

KURASHIKI

Stable

Vibration Isolation Systems Series

***e*-Stable**
Active Vibration Isolation System

***P*-Stable**
Passive Vibration Isolation System

Stable
Vibration Isolation Systems Series

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Kurashiki Kako co., Ltd. is a major manufacturer and supplier of various types of vibration-proof and sound-proof products, and has been specializing in these products for many years. Our Stable series vibration isolation systems have been favorably accepted by many customers in various fields since it came out. The popularity of the Stable series may be due to the Gimbal Piston and the Dome Gimbal Piston, which have exceptionally high horizontal vibration isolation performance.

The Stable series has two categories, the p-Stable series and the e-Stable series. Both series are open to utilization in various ways. If you want to solve your vibration problems, place your order for Stable vibration isolation systems with us.

p-Stable
Passive Vibration Isolation System

e-Stable
Active Vibration Isolation System

Vibration Isolation System

The performance of the Stable Vibration Isolation Systems which incorporates pneumatic vibration isolator, is unsurpassed in isolating horizontal vibration as well as vertical vibration.

This results in very high levels of isolation being achieved. Our Vibration Isolation Systems consist of several different types : Table Types, optical Table Types utilizing optical tops, Platform Types, and Table Top Types.

The described below are features of the conventional pneumatic vibration isolator for your better understanding.

Vibration Isolation by the Pneumatic Method



A vibration isolation system is necessary for precision and efficiency of our work when highly sensitive instruments need to be kept in a stable vibration-free environment.

In general, the features of vibration isolation tables consist of a pneumatic spring and its supported mass as shown in Fig. 1. Vibration ratio that exists between tables and floors are called transmissibility. its frequency data are shown in Fig. 2. When the frequency is at a low level, a resonance peak appears.

When the frequency becomes higher, the transmissibility ratio will be less than one. In these circumstances, higher attenuation is achieved.

This resonance frequency, which is also called natural frequency, is one measure of isolation efficiency. The lower the natural frequency, the wider the isolation frequency range. This increased isolation efficiency will result in a lower transmissibility ratio.

This fact led us employ the diaphragm type pneumatic spring whose natural frequencies range from 1 to 2 Hz, as most of the vibration isolation systems are equipped with high performance isolators. the key element in the Stable series is the diaphragm type pneumatic spring.

Another major advantage of the pneumatic spring is its advanced damping techniques. By allowing some space to exist between the subsidiary tank and the pneumatic spring. attainment of damping owing to air viscosity will be increased.

This feature excels in lowering resonance peaks as well as in attenuating the vibration of the supporting Loads caused by disturbances as shown in Fig. 2.

Self-leveling height control valves maintain the fixed level automatically regardless of loads.

These pneumatic vibration isolation systems are ideal isolators because of these various advantages, as shown above.

However, attention must be given to the fact that the above mentioned theory refers only to vertical vibrations. Entirely different problems occur when dealing with both horizontal vibration and vertical vibration.

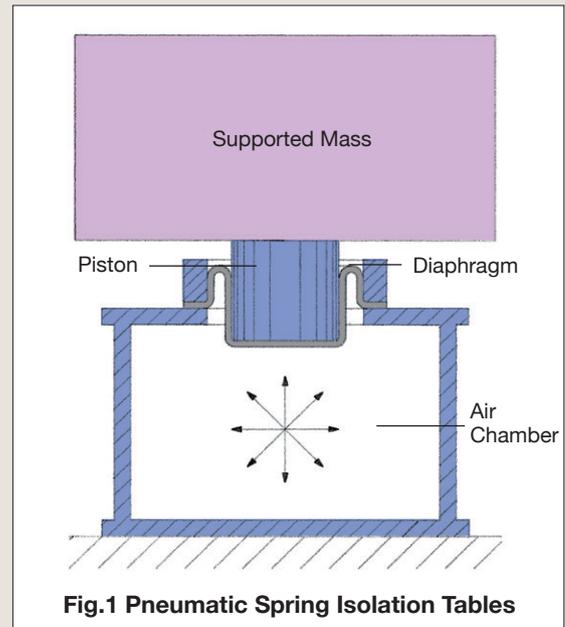


Fig.1 Pneumatic Spring Isolation Tables

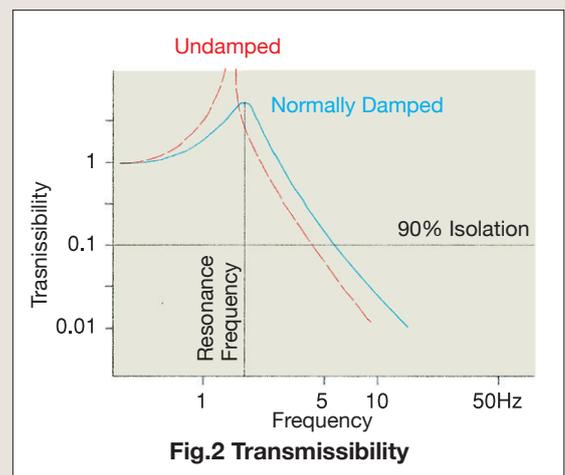


Fig.2 Transmissibility

Isolation of Horizontal Vibration

So far we have only covered vertical vibration. Because vibration isolation tables are rigid bodies they have six degrees of freedom. Not only is there vertical vibration but also horizontal and rotational. It is the containment and elimination of these six natural frequencies which determine isolation performance.

Generally speaking, horizontal and rotational movements coupled with horizontal floor vibration input, cause two resonance peaks which result in the vibration of the table top. The higher horizontal natural frequency exceeds by several times that of the vertical natural frequency on conventional diaphragm type pneumatic springs. These natural vibrations are common in all types of floors, which in turn leads to greatly amplified vibration of a table. This demonstrates that horizontal isolation efficiency is inferior to that of vertical isolation efficiency. This problem is even more serious on the upper floors of tall buildings.

Many failures in the past were the result of considering only the vertical vibration, without regard to the other types of vibrations.

This fact made us realize the necessity of decreasing the natural frequencies of tables both horizontally and vertically, by striving to attenuate horizontal and vertical input equally.

Features of the Table Tops

Besides holding sensitive instruments on it table tops play very important roll for higher isolation performance.

The table top serves as inertia mass ; the heavier the weight of the top is the lower the natural frequency of the vibration isolation table will be.

When equipment generates vibration the amplitude of the vibration on the table top can be lessened by increasing the weight of the table top.

Moreover the rigidity of the table top is very important.

Effective vibration isolation can not be attained if pneumatic springs with low natural frequency are installed on structurally weak tables. Table tops are required not only static rigidity but also dynamic rigidity against vibration ; thus the construction must be solid as well as strong. Table tops are not ideal rigid bodies but actually elastic structures in finite sizes.

Resonance is produced in certain frequencies and when there are vibration inputs in the frequencies the vibrations of the table tops are greatly amplified. This phenomenon decreases vibrations isolation efficiency in resonance frequency as the curves in Fig.3 show. Furthermore when the excitation force caused by the supported equipment like the ham from transformers coincides directly with the resonance frequency harmful vibrations are likely to be produced.

High degrees of stiffness and damping are required for table tops to prevent harmful vibrations. Resonance frequency can be increased by raising the degree of stiffness and resonance peaks can be lowered through damping. The resultant transmissibility is shown in fig.3.

All of the table tops and platforms in the Stable Series are laminated structures, assuring high degrees of rigidity and damping.

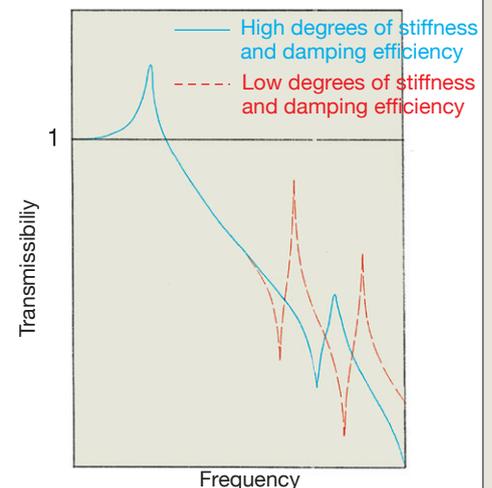


Fig.3 Figures of tables and vibration isolation performance.

Horizontal Vibration Isolation System

The Gimbal Piston & The Dome Gimbal Piston

Gimbal Piston



The Gimbal Piston

The horizontal vibration isolation systems, called the Gimbal Piston, are mechanisms of the Stable vibration isolators. These systems have a Gimbal Piston which is enclosed in a diaphragm type pneumatic spring. Gimbal Piston isolators are self-centering and stable. The load is supported by a single, solid steel shaft that is pivot supported at the bottom of the piston. Much lower than the diaphragm. As the horizontal load movement is transformed into the rocking of the piston, a very soft horizontal spring rate can be obtained, which results into simple lateral "x-y" motion at the top isolated surface. Vertical motion is equally unrestricted. Therefore, virtually equal attenuation in response to both horizontal and vertical vibration inputs can be achieved.

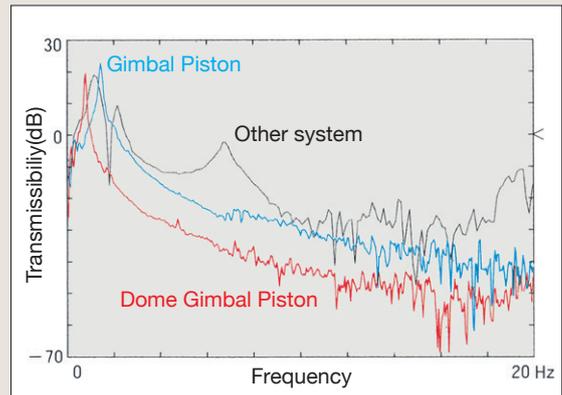


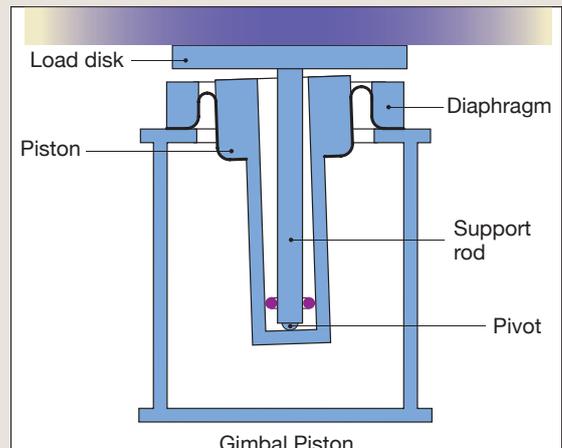
Fig.4 Horizontal transmissibility

Dome Gimbal Piston

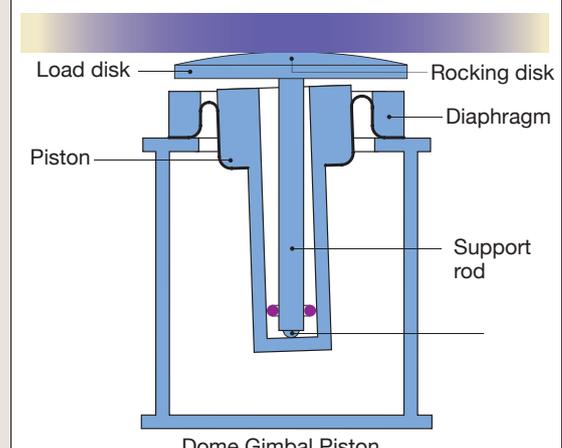


The Dome Gimbal Piston

We recently succeeded in developing new invention the Dome Gimbal Piston. By incorporating a rocking mechanism with the Gimbal Piston, the horizontal natural frequency as low as 0.7 Hz is available without yielding harmful third resonance like other systems. That enables you to use the vibration isolation table under very severe conditions such as upper floor of tall building. The Dome Gimbal Piston is optional. But because of the stability problem, please consult with us for the selection.

