



OPTICAL TABLES CATALOG



2014
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Ecotherm Technologies was founded in 2000 as a Canadian Federal Incorporation with a mission of providing engineering products and services that meet the requirements of scientific institutions such as schools, colleges, universities and research laboratories, as well as interactive science museums and centers. Ecotherm Technologies is dedicated to working on projects that enhance education of all levels, from inspiring students and educators to pursue studies in science and technology, to supporting advanced levels of research. Our vision is to build a strong pool of scientists and engineers who look for solutions that improve the well-being of society.

For scientific institutions, Ecotherm Technologies offers engineering services in evaluating, selecting and supplying laboratory equipment and material used for activities such as testing, precision measurement, calibration and analysis, and in areas such as power, electronics, photonics, mechanics, oil and gas.

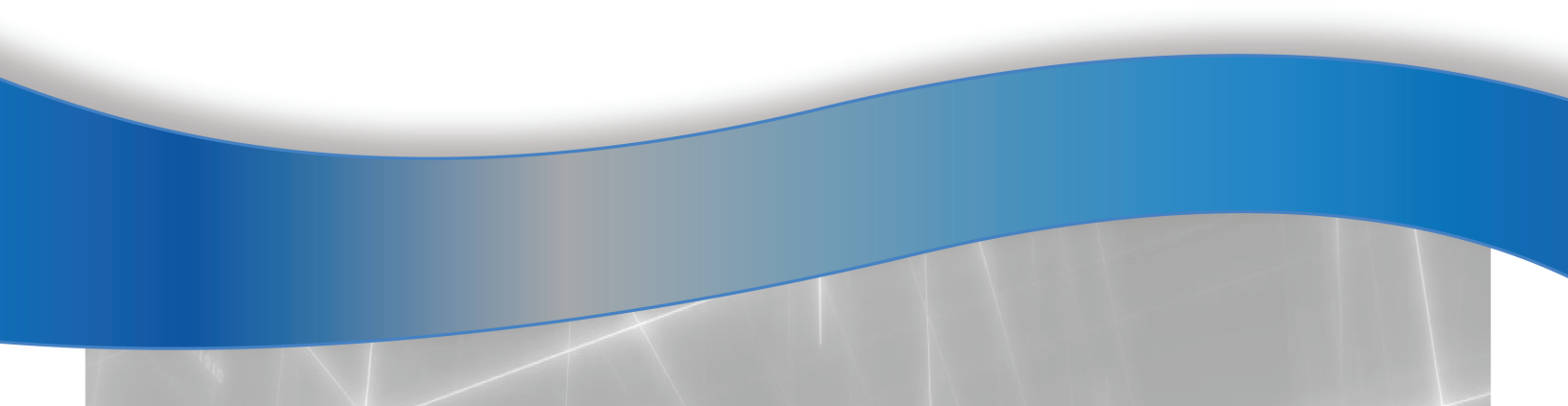
One of Ecotherm Technologies' line of products is of optical table made by JLT.

JLT is a professional company specializing in research, development, design and production of a wide range of optical tables for all laboratory needs.

JLT for many years has sold to many clients from the universities and scientific research institutions ranging from the fields of physics, laser, optical, mechanical, electronic information to precision measurement, precision processing, biological engineering, and electro physiology.

Ecotherm Technologies engineering support team can address all your needs within the scope of science and technology. For more than 10 years, we have built trust with our customers and developed strong relationships with engineering companies, manufacturers, wholesalers and contractors through providing exceptional engineering products and services.

Ecotherm Technologies has offices in Quebec, Ontario and British Columbia, with professional engineering staff offering services to our clients.



Solid Damping Fine Optical Table

Series POT

Specification:

- High density Honeycomb core structure
- Surface Roughness: $\leq 0.8\mu\text{m}$
- Flatness/Unevenness: $0.02\text{-}0.05\text{mm/m}^2$
- Inherent Frequency: $1.5\text{-}2\text{Hz}$
- Amplitude: $\leq 5\text{-}10\mu\text{m}$
- Mounting Holes: M6 tapped holes on 25mm grid. The first hole to the edge is 12.5mm or 37.5mm.
- Top Skin: 5mm Bottom Skin: 4mm
- Material: Stainless Steel

Isolators:

The supports (Isolators) adopt compound-material solid damping (vibration-isolating pad), which is used in such experimental environment without much vibration.

- Height: standard height 800mm or as user preferred.
- Compound-material solid damping (vibration-isolating pad)
- 10HZ, Vibration-isolation Effect: 55%-76%
- 20HZ, Vibration-isolation Effect: 55%-76%

Application:

Used in good experiment environment without much vibration isolation.

Sizes:

Model No.	Dimensions (mm)	Supports	Hole Spacing (mm)	Mounting Holes
POT06-06	600×600×800	4	25	M6
POT075-075	750×750×800	4	25	M6
POT09-06	900×600×800	4	25	M6
POT10-07	1000×700×800	4	25	M6
POT10-08	1000×800×800	4	25	M6
POT12-08	1200×800×800	4	25	M6
POT15-09	1500×900×800	4	25	M6
POT15-10	1500×1000×800	4	25	M6
POT16-09	1600×900×800	4	25	M6
POT18-12	1800×1200×800	4	25	M6
POT20-10	2000×1000×800	4	25	M6
POT20-12	2000×1200×800	4	25	M6
POT24-12	2400×1200×800	4	25	M6
POT30-10	3000×1000×800	4	50	M6
POT30-12	3000×1200×800	4	50	M6
POT30-15	3000×1500×800	4	50	M6
POT35-12	3500×1200×800	6	50	M6
POT35-15	3500×1500×800	6	50	M6
POT40-15	4000×1500×800	6	100	M6
POT42-15	4200×1500×800	6	100	M6
POT48-15	4800×1500×800	6	100	M6
POT54-15	5400×1500×800	6	100	M6
POT60-15	6000×1500×800	6	100	M6





Solid damping supports



Solid damping isolators



Vibration isolating pad

Pneumatic auto balancing & self centering optical table

Series ZDT

Specification:

- High density Honeycomb core structure
- Surface Roughness: 0.5-0.6 μm
- Flatness/Unevenness: 0.02-0.05mm/m²
- Inherent Frequency: 1.5-2Hz
- Amplitude: <1 μm
- Mounting Holes: M6 tapped holes on 25mm grid. The first hole to the edge is 12.5mm or 37.5mm.
- Top Skin: 5mm Bottom Skin: 4mm
- Material: Stainless Steel.

