Common specifications

denotes Steel Honeycomb Bench.

Model / Specifications	
	TDI-107LA ～ TDI-6015LA (cf. Individual specifications)
	TDIS-107LA ～ TDIS-6015LA (cf. Individual specifications)
Isola ion Method	Vertical direc ion: Herz Air Spring, Horizontal direction: Herz high-performance horizontal Vibration Isolation System
Control Method	Vertical direction: Air damping by an orifice, Horizontal direction: High-performance damping with special rubber

Model / Specifications		
	HOA-107LA ～ HOA-6015LA (cf. Individual specifica ions)	
	HOS-107LA ～ HOS-6015LA (cf. Individual specifica ions)	
Isola ion Method	Ver ical direction: Herz Air Spring	
Control Method	Ver ical direction: Air damping by an orifice	
Resonant Frequency	Vertical direction: About 1.3 Hz (*TDI/TDIS: Horizontal direction: About 0.6 Hz (maximum load on board))	
Honeycomb core	TDI/HOA: Aluminum Honeycomb Core	TDIS/HOS: Steel Honeycomb Core
	*Nonmagnetic Stainless Steel Honeycomb Core is also available.	
Leveling Method	Auto-Leveling (3 Leveling Sensors included)	
Air Supply System	External air supply required	
Pressure requirement	0.3 – 0.7 Mpa (0.3 – 0.7 kg/m^2)	
Top Plate Finish	Machined mounting plate with a tapped M6-25 mm matrix, Surface: Non-painted (Black paint finish also available.)	
Bench Materials	Upper face material: Magnetic Stainless Steel Plate 5 Tmm Lower face material: Hot-rolled Steel Plate 4.5 Tmm	

※ Special order tapped hole configurations are available for an extra charge.

Individual specifications

Model / Specifications	TDI/HOA-107LA	TDI/HOA-129LA	TDI/HOA-1510LA	TDI/HOA-1512LA	TDI/HOA-189LA
	TDIS/HOS-107LA	TDIS/HOS-129LA	TDIS/HOS-1510LA	TDIS/HOS-1512LA	TDIS/HOS-189LA
Number of Springs	4				
Bench Dimensions (mm)	1,000 x 700 x 100T	1,200 x 900 x 100T	1,500 x 1,000 x 150T	1,500 x 1,200 x 150T	1,800 x 900 x 150T
External Dimensions (mm)	1,000 x 700 x 750H	1,200 x 900 x 750H	1,500 x 1,000 x 800H	1,500 x 1,200 x 800H	1,800 x 900 x 800H
Load Capacity	150 kg	200 kg	300 kg	300 kg	300 kg
Total Weight (TDI/HOA)	140 kg / 135 kg	192 kg / 205 kg	240 kg / 255 kg	317 kg / 367 kg	300 kg / 350 kg
Total Weight (TDIS/HOS)	157 kg / 152 kg	215 kg / 228 kg	288 kg / 303 kg	375 kg / 425 kg	351 kg / 401 kg

Model / Specifications	TDI/HOA-1812LA	TDI/HOA-2010LA	TDI/HOA-2012LA	TDI/HOA-2412LA	TDI/HOA-2615LA
	TDIS/HOS-1812LA	TDIS/HOS-2010LA	TDIS/HOS-2012LA	TDIS/HOS-2412LA	TDIS/HOS-2615LA
Number of Springs	4				
Bench Dimensions (mm)	1,800 x 1,200 x 150T	2,000 x 1,000 x 150T	2,000 x 1,200 x 150T	2,400 x 1,200 x 250T	2,600 x 1,500 x 250T
External Dimensions (mm)	1,800 x 1,200 x 800H	2,000 x 1,000 x 800H	2,000 x 1,200 x 800H	2,400 x 1,200 x 800H	2,600 x 1,500 x 800H
Load Capacity	300 kg	300 kg	300 kg	500 kg	500 kg
Total Weight (TDI/HOA)	352 kg / 401 kg	343 kg / 388 kg	379 kg / 426 kg	568 kg / 530 kg	670 kg / 700 kg
Total Weight (TDIS/HOS)	422 kg / 471 kg	407 kg / 452 kg	457 kg / 504 kg	733 kg / 695 kg	935 kg / 965 kg

