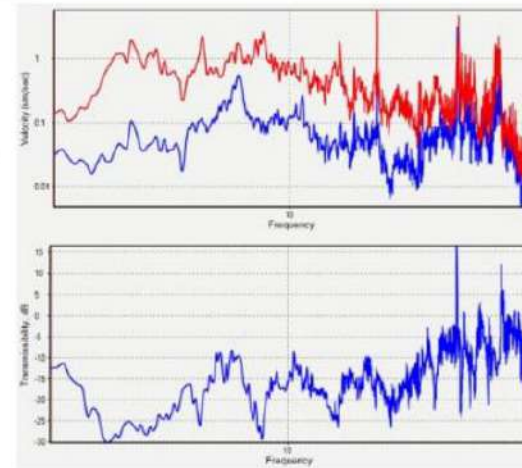
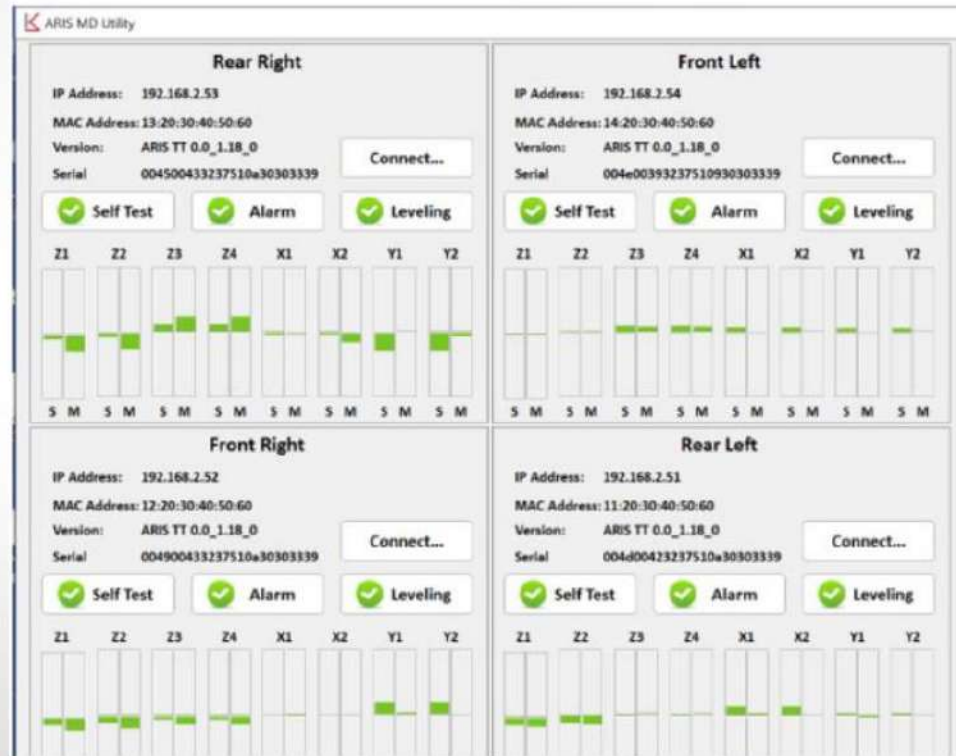
Engineering and Technical Support

- **ARIS_{MD}** System Status
- Real time diagnostic
 - Spectrum Analyzer – Frequency domain
 - Oscilloscope – Real time domain