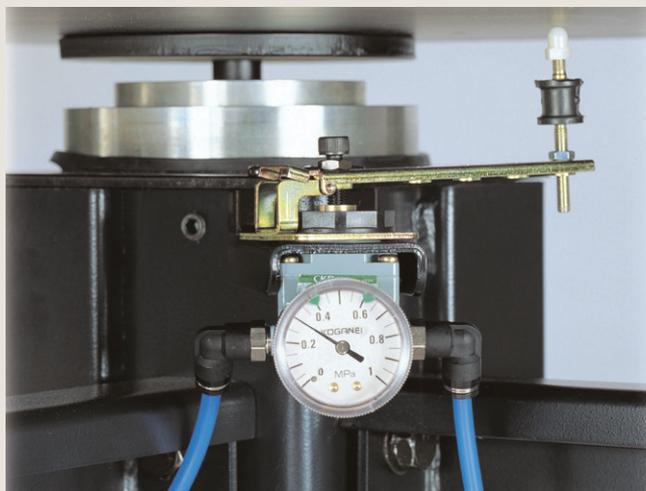


Gimbal Piston



Dome Gimbal Piston

Fig.5 Structure of (Dome) Gimbal Piston



A Comparison with Other Horizontal Vibration Isolation System

Recently, Some other domestic pneumatic vibration isolators have also begun to use horizontal vibration systems.

The (Dome) Gimbal Piston gives a very low horizontal spring rate by equipping the inside of the isolator with a gimbal structure. Its simplicity of design dependability.

However, most of the other horizontal systems use pendulums. Therefore, they become complicated dual structures.

How will this structural difference affect the vibration isolation performance ?

Physically speaking the (Dome) Gimbal Piston with its one rigid body system, as shown in Fig. 6, has 6 degrees of freedom. Therefore, 6 natural frequencies of vibration exist.

On the other hand, dual structure systems. As shown in Fig.7, have 9 degrees of freedom.

Accordingly 9 natural frequencies of vibration exist.

Fig. 8 shows the actual transmissibility of both the Stable vibration isolation table which is equipped with the (Dome) Gimbal Piston, and the vibration isolation table which has a dual structure horizontal vibration isolation system.

In the case of the (Dome) Gimbal Piston with its one rigid body

system, when horizontal and rotational motions are coupled together, the results are usually two resonant peaks in horizontal transmissibility. However, the natural frequencies are substantially lower due to the (Dome) Gimbal Piston.

Conversely, dual structure systems have horizontal, and pendular movements. When coupled together, it results in the appearance of three resonance peaks. The resonance of the lowest, frequency is the pendular mode, and its natural frequency is expressed as horizontal natural frequency in the catalogue. But the actual isolation effect can not be obtained unless the frequency is more than the third resonance point. As shown above, the dependable (Dome) Gimbal Piston not only has a compact horizontal vibration isolation system, but also offers superior performance to the complicated dual structure systems with its additional mass of supporting structures All the Stable vibration isolation systems, are equipped with the (Dome) Gimbal Piston.

What's more, we can present you with a price that is equivalent to the conventional vibration isolation tables that do not even have the horizontal vibration isolation system.

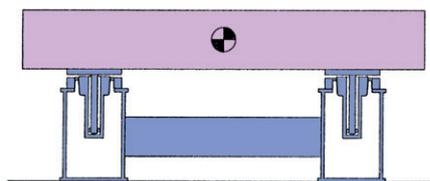


Fig.6 (Dome) Gimbal piston

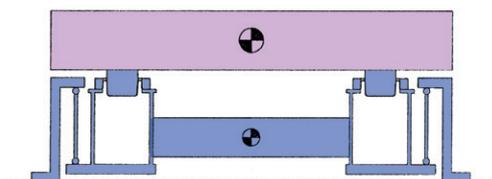


Fig.7 Dual structural horizontal vibration isolations system

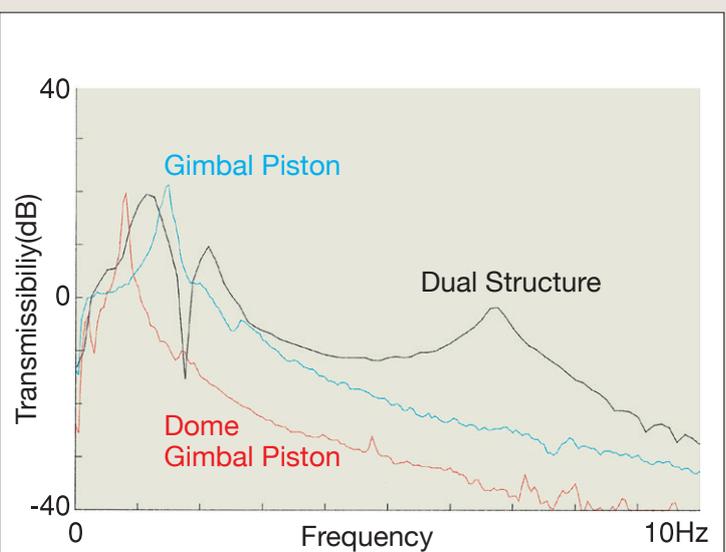


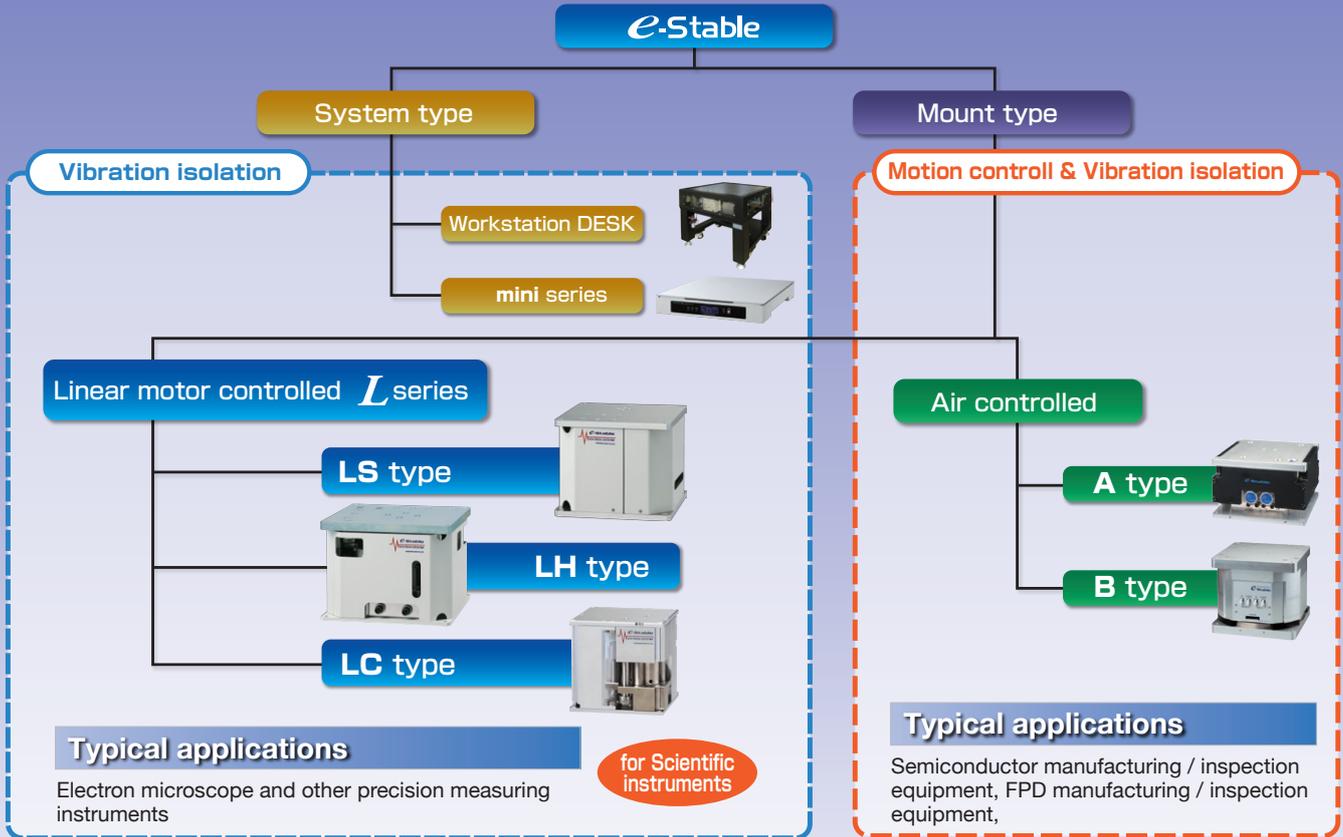
Fig.8 Horizontal transmissibility

The effect of non-resonant vibration isolation results in outstanding performance over the all frequency range.

Among Kurashiki Kako's wide lineup, you are sure to find the product which best satisfies your system requirements.

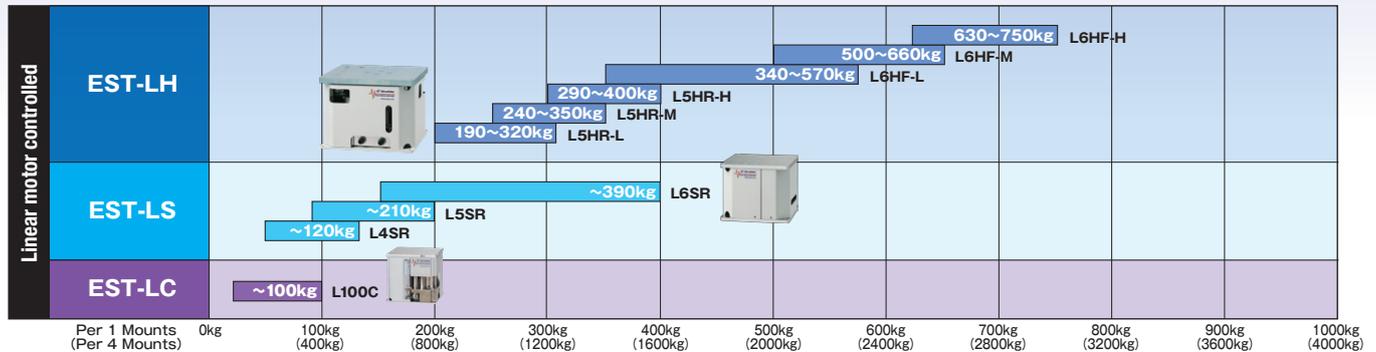
Lineup of active vibration isolation system e-Stable series

Among Kurashiki Kako's improved lineup, you are sure to find the product which best satisfies your system requirements.