Isolators:

The support system (Isolators) adopts the patented technology: Ultra-thin diaphragm air-spring with self-collimating pendulum bar technique, which can provides a relative stationary experiments environment with auto inflating and self-centering performance. The pneumatic system is of Germany FESTO products.

- Height: standard height 800mm or as user preferred.
- Self balancing with bulb self-centering pendulum-bar technique.
- Re-leveling Accuracy: $\pm 0.250\text{mm}$
- Vertical Isolation, 5Hz: 92%
- Horizontal Isolation, 5Hz: 90%
- Vertical Isolation, Res: 1Hz
- Vertical Isolation, 10Hz: 95%
- Horizontal Isolation, Res: 1-2Hz
- Auto air inflating system.

Application:

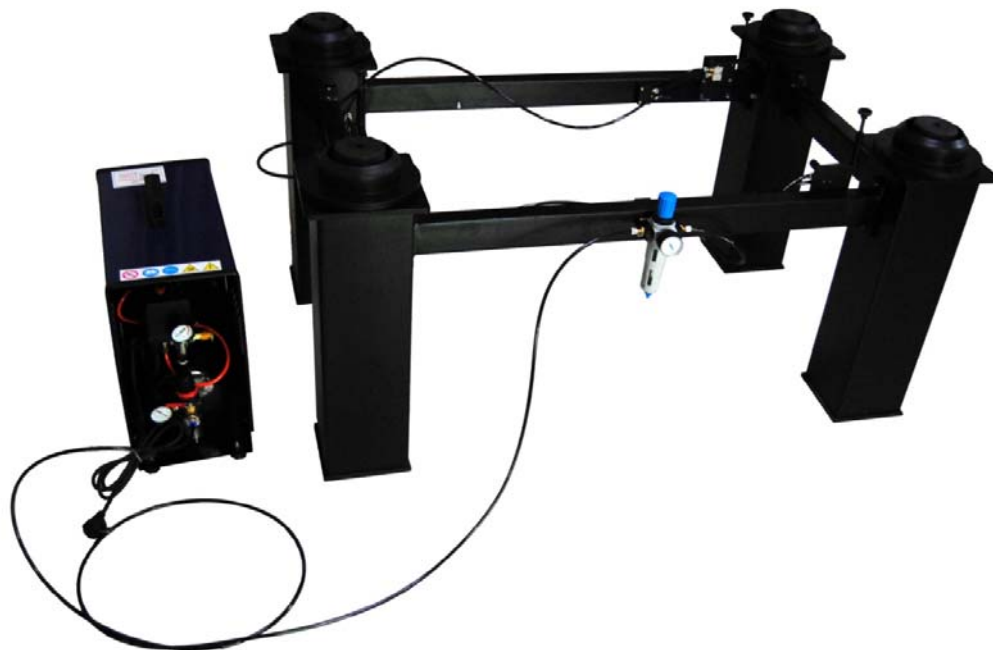
For opto-measuring experiments and conduct, holographic imaging, grating fabrication, laser marking and microscope.

Sizes:

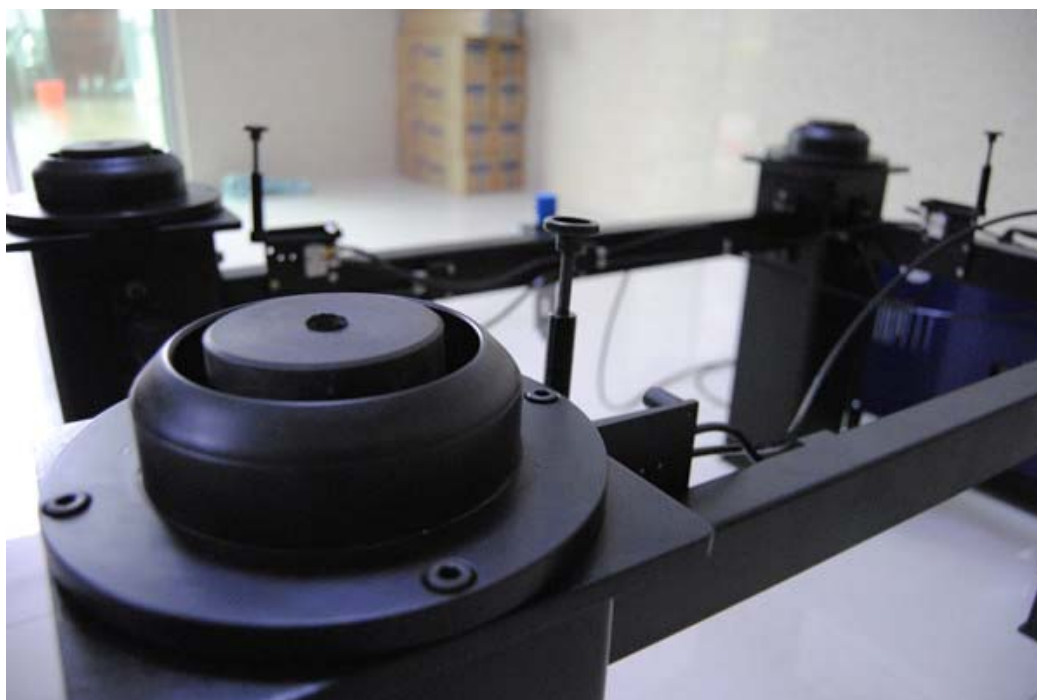
Model No.	Dimensions (mm)	Supports	Hole Spacing (mm)	Mounting Holes	Load Capacity (kg)
ZDT06-06	600×600×800	4	25	M6	250
ZDT075-075	750×750×800	4	25	M6	250
ZDT09-06	900×600×800	4	25	M6	250
ZDT10-07	1000×700×800	4	25	M6	250
ZDT10-08	1000×800×800	4	25	M6	250
ZDT12-08	1200×800×800	4	25	M6	500
ZDT15-09	1500×900×800	4	25	M6	500
ZDT15-10	1500×1000×800	4	25	M6	500
ZDT16-09	1600×900×800	4	25	M6	500
ZDT18-12	1800×1200×800	4	25	M6	800
ZDT20-10	2000×1000×800	4	25	M6	800
ZDT20-12	2000×1200×800	4	25	M6	800
ZDT24-12	2400×1200×800	4	25	M6	800
ZDT30-10	3000×1000×800	4	50	M6	950
ZDT30-12	3000×1200×800	4	50	M6	950
ZDT30-15	3000×1500×800	4	50	M6	950
ZDT35-12	3500×1200×800	6	50	M6	1200
ZDT35-15	3500×1500×800	6	50	M6	1200
ZDT40-15	4000×1500×800	6	100	M6	1500
ZDT42-15	4200×1500×800	6	100	M6	1500
ZDT48-15	4800×1500×800	6	100	M6	2500
ZDT54-15	5400×1500×800	6	100	M6	2500
ZDT60-15	6000×1500×800	6	100	M6	2500