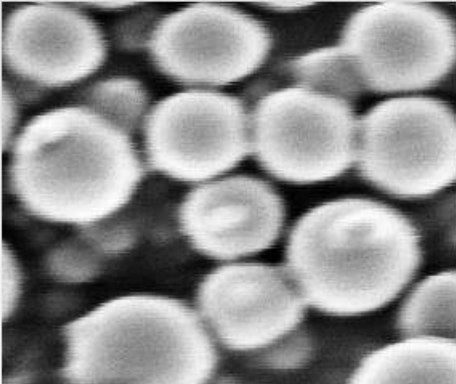
K&S Smart Manufacturing Utility

Real Time Status

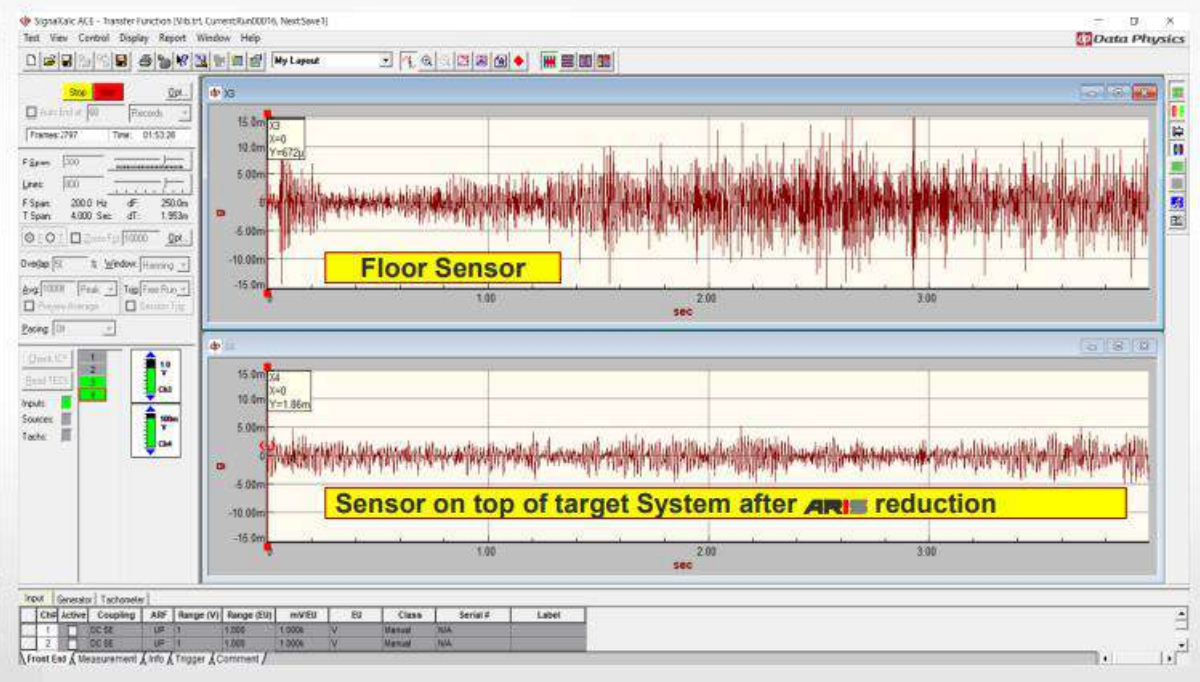
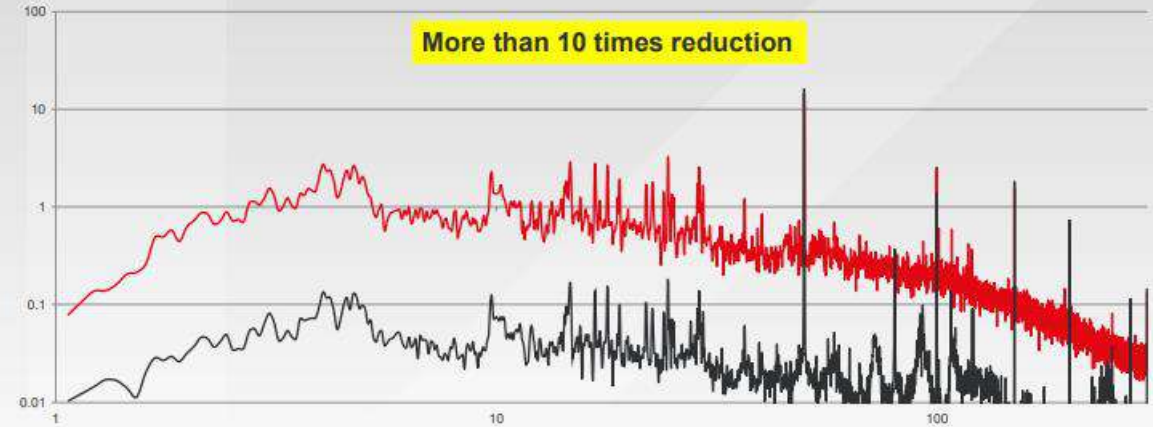
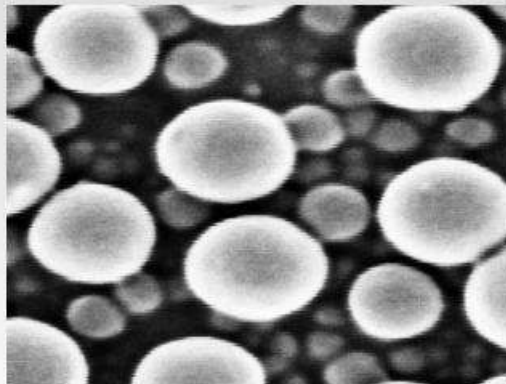