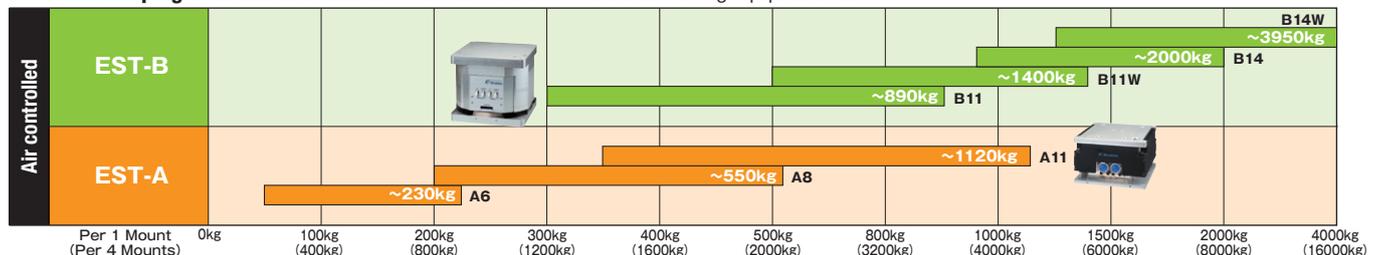


Active Vibration, isolation

Vibration isolation for scientific instruments etc.



Vibration damping & Vibration isolation for semiconductor / FPD manufacturing equipment etc.





LS TYPE Superior model



Features

Flagship model in L series

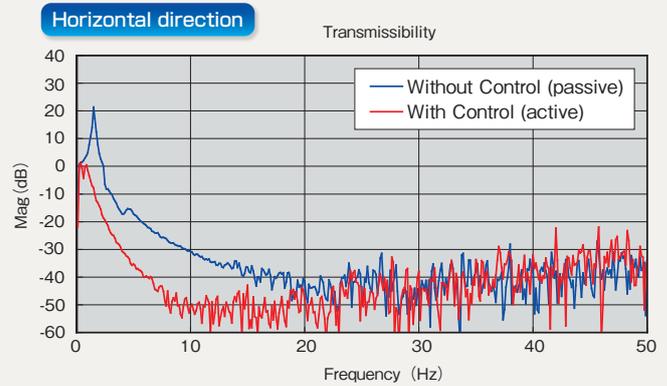
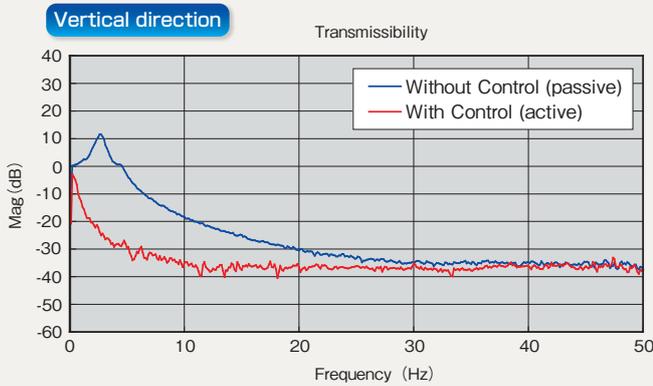
The Feedback and Feedforward control system provides superior vibration isolation performance.

Typical applications

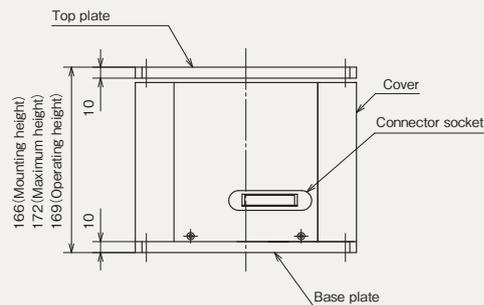
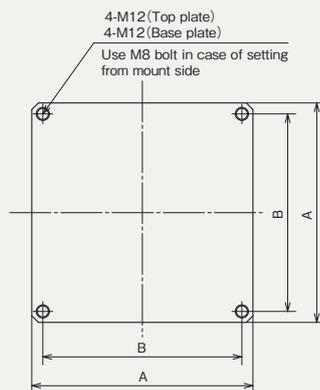
Scanning electron microscope, Scanning probe microscope, Electron scale surface roughness tester, etc.

LS type performance

EST-L5SR, 4 mounts, loading 800 kg



Dimensions



Specifications

	EST-L4SR	EST-L5SR	EST-L6SR
Actuator	Linear motor		
Control system	Feedback / Feedforward 6DOF control		
Leveling type	Automatic leveling		
Controller*1	Digital controller		
Maximum load capacity per 1 mount (kg)*2	120	210	390
Product outside dimension (mm) A	200×200	200×200	230×230
Product mounting dimension (mm) B	180×180	180×180	210×210
Operating height (mm)	169	169	169
Product mass per 1 mount (kg)	10	10	14

*1: Controller and power unit are external.
 *2: In case of 0.6 MPa air supply pressure.

LH TYPE for High centre of gravity

PAT.P



Features

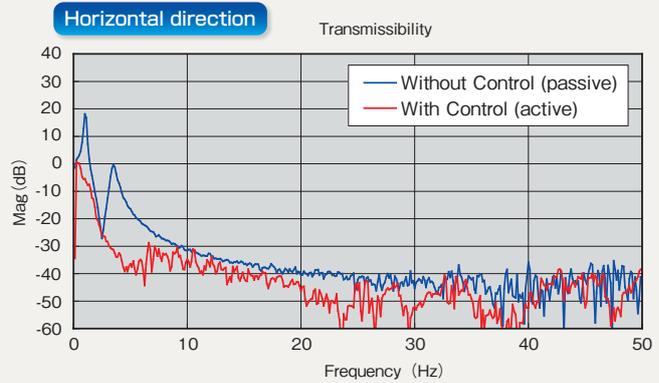
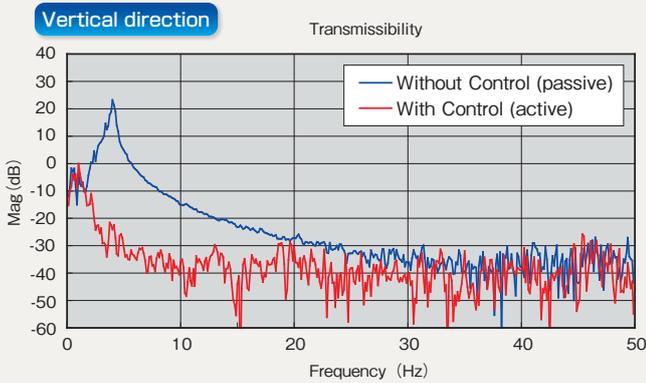
- Hybrid system of Dome Gimbal Piston and coil spring
- Smaller footprint
- Appropriate for equipment having high centre of gravity

Typical applications

Transmission electron microscope, Scanning electron microscope, etc.

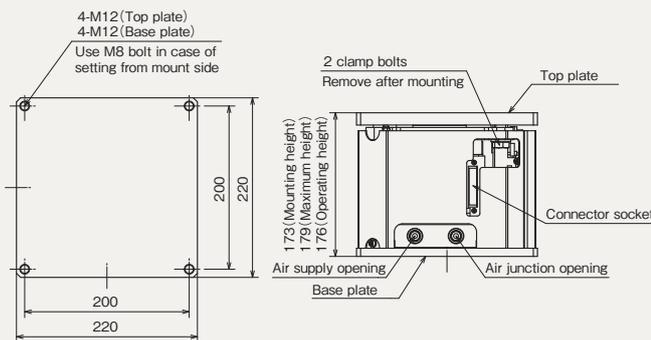
LH type performance

EST-L6HF-L, 4 mounts, loading 1900 kg

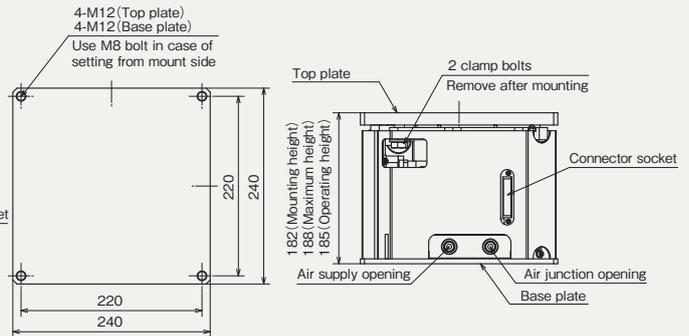


Dimensions

● EST-L5HR-L / EST-L5HR-M / EST-L5HR-H



● EST-L6HF-L / EST-L6HF-M / EST-L6HF-H



Specifications

	EST-L5HR-L	EST-L5HR-M	EST-L5HR-H	EST-L6HF-L	EST-L6HF-M	EST-L6HF-H
Actuator	Linear motor					
Control system	Feedback / Feedforward 6DOF control					
Leveling type	Automatic leveling					
Controller ^{※1}	Digital controller					
Maximum load capacity per 1 mount (kg) ^{※2}	190~320	240~350	290~400	340~570	500~660	630~750
Product outside dimension (mm) A	220×220			240×240		
Product mounting dimension (mm) B	200×200			220×220		
Operating height (mm)	176			185		
Product mass per 1 mount (kg)	20			29		

※1: Controller and power unit are external.
 ※2: In case of 0.6 MPa air supply pressure.



LC TYPE the best Combination

PAT.P



Features

Customize your mount with a variety of available additional functions, such as Vertical Feedback Control, Horizontal Feedback Control, Feedforward Control, etc.

Personalize your order to fit your needs and your budget.

This LC type requires no air supply.

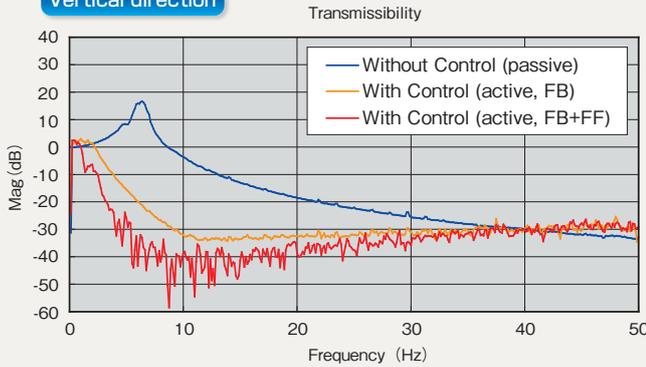
Typical applications

Scanning electron microscope, Electron scale surface roughness tester, etc.