Model / Specifications	TDI/HOA-3012LA	TDI/HOA-3015LA	TDI/HOA-3515LA	TDI/HOA-4015LA	TDI/HOA-6015LA
	TDIS/HOS-3012LA	TDIS/HOS-3015LA	TDIS/HOS-3515LA	TDIS/HOS-4015LA	TDIS/HOS-6015LA
Number of Springs	4		6		
Bench Dimensions (mm)	3,000 x 1,200 x 330T	3,000 x 1,500 x 330T	3,500 x 1,500 x 330T	4,000 x 1,500 x 400T	6,000 x 1,500 x 400T
External Dimensions (mm)	3,000 x 1,200 x 800H	3,000 x 1,500 x 800H	3,500 x 1,500 x 800H	4,000 x 1,500 x 800H	6,000 x 1,500 x 800H
Load Capacity	500 kg	500 kg	500 kg	500 kg	1,000 kg
Total Weight (TDI/HOA)	774 kg / 794 kg	870 kg / 892 kg	1,067 kg / 1,050 kg	1,211 kg / 1,186 kg	1,984 kg / 1,784 kg
Total Weight (TDIS/HOS)	1,043 kg / 1,063 kg	1,209 kg / 1,231 kg	1,462 kg / 1,445 kg	1,743 kg / 1,718 kg	2,763 kg / 2,577 kg

***Nanotable is our registered trademark.**

※Herz continually works to improve the performance and function of our tables. Thus, specifications are subject to change without notice.
We appreciate your understanding.

Other Products

- **Vibration Isolation** Passive and Active Vibration Isolation Systems
- **Sound Isolation** Acoustic Enclosures
- **Atmospheric Disturbance Isolation** Acrylic booth
- **Active vibration isolation series** TS,AVI

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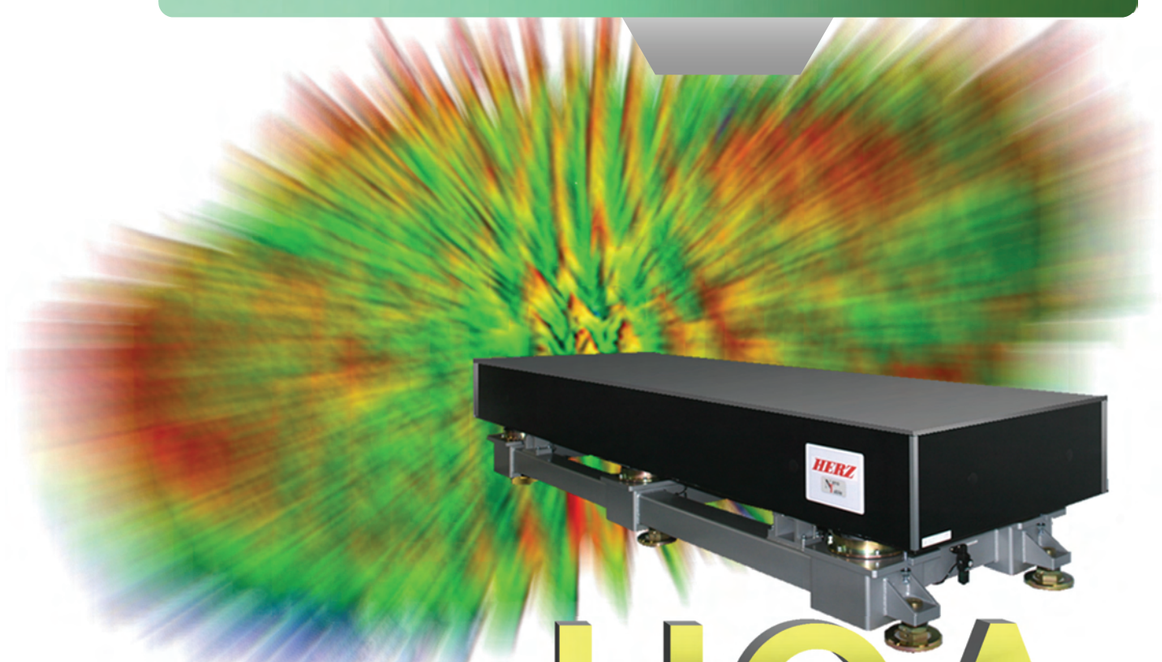
HERZ
Acoustic Isolation
Vibration Isolation
Supporting the measuring environment