Engineering and Technical Support- Performance

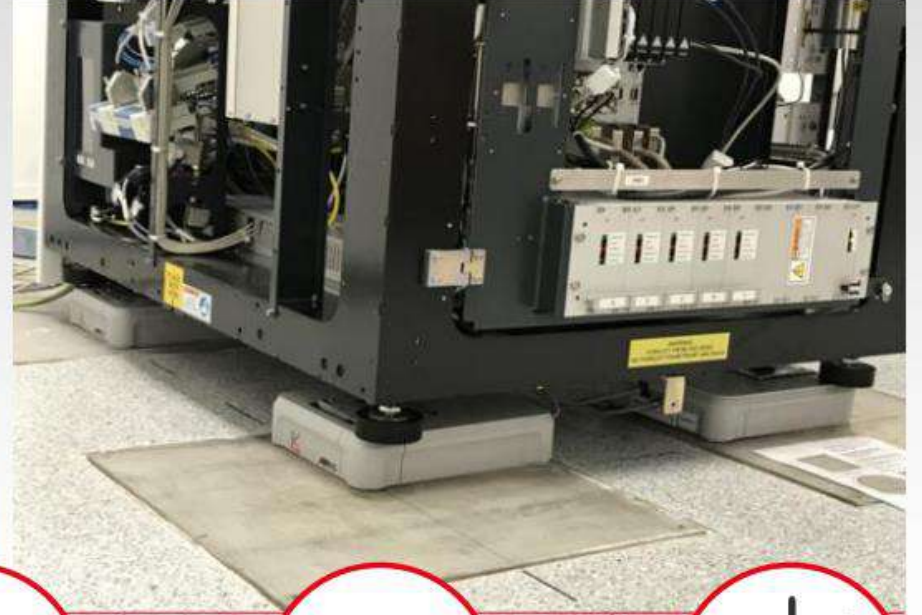
Without Active Vibration Isolation



With Active Vibration Isolation



K&S Vibration Insolation Installation



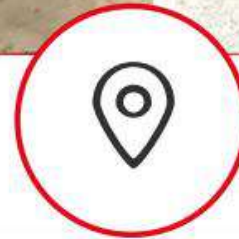
Elegant
Design



Lower Installation
Cost



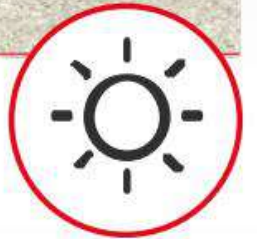
Straightforward
Installation



Flexible
location



High
performance



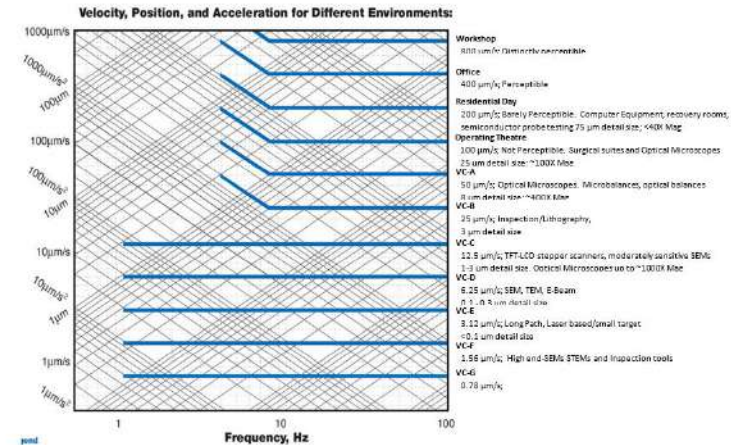
Adjustment to
environment
conditions

Product Line -1

1. Passive Vibration Control System



IEEE Vibration Criteria



2. Active Vibration Control System



Application

Application	Vibration Target	K&S Product
Park AFM	VC-D	ArisMD Active vibratio control system
Infinitesima AFM	VC-D	ArisMD Active vibratio control system
Bruker AFM	VC-D	ArisMD Active vibratio control system
AMAT eBeam Metrology	VC-D	ArisMD Active vibratio control system
ADVANTEST SEM	VC-E	ArisMD Active vibratio control system
ThermoFisher TEM	VC-E	ArisMD Active vibratio control system
SIRD Pressure Measurement tool	VC-E	ArisMD Active vibratio control system
MuTec Mask Metrology	VC-C	SotoMD Passive vibratio control system
AXITRON MOCVD tool	VC-B	SotoMD Passive vibratio control system



Bruker



TFS Meridian SEM



TFS Helios FIB



TFS Apreo SEM