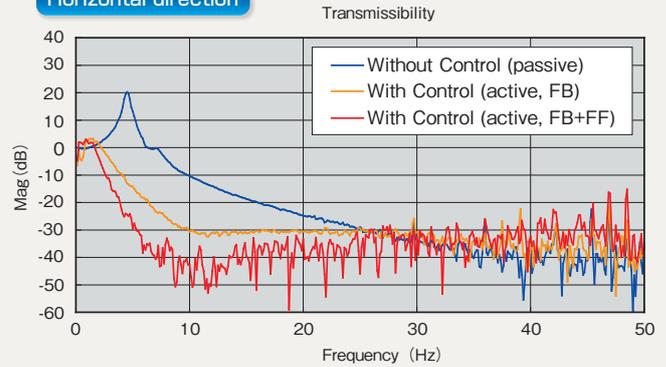
LC type performance

EST-L100C, 4 mounts, loading 400 kg

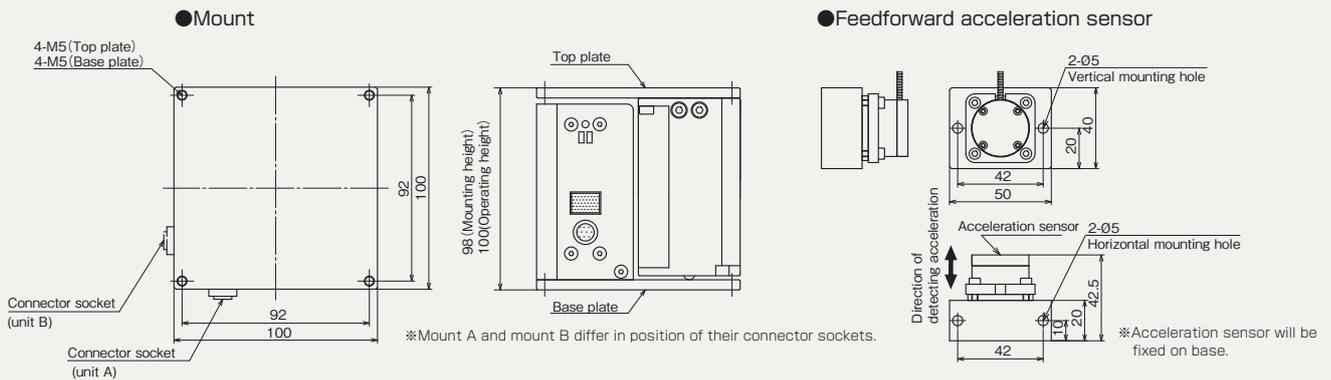
Vertical direction



Horizontal direction



Dimensions



Specifications

	EST-L100C-□□ ※1
Actuator	Linear motor
Control system	Selectable among Vertical feedback control, Horizontal feedback control and Feedforward control
Leveling type	Manual leveling
Controller	Analogue controller※2
Maximum load capacity per 1 mount (kg)	25~100
Product outside dimension (mm) A	100×100×100
Product mounting dimension (mm) B	92×92
Operating height (mm)	100
Product mass per 1 mount (kg)	2.5

※1 : The "combination number" assigned to the control systems fits in the boxes "□□."
 ※2 : FB controller is internal. FF Controller and power unit are external.

List of combination numbers of control systems

Combination number	Control system
01	FBV+FBH+FFZ+FFX+FFY
02	FBV+FBH+FFZ
03	FBV+FBH+FFX+FFY
04	FBV+FBH
05	FBV
06	FBH
07	FBV+FFZ
08	FBH+FFX+FFY

FBV : Vertical Feedback
 FBH : Horizontal Feedback
 FFZ : Vertical Feedforward
 FFX : Horizontal X direction Feedforward
 FFY : Horizontal Y direction Feedforward

A TYPE

Features

A type appropriate for light-load, vibration isolation and vibration damping

The built-in Gimbal Piston system produces low natural frequency and excellent vibration isolation performance.



B TYPE

Features

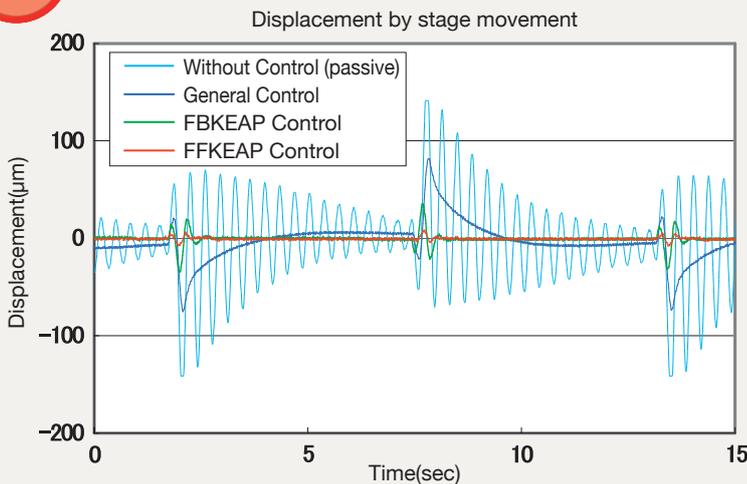
B type appropriate for heavy-load, vibration isolation and vibration damping

A multistage air spring structure makes possible a smaller footprint and a more compact system.



A type performance

loading 300kg.



An example of an A type performance test. Our unique control systems, Feedback KEAP Control (FBKEAP) and Feedforward KEAP Control (FFKEAP), stabilize the swinging stage.

Test data A6

Loading weight	300kg
Stage acceleration	7m/s ²
Movement weight	10kg
Measuring direction	Vertical
Measuring location	Corner of table

Specifications

	EST-A6	EST-A8	EST-A11	EST-B11	EST-B11W	EST-B14	EST-B14W
Actuator	Air spring						
Maximum load capacity per 1 mount (kg)*	230	550	1120	890	1400	2000	3950
Product outside dimension (WxDxHmm)	230×230×180	270×270×180	320×320×180	260×260×215	260×260×261	360×360×260	360×360×330
Product mass per 1 mount (kg)	18	22	35	35	45	70	90

In case of 0.6 MPa air supply pressure

CONTROLLER

POWER UNIT



Controller for A/B LS/LH type



Power unit for A/B LS/LH type



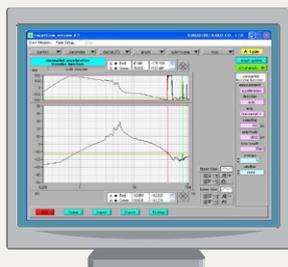
FF Controller for LC type (option)



Power unit for LC type

Applications and User-friendliness (Except for LC type)

- Switching between active and passive control
- Automatic tuning (FB gain, FF parameter automatic setting)
- Small controller
- PC communication available (via SmartCom)



PC(SmartCom)



Controller

Specifications

	Controller for A / B LS/LH type	Power unit for A / B LS/LH type	FF Controller for LC type	Power unit for LC type
Product outside dimension (W×D×Hmm)	150×130×62	180×220×100	160×250×40	160×250×50
Product mass (kg)	1kg	3kg	1.6kg	1.9kg

AC85-264V single-phase 50Hz/60Hz

e-Stable Active tabletop isolators [mini series]

NEW

e-Stable MINI



Realization of improved performance.
New display and design, pursued usability

Typical applications

AFMs, SPMs, laser microscopes, micro-hardness testers, interferometers



MINI-560F



MINI-450F

Features



Active vibration isolation in all six degrees of freedom

- Outstanding anti-vibration effects over the entire frequency band, without resonance



Self-leveling & Clamping

- With the push of a button, it allows for auto-leveling and clamping during transit.



LCD monitor standard equipment

- Sprung acceleration time waveforms display
- Sprung power spectrum display



USB interface

- By USB interface, you're sure to observe the vibration condition and to clamp by remote control.



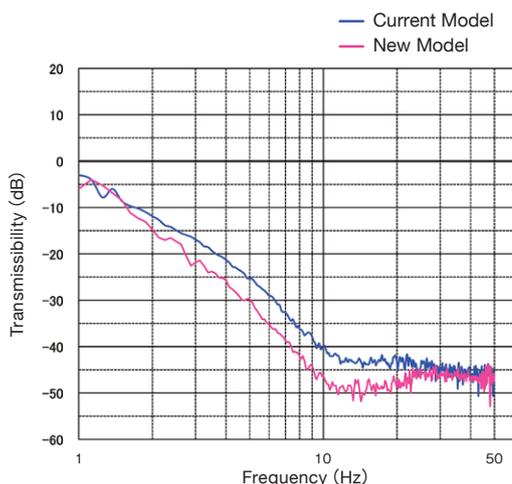
Clean room-compatible design

- No air contamination
- No air needed

Specifications

With active vibration isolation in all six degrees of freedom, you can get outstanding anti-vibration effects.

■ Performance (mini-450)



	MINI-450F	MINI-560F
size(W×D×Hmm)	400×500×80	500×600×84
maximum load(kg) [※]	120	100
weight(kg)	19	28
power supply	AC85-264V single-phase 50/60Hz	

※ in loading evenly

Protect laboratory environment against noise and vibration.

For nanometer precision measuring instruments in semiconductor industry or optical industry, we provide this soundproofing system which reduces noise and vibration across a wide range of frequencies.

Typical applications

SPM (such as AFM) and other ultra-precision instruments

Features

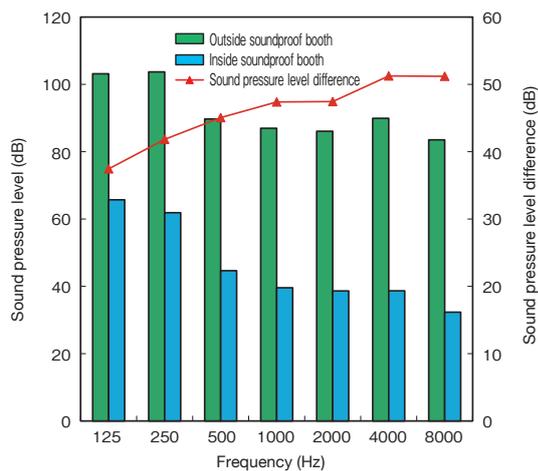
Noise reduction

The combination of the AS series soundproof booth and the vibration isolation system reduces not only vibration but also noise.

Soundproofing effect across a wide range of frequencies

The AS series produces soundproofing effect from 16 Hz to 8 kHz.

Soundproof performance



Applications



Combining the e-Stable and the Soundproof Booth, you're sure to eliminate the influence of noise and vibration.

Specifications

	AS-660	AS-880
Structure	Soundproofing structure with an integrated frame	
Dimension(W×D×Hmm)	About 777×822×1456mm	About 977×1002×1456mm
Product mass	About 365kg	About 400kg
Cable clamp	You can change the cable clamp size. (Please notify your demand.)	
Surface plate treatment	SUS304 laminate	
How to open front flap	Vertical swing door with gas spring and stopper stake	
How to open back flap	Manual single swing door	

*We will manufacture according to the requested sizes. Please inquire at your nearest business office.



P-Stable

Passive Vibration Isolation Unit

Among the wide lineup, you are sure to find the product which best satisfies your system requirements.

The 300 series passive vibration isolation mounts are all constructed to the same height specification of 185 mm.

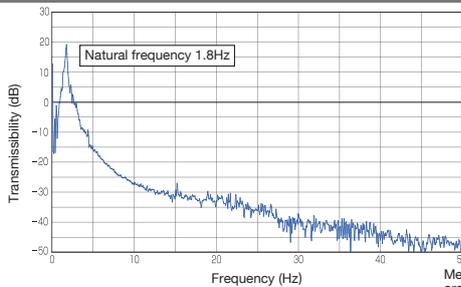


Performance

Transmissibility The built-in (Dome) Gimbal Piston system produces low natural frequency.