Nano Table

TDI

High-performance Three Dimensional Vibration Isolation System



HOA

LARGE SCALE VIBRATION ISOLATION SYSTEM

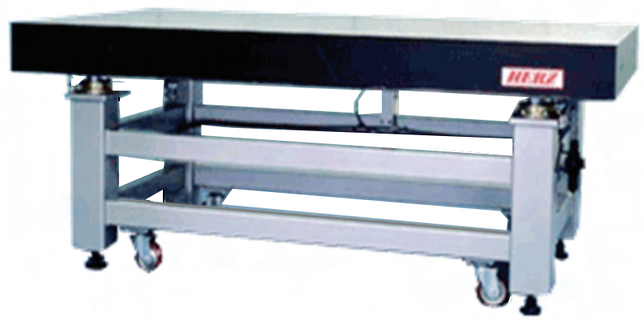
Herz Co.,Ltd.

Brief

High-performance Vibration Isolation System

The Evolution of Vibration Isolation Systems

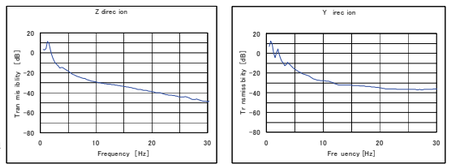
In July 1990, we developed the SHG high-performance Vibration Isolation System, the predecessor of the TDI Vibration Isolation System.
We developed the TDI high-performance three-dimensional six-degree-of-freedom Vibration Isolation System based on this technology. As the horizontal and vertical isolation mechanisms are unified, the superior TDI isolates vibration from every direction.
Herz products are designed with our main goal, “Supporting the Measuring Environment” in mind. With today’s instruments rapidly increasing in precision and resolution requirements, the high performance TDI is the ideal table for the Nanotechnology Era.



Features

Vibration Isolation mechanism:
An air spring is the basic element of a Vibration Isolation System. Our original ‘High Precision Air Spring’ has been continually developed since Herz was established. The TDI achieves vibration isolation in all six degrees of freedom in three dimensional space by unifying the mechanisms for vertical isolation and horizontal isolation. Our vibration isolation systems have won the trust of consumers by delivering consistent results over many years.
* Note on data: vibration isolation performance varies by the level and type of vibration input.

Vibration Isolation Performance of TDI-1510LA



Honeycomb bench / Plate:
The honeycomb bench and plate should be chosen according to the instrument to be isolated.
We developed the aluminum honeycomb bench to ensure lightweight and high stiffness.
This honeycomb bench overcomes the load restrictions of floors and is widely popular.
Herz classifies a honeycomb bench and plate as follows…

Type of honeycomb bench and plate

- Aluminum honeycomb bench — Lightweight and high stiffness are suitable for floors with low load capacity. * For Japan and foreign countries.
- Steel honeycomb bench — Steel honeycomb offers the highest level of stiffness and a high resonant frequency, as shown in the analysis model. * For Japan and foreign countries.
- * Nonmagnetic stainless steel honeycomb bench — A honeycomb core made of nonmagnetic stainless steel for instruments that maybe affected by magnetism. Also available for the top and bottom plate. * Only available in Japan.

Surface materials for the honeycomb bench

- Top surface material ・・・ Magnetic stainless steel plate (standard)
  ・・・ Nonmagnetic stainless steel plate
- Bottom surface material ・・・ Steel plate (standard)
  ・・・ Magnetic stainless steel plate
  ・・・ Nonmagnetic stainless steel plate

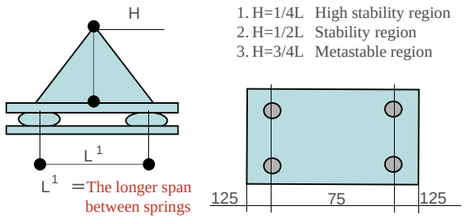
Vibration Isolation support frame:
The support frame offers high rigidity to support the bench and instrument. The frame also includes a damping system that offers vibration isolation.

Automatic Horizontal Leveling:
Three auto-leveling sensors maintain the system’s horizontal position. (External air supply not included.)