Pneumatic Optical Table



Pneumatic Isolators (Air compressor not sold)





Pneumatic Isolators

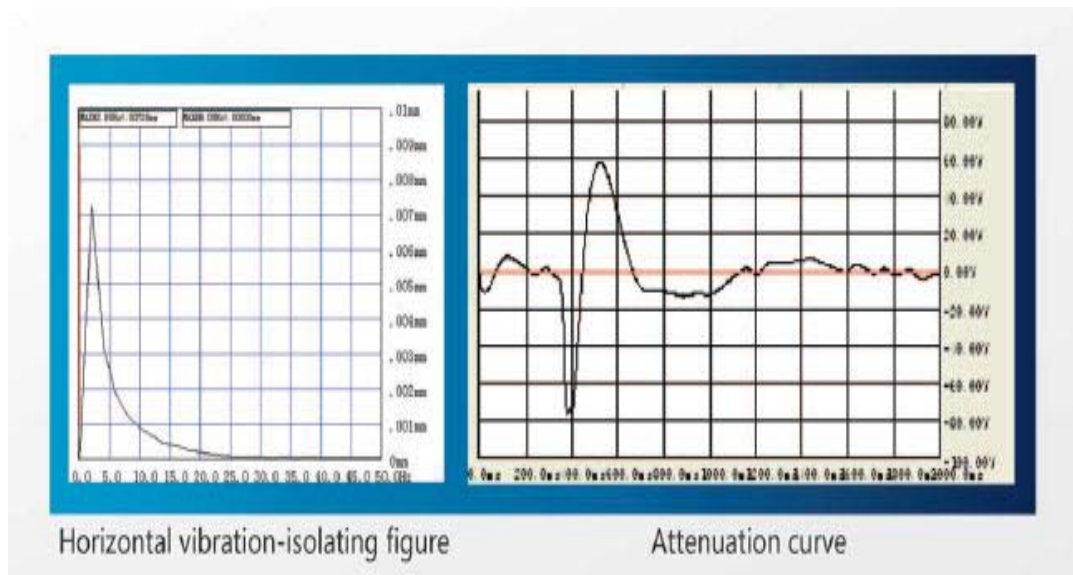


German Festo

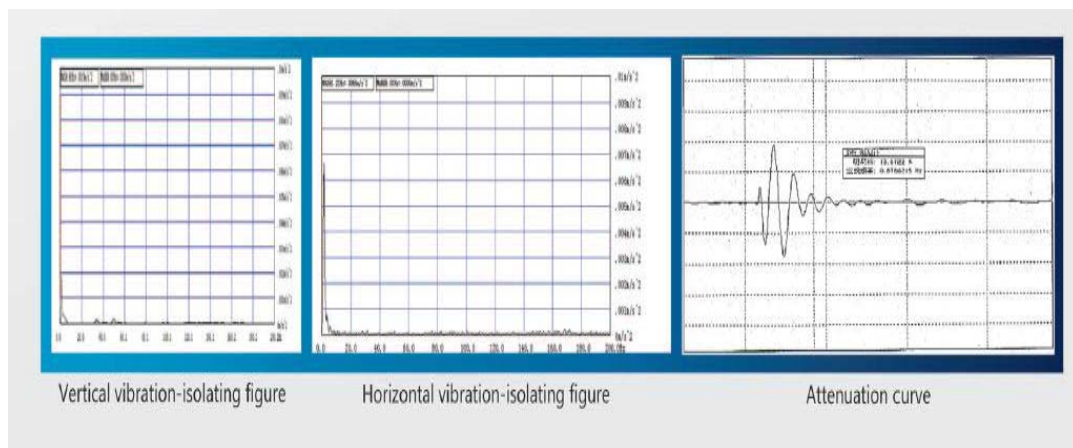


Bulb Self-centering Pendulum-bar Isolator with Air Chambers

Reference Data of ZDT Optical Tables:



Air-spring Vibration-isolating Performance



Auto Balancing System Performance

Granite Optical Table

Series DST-H

Production Features:

1. Good Flatness
2. Natural Healthy Granite Material
3. Anti-corrosion
4. Non-magnetization
5. Wear Resistance, Long Service Life

Specification:

- Specific Gravity : 2970~3070kg/m²
- Compressive Strength : 245~254MPa
- Elastic Modulus : 1.27~1.47GPa
- Linear Expansibility : 4.61x10⁻⁶/centigrade
- Water Absorbion : < 0.13%
- Shore Hardness : > = 70Hs

Isolators:

Two kinds of isolators:

1. Pneumatic isolators
2. Solid damping isolators (Pricelist for the granite table with solid damping isolators)

Application:

Used in strong -corrosion experiment or high requirements in flatness.