Vertical

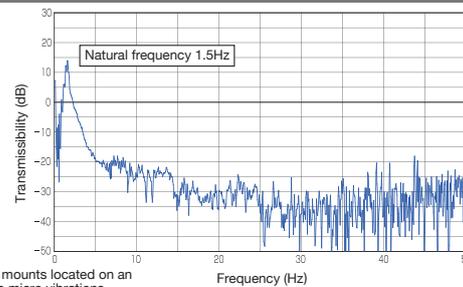
PST-308, 4 units / loading 2000 kg



Measurements recorded with p-Stable mounts located on an ordinary testing room floor subjected to micro vibrations.

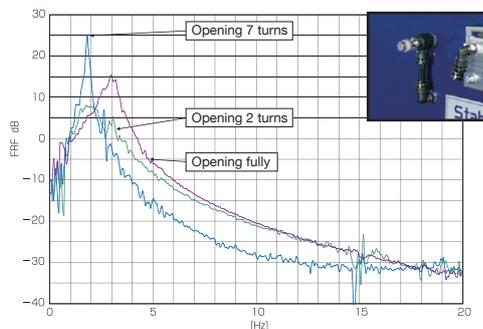
Horizontal

PST-308, 4 units / loading 2000 kg

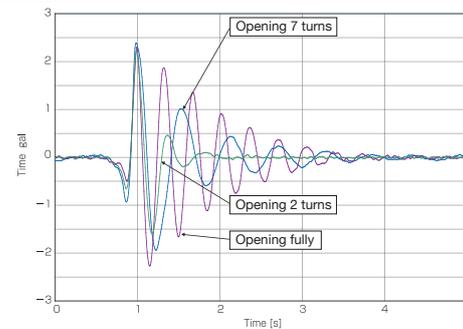


Variable orifice Use this to optimize the balance of vibration isolation performance and vibration damping performance.

Changes in transmissibility as adjusted by the variable orifice PST-308, 4 units / loading 2000 kg



Changes in damped waveforms as adjusted by the variable orifice PST-308, 4 units / loading 2000 kg



Clean room-compatible

The valve with an exhaust air drain line and no metal-to-metal contact in not operating eliminate the possibility of air contamination.



RoHS-satisfied

Specifications (with Gimbal Piston)

Product number	PST-304	PST-305	PST-306	PST-308	PST-311	PST-314
Isolation system	Gimbal Piston					
Natural frequency	Vertical : 2.0Hz~2.5Hz Horizontal : 1.5Hz~1.8Hz			Vertical : 1.5Hz~2.0Hz Horizontal : 1.5Hz~1.8Hz		
Leveling type	Automatic leveling					
Load capacity per 4 mounts (kg)	~400	~700	~1250	~3000	~6000	~12000
Air supply pressure	0.4~0.6					
Product outside dimension (mm) (A)	170×170	170×170	200×200	250×250	320×320	430×430
Product mounting dimension (mm) (B)	150×150	150×150	180×180	230×230	290×290	400×400
Operating height (mm) (C)	185	185	185	185	185	185
Minimum height (mm) (D)	180	180	180	180	180	180
Mounting hole diameter (mm) (E)	10	10	10	13	18	18
Top plate thickness (mm) (T)	10	10	10	10	10	10
Bottom plate thickness (mm) (F)	6	6	6	6	9	12
Product mass per 1 mount (kg)	7	7	12	17	38	75

accessories

Regulator with filter Soft nylon tube $\phi 6$ (supplying) blue color : 5m
Urethane tube $\phi 6$ (exhausting) black color : 5m Three tube joints : 3

Options

Precision leveling valve



Precision leveling valve

Leveling accuracy $\pm 0.05 \sim 0.125$ mm

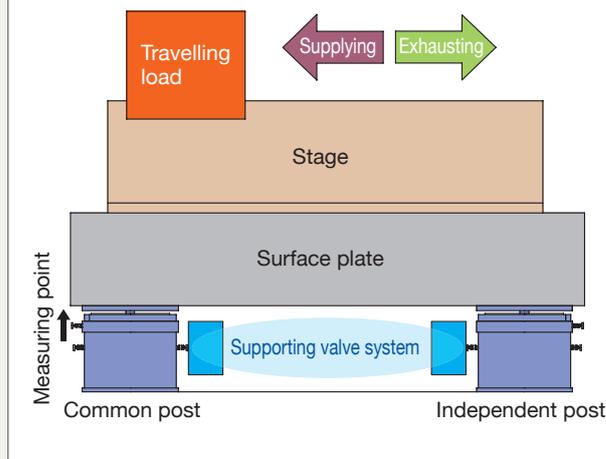
Body color Customized colors available on request.
(photo: black)

Supporting valve system (patent pending)

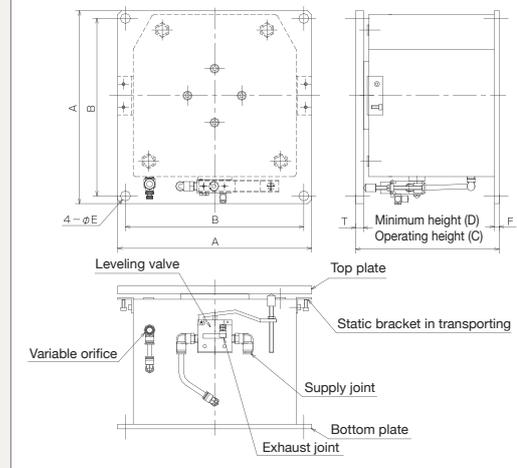


The supporting valve system stabilizes the swinging stage via the quick control of air supplying and exhausting.

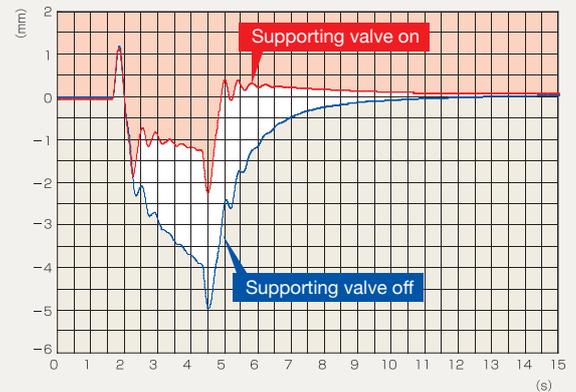
Measuring model



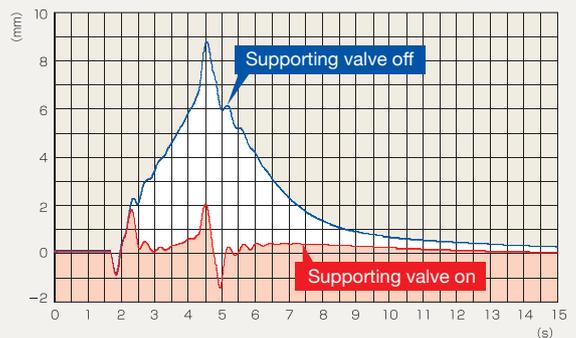
Dimensions



Measurement result (time waveforms / supplying)



Measurement result (time waveforms / exhausting)



Specifications (with Dome Gimbal Piston)

Product number	PST-304-DG	PST-305-DG	PST-306-DG	PST-308-DG	PST-311-DG	PST-314-DG
Isolation system	Dome Gimbal Piston					
Natural frequency	Vertical : 2.0Hz~2.5Hz Horizontal : 0.8Hz~1.0Hz		Vertical : 1.5Hz~2.0Hz Horizontal : 0.8Hz~1.0Hz			
Leveling type	Automatic leveling					
Load capacity per 4 mounts (kg)	~400	~700	~1250	~3000	~6000	~1200
Air supply pressure	0.4~0.6					
Product outside dimension (mm) (A)	170×170	170×170	200×200	250×250	320×320	430×430
Product mounting dimension (mm) (B)	150×150	150×150	180×180	230×230	290×290	400×400
Operating height (mm) (C)	185	185	185	185	185	190
Minimum height (mm) (D)	180	180	180	180	180	185
Mounting hole diameter (mm) (E)	10	10	10	13	18	18
Top plate thickness (mm) (T)	10	10	10	10	10	15
Bottom plate thickness (mm) (F)	6	6	6	6	9	12
Product mass per 1 mount (kg)	7	7	12	17	38	80
accessories	Regulator with filter Soft nylon tube $\phi 6$ (supplying) blue color : 5m Urethane tube $\phi 6$ (exhausting) black color : 5m Three tube joints : 3					

NOTE: Please consult with us for the selection if you intend to select the model with Dome Gimbal Pistons, because the Dome Gimbal Piston system cannot be applicable to equipment having high center of gravity on account of its very low horizontal natural frequency.

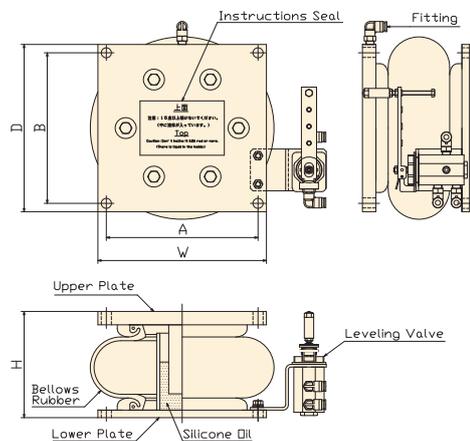
P-Stable PSB built-in Damper

Features

- Vibration isolation performance is excellent.
- The shake of the device is quickly settled with the internal damping mechanism.
- It is possible to adjust floating height with the leveling valve.
- With built-in lower bottom stopper.
- Clean room - Compatible
- Available with optional supporting valve system

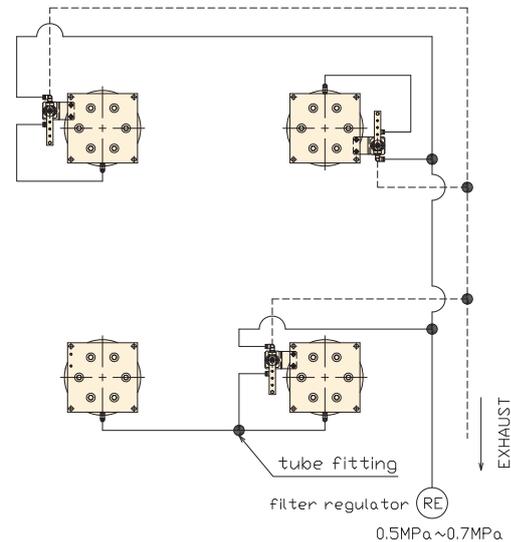


Outline of Product



PSB built-in Damper with leveling valve

Usage example



Specifications

		PSB-D145	PSB-D170	PSB-D230	PSB-D300	PSB-D360
Isolation system		pneumatic spring bellows type				
H	Operated Height(mm)	127	127	127	127	127
	Minimum Height(mm)	117	117	117	117	117
W×D	Width and Depth(mm)	200×200	230×230	280×280	330×330	420×420
A×B	Installation pitch(mm)	180×180	210×210	250×250	300×300	390×390
C	Installation hole size(mm)	φ12		φ16		
T1	Thickness of upper plate(mm)	16	16	16	16	16
T2	Thickness of lower plate(mm)	9	9	9	9	9
	Weight(kg)	12	15	24	36	54
	Pressure receiving area(cm ²)	196	260	470	750	1,070
	Net load capacity by one unit(kg)	800	1,050	1,900	3,000	4,250
	Maximum air pressure(MPa)	0.5				
	Damping system	Silicone oil				
	Natural frequency	Vertical: about 3Hz		Horizontal: about 3Hz		
	Height control system	Leveling Valve system				
	Typical applications	Inspection equipment and manufacturing device for LCD and Semiconductor/Precision measuring instrument				



A wide variety of accessories provides a comfortable laboratory environment.