Choosing the most suitable Vibration Isolation system:

A vibration isolation system should be chosen based on the instrument and application that it will be used for. Choosing the correct system will optimize the performance of the isolation system and the function of the instrument.

① Determining the size of the Vibration Isolation system:
The height of the instrument's center of mass (H) should never exceed half of the span of the smaller dimension between air springs (L). Using the figure below, H should be less than L / 2. Ideally, H should be equal or less than L / 4.



② We recommend the most suitable Vibration Isolation system based on the following information:

1. The instrument name.
2. The application of the instrument.
3. The degree of resolution or precision with which the instrument will be operated.
4. Total dimensions and weight of instrument.
5. Structure of the instrument.
6. Presence of moving stages.
7. Placement of the instrument
8. Whether or not the instrument is sensitive to low frequency vibrations.
9. The load restrictions of the room floor
10. Whether or not the instrument is sensitive to air disturbance and/or sound.

Necessity of analysis

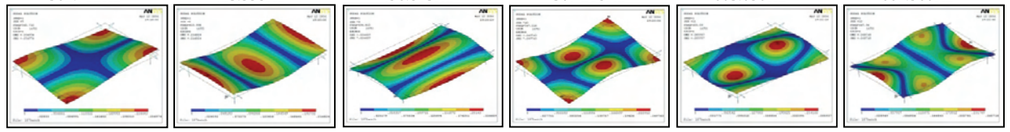
In the process of developing our honeycomb benches, we perform modal analysis in order to understand the benches’ dynamic properties. Modal analysis provides two benefits:
1. We can avoid resonance with floor vibrations by understanding the natural frequency and mode shapes of the benches and comparing that information with site survey data.
2. We can predict the most suitable position of the table by considering the vibration characteristics of the table and instrument.

An example of modal analysis

Analysis model of an aluminum honeycomb bench displayed in two dimensions.

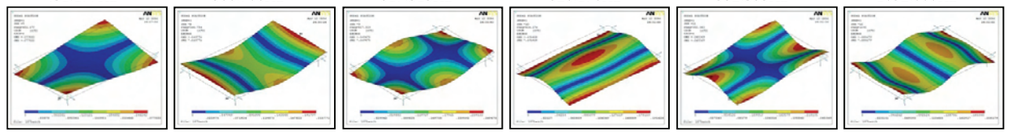
①An analysis model (in two dimensions) An aluminum honeycomb bench 1000*700*100t Materials: Upper surface SUS410 t=5.0 Lower surface SPHC t=4.5

Mode 1	Mode 2	Mode 3	Mode 4	Mode 5	Mode 6
362.712Hz	415.998Hz	496.815Hz	567 218Hz	605.090Hz	667.960Hz



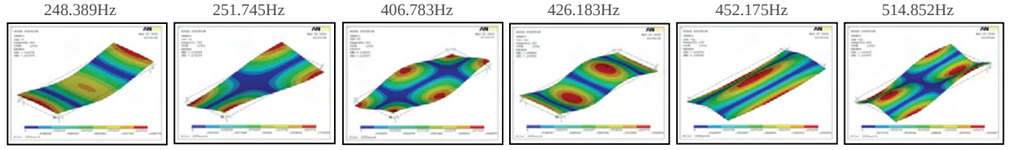
①An analysis model (in two dimensions) A steel honeycomb bench 1000*700*100t Materials: Upper surface SUS410 t=5.0 Lower surface SPHC t=4.5

Mode 2	Mode 3	Mode 3	Mode 4	Mode 5	Mode 6
451.177Hz	566.706Hz	817.319Hz	826.176Hz	952.383Hz	1092.000Hz



①An analysis model (in two dimensions) An aluminum honeycomb bench 1800*900*150t Materials: Upper surface SUS410 t=5.0 Lower surface SPHC t=4.5

Mode 1	Mode 2	Mode 3	Mode 4	Mode 5	Mode 6
248.389Hz	251.745Hz	406.783Hz	426.183Hz	452.175Hz	514.852Hz



①An analysis model (in two dimensions) A steel honeycomb bench 1800*900*150t Materials: Upper surface SUS410 t=5.0 Lower surface SPHC t=4.5

Mode 1	Mode 2	Mode 3	Mode 4	Mode 5	Mode 6
287.684Hz	303.820Hz	553.648Hz	617.2723Hz	733.222Hz	761.277Hz