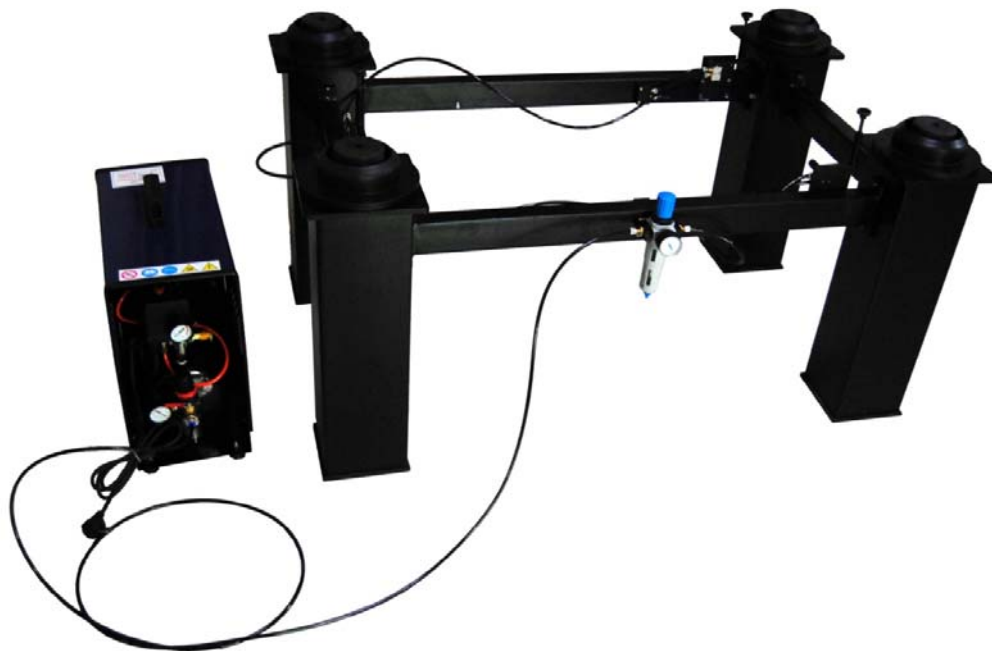
Sizes:

Model No.	Dimensions (mm)	Supports	Load Capacity (kg)
DST-H60-045	600×450×100	4	250
DST-H06-06	600×600×130	4	250
DST-H063-045	630×450×100	4	250
DST-H063-063	630×630×130	4	250
DST-H075-05	750×500×130	4	500
DST-H08-05	800×500×130	4	500
DST-H09-06	900×600×130	4	500
DST-H09-06	900×600×150	4	500
DST-H10-063	1000×630×150	4	500
DST-H10-075	1000×750×150	4	500
DST-H10-10	1000×1000×150	4	500
DST-H12-08	1200×800×150	4	500
DST-H12-09	1200×900×150	4	500
DST-H15-10	1500×1000×200	4	500
DST-H20-10	2000×1000×250	4	800
DST-H20-15	2000×1500×300	4	800
DST-H20-16	2000×1600×300	4	800
DST-H20-20	2000×2000×300	4	800
DST-H25-16	2500×1600×300	6	950
DST-H25-20	2500×2000×400	6	950
DST-H30-20	3000×2000×400	6	950
DST-H40-20	4000×2000×500	6	950
DST-H40-25	4000×2500×500	6	950





Solid damping isolators



Pneumatic Isolators (Air compressor not sold)

Voice Coil Type Active Vibration Isolation Optical Table

Series MRT (NEW)

MRT active vibration isolation optical table is made of high strength aluminum alloy with honeycomb structure. It consists of high precision voice coil actuators, Hall height sensors and control module, accelerate transducers, high precision vibration filters and high speed control system.

When the optical table is in operating condition, the Hall sensors detect and collect the height data and transmit it to the control system. The control system enables the servo motor to activate the precision pressure springs to make accurate adjustable movement to achieve self balancing state.

Eight pieces of accelerate transducers pick up the the signals from 6 DOF when the optical table disturbed by the environment vibration. The signal will be amplified by the filter and send the information to DSP controller via A/D exchange. After accurate calculation, the voice coil actuators installed in 6 DOF will make a counterforce to damp the vibration. Excellent vibration isolation efficiency will be then achieved.

Technical parameters:

Model: MRT-600

Weight: 50kg

Dimension: 600X500X160mm

Load Capacity: 15-100kg

Breadboard: Aluminum Alloy Honeycomb Core

Power Supply: 220V

Power: 50W

Working temperature: 15 – 40°C

Working Condition: Placed on a platform with flatness less than 0.5mm

Isolating Frequency: 1-200Hz

Vibration Isolating Direction: 6 DOF, Auto load capacity adjustment

Vibration Isolating Efficiency: >5Hz 90%
 >10HZ 95%

Applications:

- Scanning Probe Microscopy (AFM/LFM/STM)
- Laser Interferometer
- Laser scanning confocal microscopy

Sizes:

Model No.	Size (mm)	Description
MRT-600	600x500x160	Load Capacity:15-100KG



Smart Active Vibration Isolation Optical Table

Series SAV-P (NEW)



Principles:

Smart Active Vibration Isolation Optical Table(SAV-P), active and high precision vibration isolating system, adopts the high precision vibration-isolating air spring isolator ZDT of Jiangxi Liansheng as its supporting base and equipped with transducers, control circuit as well as voice coil actuator. With its ZDT air-spring isolator, the load capacity of the optical table is guaranteed and it also acts as the first layer of filter to damp off the high frequency environment vibration. For the vibration that has not been isolated by the first layer of filter, the sensors will pick them up, which is in a manner of six DOF, and input the signal of the vibration to a controller. The signal will be processed and the actuators will take action immediately to release such a counterforce that is exactly the same level and with opposite direction to the vibration to damp them off. The outstanding features of this system are as follows:

Firstly to damp the low frequent vibration that can not be isolated by conventional optical table and the vibration isolation efficiency of the air-spring optical table can be greatly updated. Secondly, the amplification and synchronization of the vibration around where the air-spring optical table is operation is effectively controlled, to ensure a stable and excellent working condition for the system.