Our time-tested (Dome) Gimbal Piston system provides excellent vibration-free work surfaces for precision instruments.

Typical applications

Biology experiment, Physics experiment, Cytology experiment, Laser microscope, Optical microscope, STM (scanning tunneling microscope), Wafer inspection equipment, AFM (atomic force microscope) and other precision apparatus



With optional accessories

Features

Gimbal Piston system (standard equipment)

The horizontal vibration isolation system Gimbal Piston gives excellent vibration isolation performance.

High performance Dome Gimbal Piston system (factory option)

The new development Dome Gimbal Piston system provides much more excellent vibration isolation performance.

Various optional accessories

Customize your isolator with a variety of optional accessories, such as armrest, slide-shelf, etc.

Aluminum honeycomb surface plate

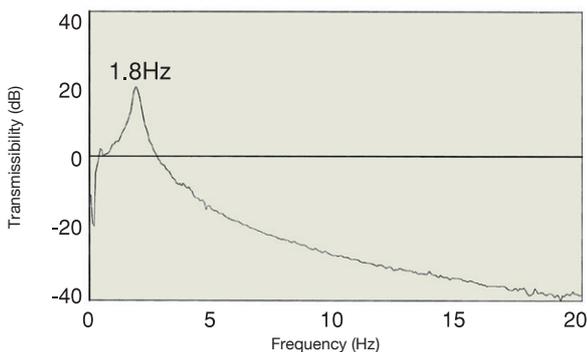
The aluminum honeycomb surface plate is lightweight and high-rigid and top plate is a magnetic SUS430 plate.

Automatic leveling function

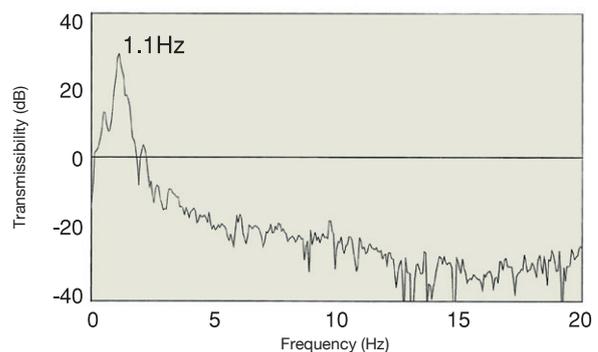
The automatic leveling function appropriately adjusts the surface plate height during replacing instruments or load fluctuation.

Transmissibility

Here is the actual value measured on micro vibrating floor.

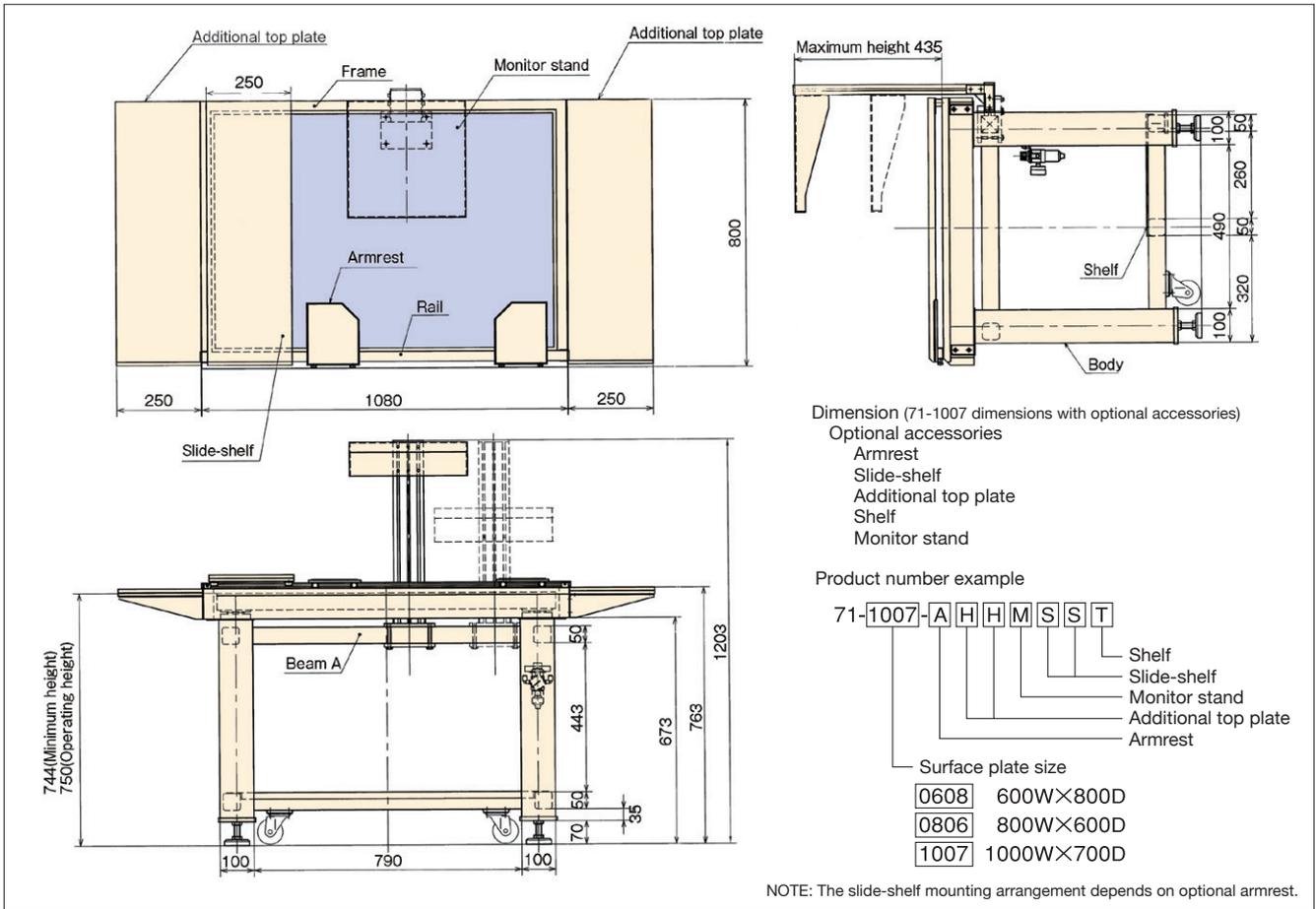


Vertical direction



Horizontal direction

Dimensions



Specifications

Product number	71-0608 (-DG)	71-0806 (-DG)	71-1007 (-DG)
Natural frequency	Vertical : 1.8Hz Horizontal : 1.1~1.3Hz		
Leveling type	Automatic leveling (operated by compressed air or nitrogen of 0.55MPa or under)		
Surface plate dimension (mm)	600×800×50t	800×600×50t	1000×700×50t
Surface plate material	Aluminum honeycomb, Top plate: magnetic SUS430 5t, Bottom plate: SPHC 4.5t		
Product height(mm)	763		
Product dimension (mm)	680×900	880×700	1080×800
Product mass (kg)	About 130	About 130	About 160
Maximum load capacity (kg)	300		
Accessories	Regulator with filter, Soft nylon tube 6 mm×5 m, Tube joint (R1/4)		

Optional accessories

Mark	Item number	71-0608 (-DG) W×D (mm)	71-0806 (-DG) W×D (mm)	71-1007 (-DG) W×D (mm)
A	Armrest	155×185	155×185	155×185
S	Slide-shelf	250×890	250×690	250×790
H	Additional top plate			
T	Shelf	550×415	750×315	950×365
M	Monitor stand	350×350	350×350	350×350

Horizontal vibration isolation system & Stylish design with superb functionality

Typical applications

Surface roughness tester, Roundness tester, STM, AFM, Wafer inspection equipment, Line width measuring machine, Prober, Laser microscope



60-1008-0806



60C-1108-0506

Features

Gimbal Piston system (standard equipment)

The horizontal vibration isolation system Gimbal Piston gives excellent vibration isolation performance.

High performance Dome Gimbal Piston system (factory option)

The new development Dome Gimbal Piston system provides much more excellent vibration isolation performance.

Flat table top

The flat table top combines workability with vibration isolation performance.

Automatic leveling function

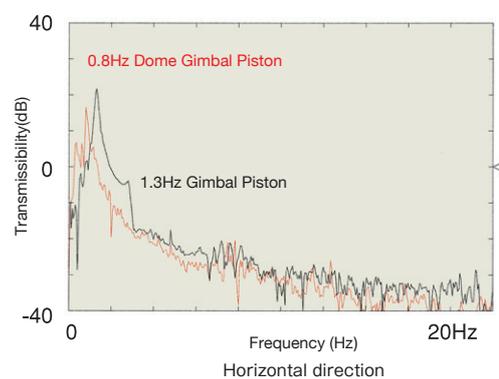
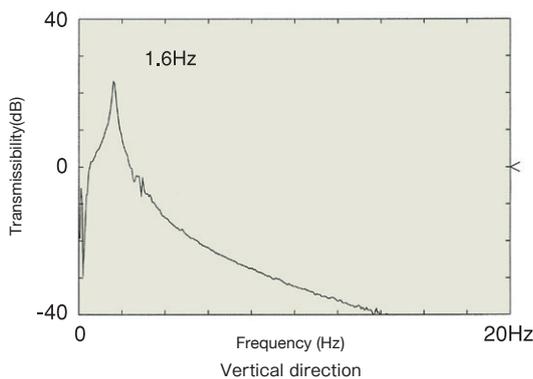
The automatic leveling function appropriately adjusts the surface plate height during replacing instruments or load fluctuation.