Technical parameters:

1. Vibration Isolating Frequency: 1—200Hz
2. Vibration Isolating Efficiency: >5Hz 90%, >10Hz 95% (@ v=0.1mm/s)
3. Load Capacity: Depends on the specific size of the optical table.
4. Max Counterforce of Single Actuator: $\pm 10\text{N}$ (Vertical), $\pm 10\text{N}$ (Horizontal)
5. Impulse Response: $\leq 300\text{ms}$
6. Material: Stainless Steel and high -density galvanized honeycomb structure.
7. Power Supply: 220V, 50W.
8. Working Condition Requirement: Temperature's: 5-40 $^{\circ}\text{C}$; Moisture : 0-60%; latitude less than 2500m.
9. Pneumatic Active Vibration Isolation Optical Table

Application:

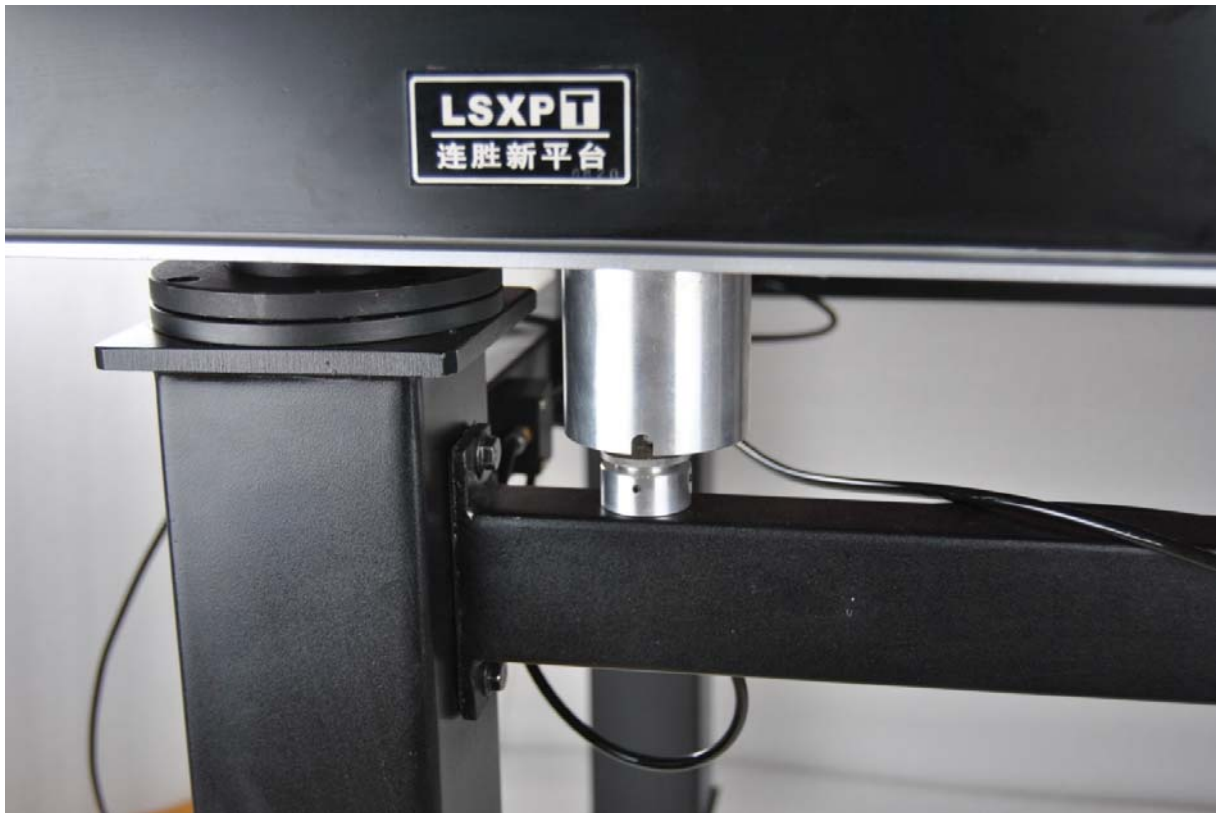
- Scanning Probe Microscopy (AFM/LFM/STM)
- Laser Interferometer
- Laser scanning confocal microscopy
- Other equipment or devices that are hyper-sensitive to vibration

Sizes:

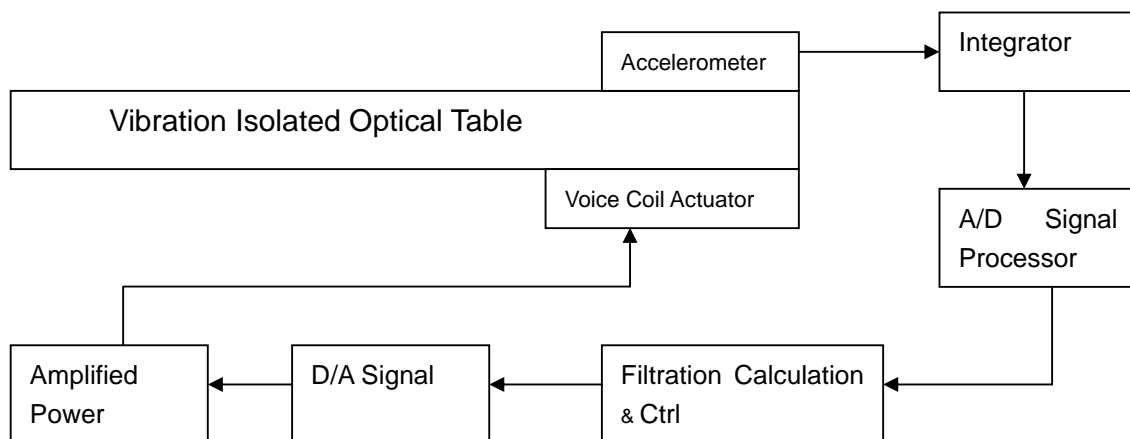
Model NO.	Size(mm)	Description
SAV-P06-06	600x600x800	4 supports, M6 Grid 25, Load Capacity 250kg (2HZ)
SAV-P075-075	750x750x800	4 supports, M6 Grid 25, Load Capacity 250kg (2HZ)
SAV-P09-06	900x600x800	4 supports, M6 Grid 25, Load Capacity 250kg (2HZ)
SAV-P10-07	1000x700x800	4 supports, M6 Grid 25, Load Capacity 250kg (2HZ)
SAV-P10-08	1000x800x800	4 supports, M6 Grid 25, Load Capacity 250kg (2HZ)
SAV-P12-08	1200x800x800	4 supports, M6 Grid 25, Load Capacity 400kg (2HZ)
SAV-P15-09	1500x900x800	4 supports, M6 Grid 25, Load Capacity 500kg (2HZ)
SAV-P15-10	1500x1000x800	4 supports, M6 Grid 25, Load Capacity 500kg (2HZ)
SAV-P16-09	1600x900x800	4 supports, M6 Grid 25, Load Capacity 500kg (2HZ)
SAV-P18-12	1800x1200x800	4 supports, M6 Grid 25, Load Capacity 800kg (2HZ)
SAV-P20-10	2000x1000x800	4 supports, M6 Grid 25, Load Capacity 800kg (2HZ)
SAV-P20-12	2000x1200x800	4 supports, M6 Grid 25, Load Capacity 800kg (2HZ)



Motion Controller

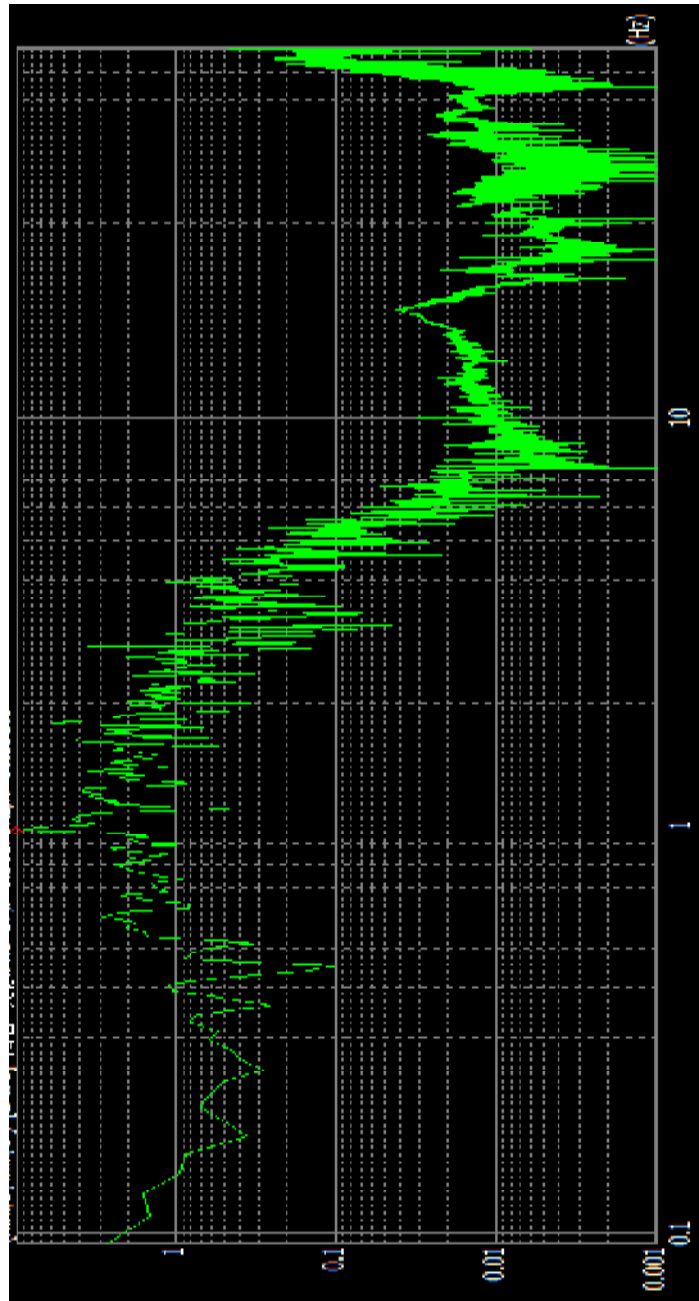


Transducer

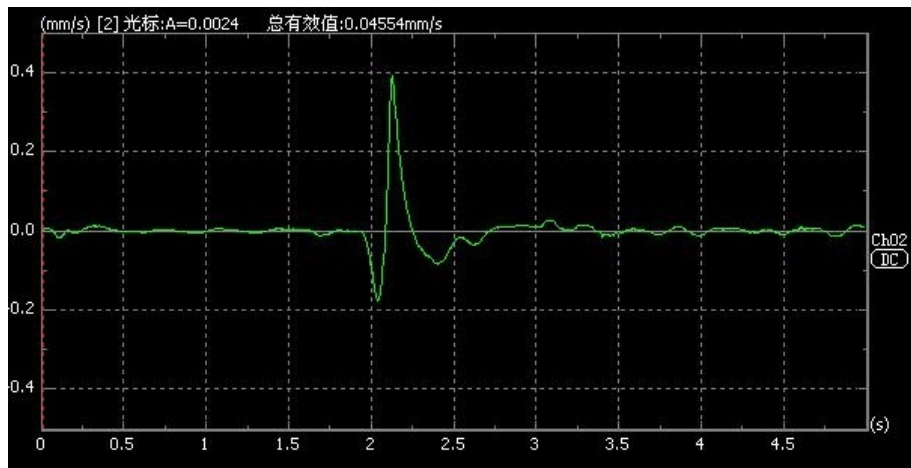


Signal Flowing Chart of the SAV-P

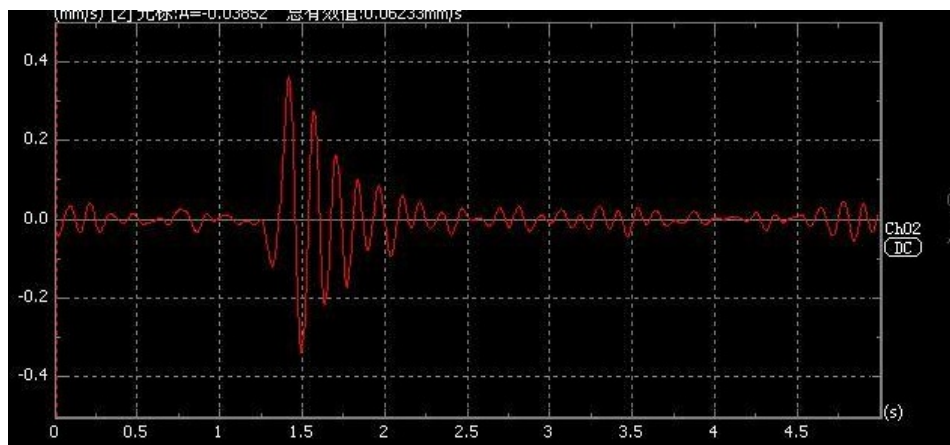
Vibration transmit speed curve:



Impulse response:

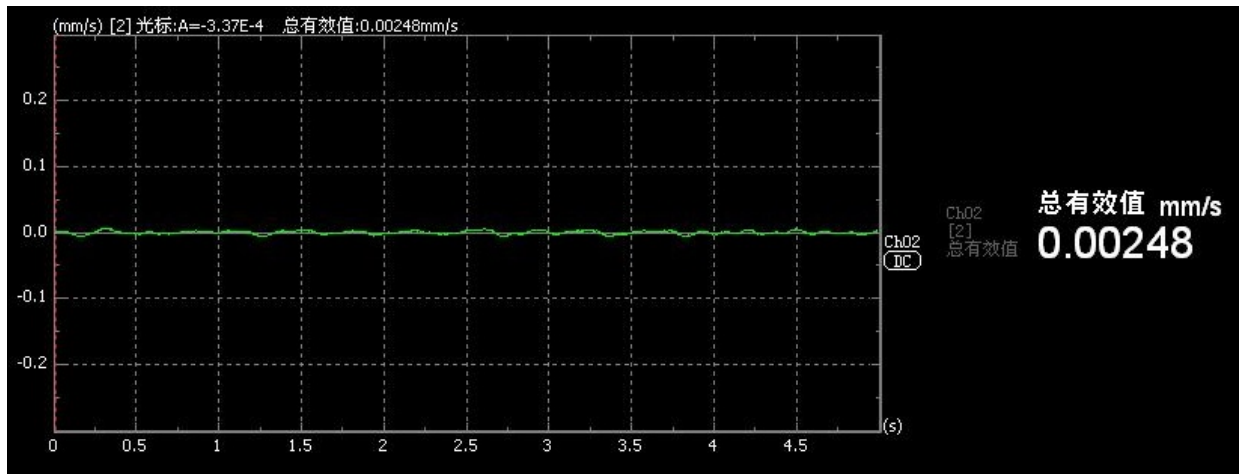


With Active Control

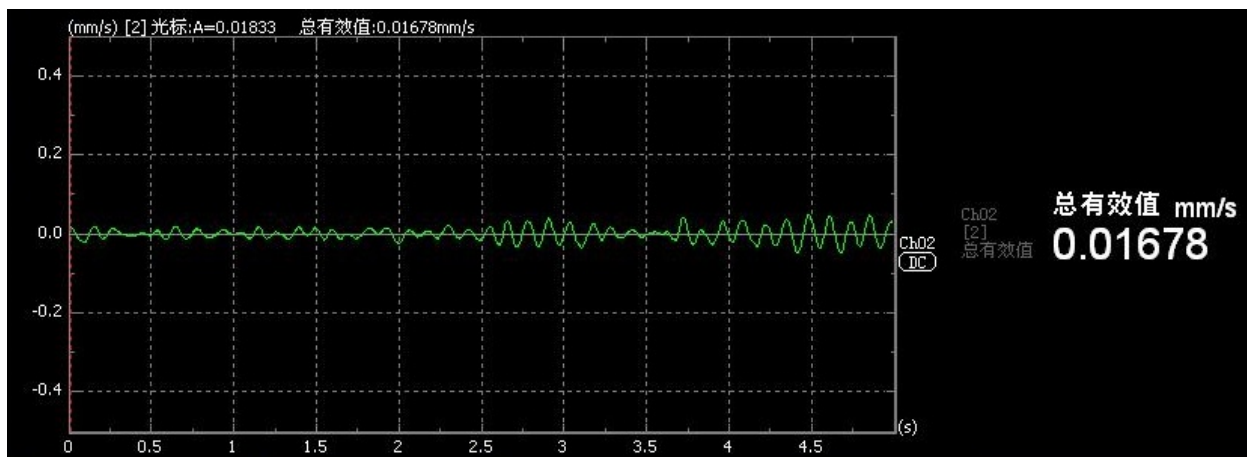


Without Active Control

Attenuation value:



With Active Control



Without Active Control

Related conception and terms:

1. Max Counterforce of the Single Actuator:

The maximum counterforce of a single actuator that act on the vibration of the optical table.