Clean room-compatible (60C series)

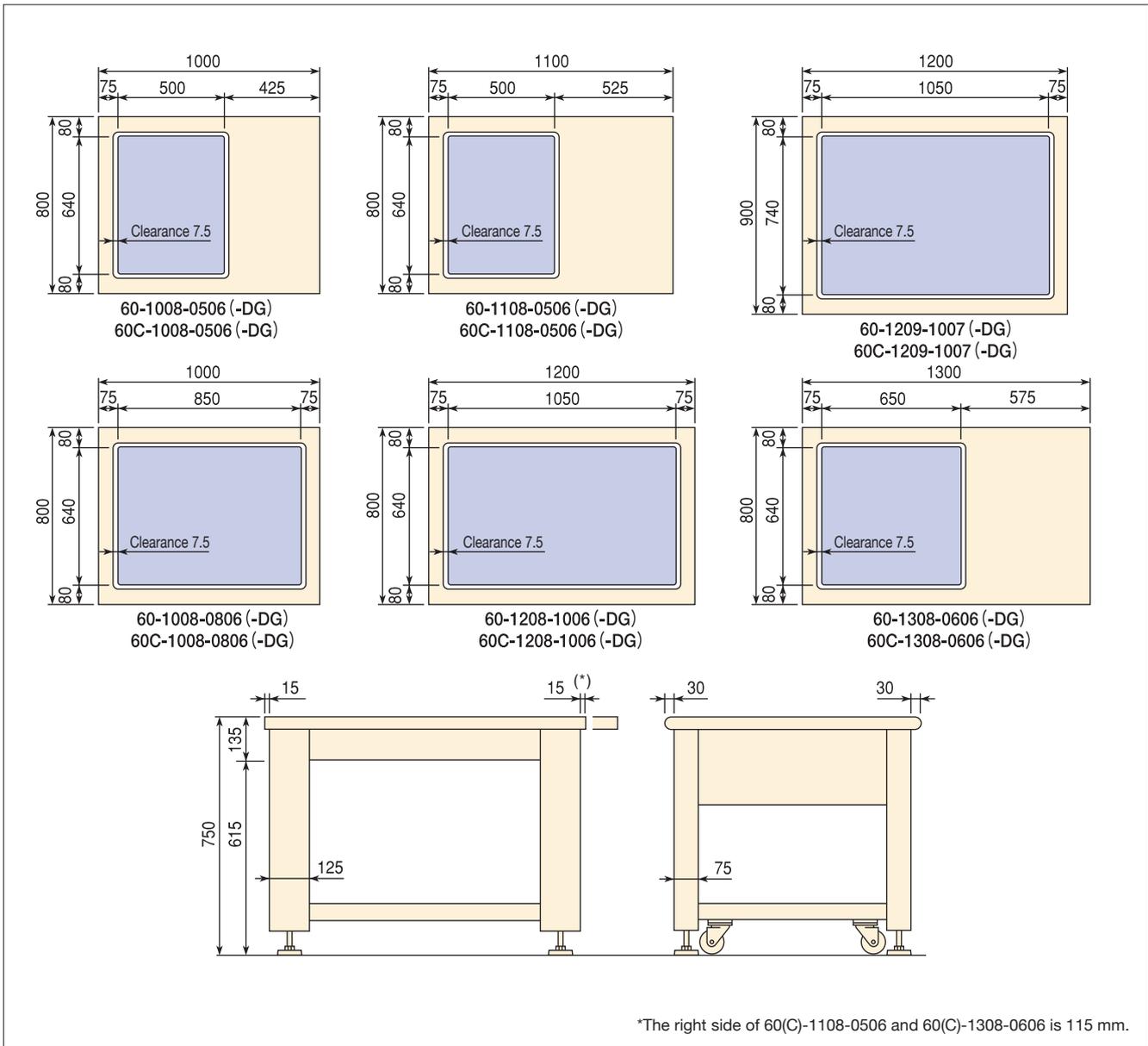
The SUS304 surface plate and the automatic leveling valve with an exhaust air drain line eliminate the possibility of air contamination.

Transmissibility

Here is the actual value measured on micro vibrating floor.



Dimensions



Specifications

Product number	60-1008-0506 (-DG) 60C-1008-0506 (-DG)	60-1008-0806 (-DG) 60C-1008-0806 (-DG)	60-1108-0506 (-DG) 60C-1108-0506 (-DG)	60-1208-1006 (-DG) 60C-1208-1006 (-DG)	60-1209-1007 (-DG) 60C-1209-1007 (-DG)	60-1308-0606 (-DG) 60C-1308-0606 (-DG)
Natural frequency	Vertical 1.5~1.8Hz Horizontal 1.2~1.8(0.5~1.0)Hz ()The value between parentheses is the value for the Dome Gimbal Piston specifications.					
Leveling type	Automatic leveling (operated by compressed air or nitrogen of 0.55MPa or under) *The 60C series has the exhaust air drain line.					
Product height (mm)	750					
Surface plate dimension (WxD mm)	1000×800	1000×800	1100×800	1200×800	1200×900	1300×800
Isolated area dimension (WxD mm)	500×640	850×640	500×640	1050×640	1050×740	650×640
Surface plate material	60 series: Melamine board 60C series: SUS304					
Maximum load capacity (kg)	200	300	200	300	300	200
Product mass (kg)	60 series : 245 60C series : 255			60 series : 250 60C series : 260		
Accessories	General specifications: Regulator with filter, Soft nylon tube 6 mm×5 m, Tube joint (R1/4) 60C series: Urethane tube 6 mm×5 m, Ground terminal with code 5 m					
Optional accessories	Air compressor					

NOTE: Please consult with us for the selection.

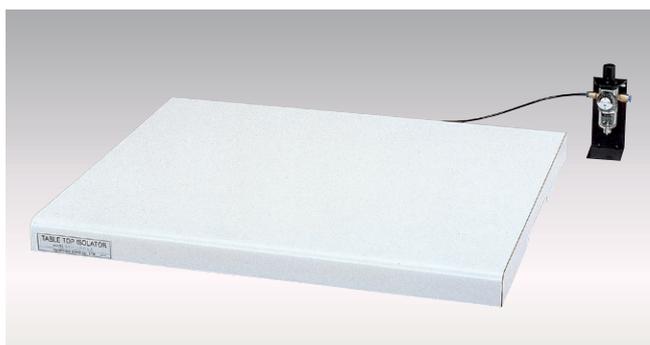


Tabletop isolators satisfying your needs for performance, design and cost

The 50 series all-purpose tabletop isolators satisfy your wants via a low-profile and lightweight design, sufficient vibration isolation performance and a sophisticated shape.
*Not built-in Gimbal Piston system.

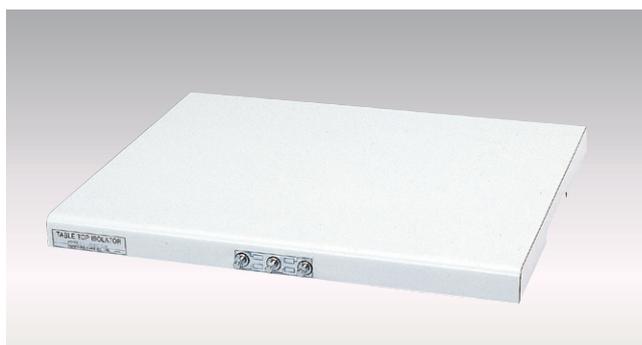
Typical applications

Surface roughness tester, Contour shape measuring instrument, Microscope, Hardness tester, Semiconductor inspection equipment



Automatic leveling type

The automatic leveling function appropriately adjusts the surface plate height during replacing instruments or load fluctuation.



Manual leveling type

You can easily adjust the surface plate height.

Features

Low-profile design (operating height 57 mm)

The 50 series does not interrupt your operation even if you set it on your desk.

Sophisticated shape

The 50 series low-profile design allows easy access to the unit controls and does not destroy the workplace view.

Choose between two types (A type and M type) depending on installation site

You can choose the automatic leveling type (A type) or the manual leveling type (M type) depending on whether you already have an air compressor or not.

Small-sized special air spring

The special designed air springs make possible a more compact system and sufficient performance. *Not built-in Gimbal Piston system

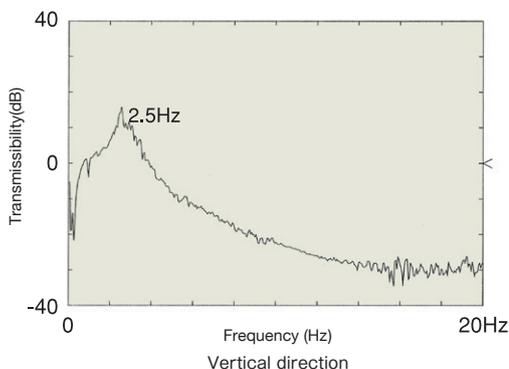
High-performance air damping function

The high-performance air damping function by orifices stabilizes the swinging on-board instrument.

High damping surface plate

The special laminated structure surface plate has high rigidity and an excellent vibration damping property.

Transmissibility



Specifications

Product number	50-0405 A 50-0405 M	50-0506 A 50-0506 M	50-0605 A 50-0605 M	50-0806 A 50-0806 M
Natural frequency	Vertical : 2.5Hz			
Leveling type	A type : Automatic leveling (operated by compressed air or nitrogen of 0.3~0.7MPa (3~7 kgf/cm ²)) / M type : Manual leveling operated by hand pump			
Dimension (W×D×Hmm)	400×500×57	500×600×57	600×500×57	800×600×57
Isolated area dimension (mm)	400×470	500×570	600×470	800×570
Surface plate material	Melamine board			
Maximum load capacity (kg)	120			
Product mass (kg)	18	24	24	36
Accessories	A type : Regulator with filter, Soft nylon tube 6 mm×3m, Tube joint (R1/4) / M type : Hand pump			
Optional accessories	Air compressor			

NOTE 1 : Please consult with us for the selection.

NOTE 2 : M type's height depends on the temperature of its installation location.
Please adjust the height before using.



Clean room-compatible

The SUS304 surface plate and the automatic leveling valve with an exhaust air drain line enable the 50C series to be clean room-compatible. *Not built-in Gimbal Piston system

Typical applications

Microscope for semiconductor / FPD inspection and other precision instruments in clean room



Features

Stainless surface plate

The SUS304 surface plate eliminates the possibility of air contamination and has an excellent vibration damping property.

Low-profile design (operating height 53 mm)

The 50C series is constructed to more compact than the 50 series.

Automatic leveling valve with an exhaust air drain line

The automatic leveling valve with an exhaust air drain line eliminates the possibility of air contamination.

Small-sized special air spring

Special designed air springs make possible a more compact system and sufficient performance.

Specifications

Product number	50C-0405 A	50C-0506 A	50C-0605 A	50C-0806 A
Natural frequency	Vertical : 2.5Hz			
Leveling type	Automatic leveling (operated by compressed air or nitrogen of 0.3~0.7MPa (3~7 kgf/cm ²))			
Dimension (W×D×Hmm)	400×500×53	500×600×53	600×500×53	800×600×53
Surface plate material	Surface: SUS304			
Maximum load capacity (kg)	120			
Product mass (kg)	22	29	29	44
Accessories	Regulator with filter, Soft nylon tube 6 mm×3 m, Urethane tube 6 mm×3 m, Tube joint (R1/4)			
Optional accessories	Air compressor			

NOTE: Please consult with us for the selection.

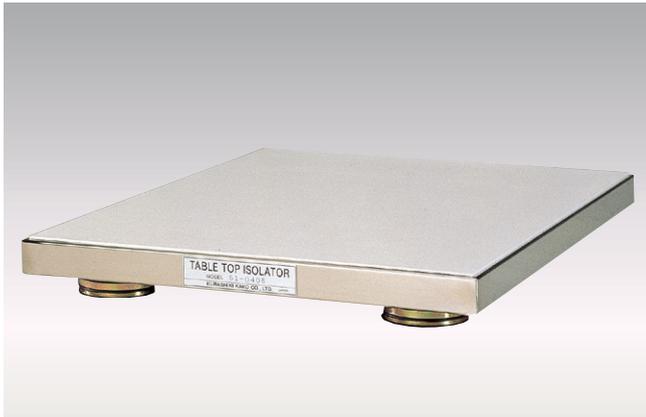


Tabletop isolators equipped with anti-vibration rubber

The 51 series air damper anti-vibration rubber tabletop isolators are cost-effective, appropriate for light-load and clean room-compatible.

Typical applications

Microscope, Hardness tester, Small interferometer



Features

Air damper anti-vibration rubber

The air damper anti-vibration rubber provides vibration isolation performance and stability of surface plate.

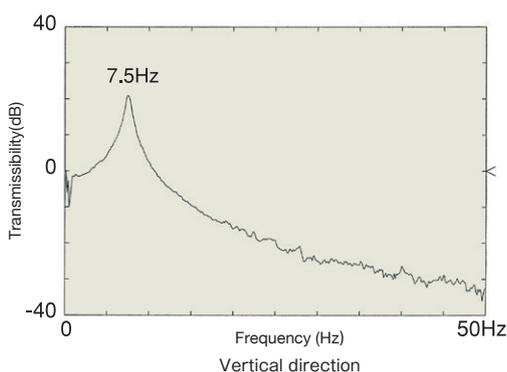
High cost performance

The rational design makes possible a matchless low cost.

Stainless surface plate

The SUS304 surface plate eliminates the possibility of air contamination and has an excellent vibration damping property.

Transmissibility



Specifications

Product number	51-0405	51-0506
Natural frequency	Vertical : 7.5Hz	
Dimension (W×D×Hmm)	400×500×55	500×600×55
Surface plate material	Surface : SUS304 (Accessory : rubber sheet)	
Maximum load capacity (kg)	40	60
Product mass (kg)	12	18

NOTE: Please consult with us for the selection.



Tabletop isolators for optical experiments with aluminum honeycomb surface plate

The aluminum honeycomb surface plate makes possible high rigidity and high flatness.

*Not built-in Gimbal Piston system.

Typical applications

Optical experiments using fiber optic devices and other short optical path scanning



Automatic leveling type

The automatic leveling function appropriately adjusts the surface plate height during replacing instruments or load fluctuation.



Manual leveling type

You can easily adjust the surface plate height.

Features

Aluminum honeycomb surface plate

The aluminum honeycomb surface plate is lightweight (50mm thick) and high-rigid. Top plate is magnetic SUS430 and sanding finish to reflect little light.

Small-sized special air spring

The special designed air springs make possible a more compact system and sufficient performance.

*Not built-in Gimbal Piston system

Choose between two types (A type and M type) depending on installation site

You can choose the automatic leveling type (A type) or the manual leveling type (M type) depending on whether you already have an air compressor or not.

Specifications

Product number	52-0806A 52-0806M	52-1007A 52-1007M
Product number	Vertical : 2.5Hz	
Natural frequency	A type: Automatic leveling (operated by compressed air or nitrogen of 0.3~0.7MPa (3~7 kgf/cm ²)) / M type: Manual leveling operated by hand pump	
Leveling type		
Dimension (W×D×Hmm)	800×600×94	1000×700×94
Surface plate material	Aluminum honeycomb, Top plate: magnetic SUS430 5t, Bottom plate: SPHC 4.5t	
Surface plate tapping	Selectable among no tapping, M6×50 mm or M6×25mm	
Maximum load capacity (kg)	120	100
Product mass (kg)	56	73
Accessories	A type: Regulator with filter, Soft nylon tube 6 mm×3m, Tube joint (R1/4) / M type: Hand pump	
Optional accessories	Air compressor	

NOTE 1: Please consult with us for the selection.

NOTE 2: M type's height depends on the temperature of its installation site. Please adjust the height before using.

P-Stable Balance Tabletop isolators [53 series]

Vibration isolation for precision balances has been realized.

Our vibration isolation technology supports electronic balances.

Typical applications

Electronic balance



TYPE : 53-0304



TYPE : 53-0304-E



Special high-damping rubber

Features

Special high-damping rubber is used.

Through the use of a special high-damping rubber, a vibration isolation function (resonance reduction) and stability of mounted board are achieved. The rubber ensures improved portability and a clean place for installation.

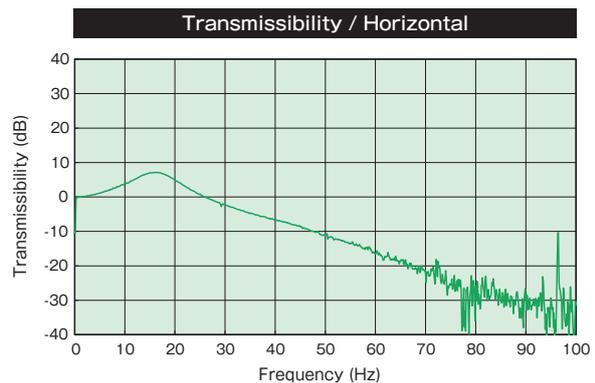
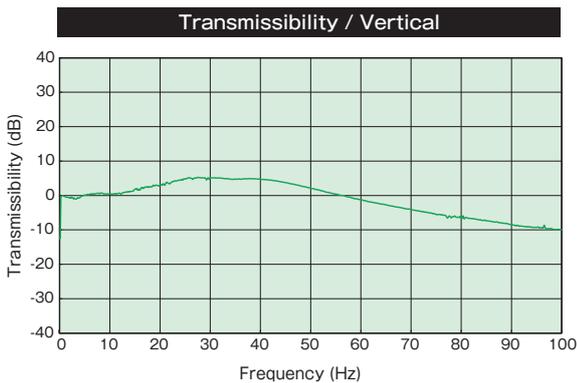
Stone surface is used.

With use of a stone surface, high rigidity and weight savings are realized. The stone surface is non-magnetic enabling use of electronic balances which are averse to magnetism.

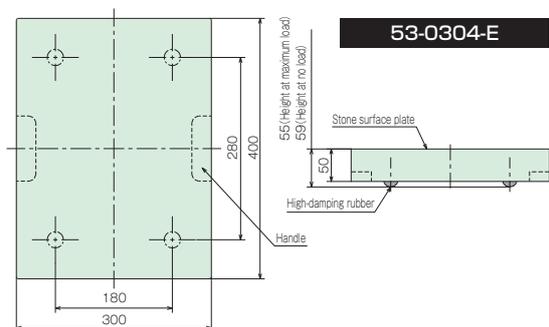
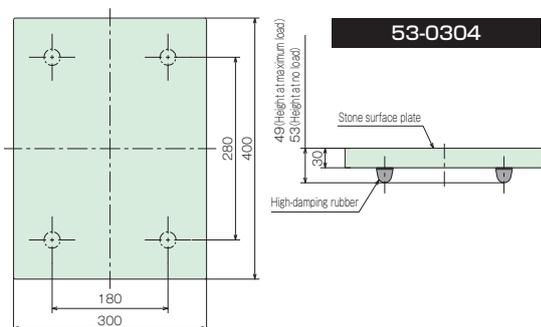
Specifications

Product number	53-0304	53-0304-E
Natural frequency (when 10 kg loaded)	Vertical : 40 Hz	Horizontal : 18 Hz
Dimension (W×D×Hmm)	300×400×53	300×400×59
Specification of mounted board	Stone surface plate	
Surface finishing	NC polishing	JIS Class 1
Maximum load capacity (kg)	50	
Product mass (kg)	10	18

Performance [53-0304: when 10 kg loaded]



External dimensions



Tables for selection guide, isolator type and leveling type

Selection guide

○ : Recommended △ : Acceptable

Typical application	Type	Table type			Tabletop type				
	Series	60	60C	71	50	50C	51	52	53
	Page	20	20	18	22	23	24	25	30
Balance (except for electronic balance)		○		○	○	○			
Electronic balance									○
Biophysics experiment		○		○	○	○	△		
Cytology experiment		○		○	○	○	△		
Ultramicrotome		○		○	○	○	△		
Laser microscope		○	○	○	○	○			
Optical microscope		○	○	○	○	○	○		
Scanning tunneling microscope / Atomic force microscope		○	○	○	△	△			
Thin film deposition		○	○	○	△	△			
Mask aligner			○						
Surface inspector			○						
Prober			○						
Hardness tester		○		○	○		△		
Surface roughness tester		○		○	○		△		
Roundness tester		○		○	○		△		
Laser optical experiment				○				○	
Holography				△				△	
Interferometer				○				○	
FTIR spectroscope		○		○	○			○	

The 50C series, 51 series and 60C series are clean room-compatible as standard equipment.
About other series, we accept special orders for clean room-compatible products.

Isolator type

○ : Standard equipment △ : Option - : Not available

Isolator	Type	Table type			Tabletop type				
	Series	60	60C	71	50	50C	51	52	53
	Page	20	20	18	22	23	24	25	30
Gimbal Piston		○	○	○	-	-	-	-	-
Dome Gimbal Piston		△	△	△	-	-	-	-	-
Small-sized special air spring		-	-	-	○	○	-	○	-
Air damper anti-vibration rubber		-	-	-	-	-	○	-	-
Special high-damping rubber		-	-	-	-	-	-	-	○
Active		△	△	△	-	-	-	-	-

Leveling type

○ : Standard equipment △ : Option - : Not available

Isolator	Type	Table type			Tabletop type				
	Series	60	60C	71	50	50C	51	52	53
	Page	20	20	18	22	23	24	25	30
Standard valve		○	-	○	○	-	-	○	-
Valve with exhaust air drain line		-	○	△	-	○	-	△	-
Precision valve with exhaust air drain line		△	△	-	-	-	-	-	-
Manual leveling		-	-	-	○	-	-	○	-

Design specifications

Please fill in the blanks and consult with us for the selection.

Company name	※Product number
Address	Agency Contact person
Department Contact person	Date
Telephone number	Business office Contact person
	Date

Loading instrument specifications

※Kurashiki Kako use only

Category		Manufacturer		Model	
Dimension	W :	mm × D :		mm × H :	mm
Mass	kg				
Center of gravity	from center X :	mm	from center Y :	mm	from installation surface H :
Moving mass	Mass	kg	Stroke	mm	Velocity
	Center of gravity :			Acceleration	mm/s ²

Vibration isolation system specifications

Product number					
Dimension	W :	mm × D :		mm × H :	mm
Desired natural frequency	Vertical		Hz	Horizontal	Hz
Leveling accuracy	Necessary	mm or under			
	Unnecessary	Standard equipment : ±1mm			
Surface plate flatness	Necessary	μm Standard equipment (JIS)			
	Unnecessary	Standard equipment: Steel honeycomb surface plate flatness is 0.3~0.5 mm/m or under. Other plate flatness has no regulations.			
Painting color	Specified color				
	Standard color	Cream color (60, 60C and 71 series)			
Collected exhaust system	Necessary	Clean room		class	
	Unnecessary				

About put in storage

Destination					
Discharging facilities	Presence (Forklift etc.)		•	Absence	
Installation location	floor				
Elevator	Presence	Effective dimension at entrance	W :	mm × H :	mm
		Effective dimension at inside	W :	mm × D : mm × H :	mm
	Absence				
Pathway for bringing in	Effective width	mm	Effective height	mm	Difference in level
Entrance door	Effective dimension	W :	mm × H :	mm	
Special specification	Presence (Double packing, export packing, etc.) • absence				

Please attach the rough map in case of a complicated pathway.

e-Stable
Active Vibration Isolation System

P-Stable
Passive Vibration Isolation System

Stable
Vibration Isolation Systems Series

※Please acknowledge that this catalog might change the specification without a previous notice beforehand.



KURASHIKI KAKO CO., LTD. Industrial Products Division

<http://www.kuraka.co.jp/>

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