2. **Impulse Response:** the period that the system picks up the signal of the vibration to damp it off.

Impulse Response : 300ms*

3. Voice Coil Actuator:

Named after its trumpet shape. It features of sensitive frequency response and high precision.

It can provide a force from $\pm 20\text{N}$ to $\pm 2\text{N}$.

4. Transducer :

The acceleration transducer is to sensor the acceleration of the environment vibration.

Range of the transducer is 0.5g with frequency range of 0.05-300Hz with sensitivity of 10V/G.

5. Controller :

A module to handle signal amplification, filtration, exchanging, swapping, data collection and calculation and power amplification.

Portable Vibration Isolation Optical Table

Series ZGT (NEW)



This model is applicable for microscope, electronic microscope, roundness measuring instrument as well as small size of optical devices. The portable optical table is made of solid aluminum alloy and the core adopts pneumatic air-spring. The air system is imported from German FESTO. Integrated manual and auto air inflating system. The breadboard is high density honeycomb structure with load capacity from 1kg to 50kg.

Technical parameters:

Model: ZGT-6050

Dimension: 600X500X75mm

Net Weight: 25kg

Load capacity: 1-50kg

Inherent Frequency: 2-4Hz

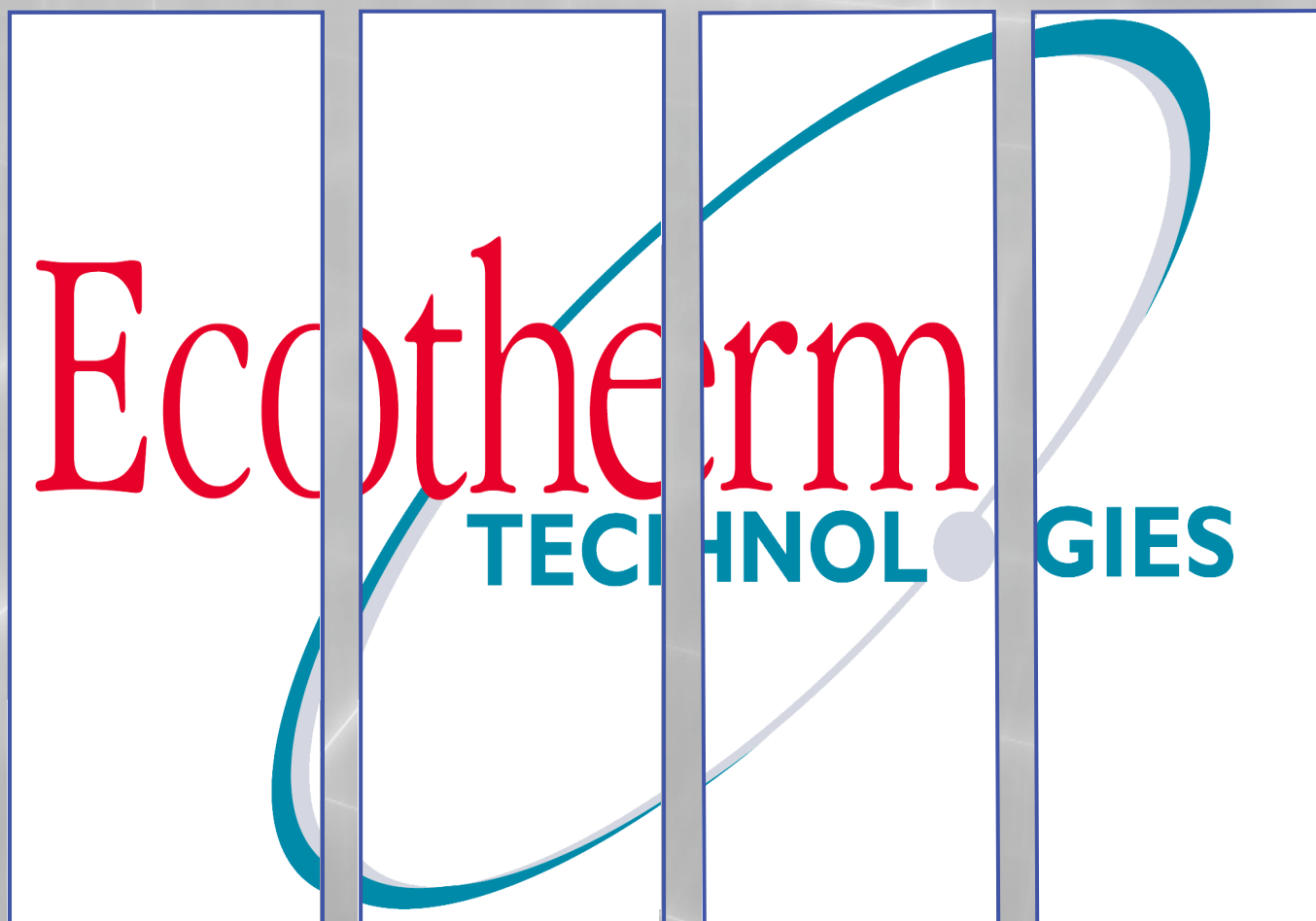
Working Pressure: 0.2-0.4MPa

Sizes:

Model No.	Size(mm)	Description
ZGT-6050	600x500x75	Load capacity:1-50kg;Inherent frequency:2-4HZ

Product features:

1. Light weight , compact built, ultra-thin , Portable conveniently
2. Integrated manual and auto-inflating model.
3. Self-balancing structure, high sensitivity with pressure meter indicator
4. Stable working condition
5. High solid surface plate with excellent load capacity
6. Passive Vibration Isolation Optical Table



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