Common specifications

denotes steel honeycomb bench.

Model / Specifications	
Model	TDI −107LA ～ TDI −6015LA (cf. Individual specifications)
	TDIS−107LA ～ TDIS−6015LA (cf. Individual specifications)
Isolation Method	Vertical direction : 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 dumping with special rubber

Model / Specifications	
Model	ODI −107LA ～ ODI −6015LA (cf. Individual specifications)
	ODIS−107LA ～ ODIS−6015LA (cf. Individual specifications)
Isolation Method	Vertical direction : Herz Air Spring (*Horizontal direction : Herz high-performance horizontal Vibration Isolation system can be added if necessary.)
Control Method	Vertical direction : Air damping by an orifice

Resonant Frequency	Vertical direction : about 1.3Hz (* With Horizontal Isolation System: Horizontal direction : about 0.6Hz (maximum weight on board))		
Honeycomb core	1:TDI-Aluminum honeycomb core	2:Steel honeycomb core	(*3: 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	0.3～0.7MPa (0.3～0.7kg/m²)		
Top Plate finish	Machined mounting plate with a tapped M-6.25mm matrix. The surface: Non-painted (Black paint finishing also available.)		
Bench materials	Upper face material : A magnetic stainless steel plate 5t Lower face material : Hot-rolled steel plate 4.5t		

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

Individual specifications

Dimension (mm)

Model / Specifications	TDI／ODI - 107LA	TDI／ODI - 129LA	TD／ODII - 1510LA	TDI／TDI - 1512LA	TDI／ODI - 189LA
	TDIS／ODI - 107LA	TDIS／ODI - 129LA	TDIS／ODI - 1510LA	TDIS／ODI - 1512LA	TDIS／ODI - 189LA
Number of Air Springs	4				
Bench dimensions	1000 ×700× 100T	1200 ×900× 100T	1500×1000×150T	1500×1200×150T	1800×900×150T
External dimensions	1000 ×700× 750H	1200 ×900× 750H	1500×1000×800H	1500×1200×800H	1800×900×800H
Load Capacity	150kg	200kg	300kg	300kg	300kg
Total weight	198kg	265kg	340kg	422kg	402kg
Load Capacity - S	150kg	200kg	300kg	300kg	300kg
Total weight - S	211kg	287kg	385kg	477kg	452kg

Model / Specifications	TDI - 1812LA	TDI - 2010LA	TDI - 2012LA	TDI - 2412LA	TDI - 2615LA
	TDIS - 1812LA	TDIS - 2010LA	TDIS - 2012LA	TDIS - 2412LA	TDIS - 2615LA
Number of Air Springs	4				
Bench dimensions	1800 ×1200× 150T	2000 ×1000× 150T	2000×1200×150T	2400×1200×250T	2600×1500×250T
External dimensions	1800 ×1200× 800H	2000 ×1000× 800H	2000×1200×800H	2400×1200×800H	2600×1500×800H
Load Capacity	300kg	300kg	300kg	500kg	500kg
Total weight	463kg	450kg	493kg	755kg	903kg
Load Capacity - S	300kg	300kg	300kg	500kg	500kg
Total weight - S	530kg	511kg	568kg	916kg	1,127kg

Model / Specifications	TD／ODII - 3012LA	TDI／ODI - 3015LA	TDI／ODI - 3515LA	TDI／ODI - 4015LA	TDI／ODI - 6015LA
	TDIS／ODI- 3012LA	TDIS ／ODI- 3015LA	TDIS／ODI - 3515LA	TDI／SODI - 4015LA	TDIS／ODI - 6015LA
Number of Air Springs	4				
Bench dimensions	3000 ×1200× 330T	3000 ×1500× 330T	3500×1500×330T	4000×1500×400T	6000×1500×400T
External dimensions	3000 ×1200× 800H	3000 ×1500× 800H	3500×1500×800H	4000×1500×800H	6000×1500×800H
Load Capacity	500kg	500kg	500kg	500kg	1,000kg
Total weight	1,084kg	1,207kg	1,327kg	1,837kg	2,287kg
Load Capacity – S	500kg	500kg	500kg	500kg	1,000kg
Total weight - S	1,347kg	1,541kg	1,722kg	2,360kg	3,077kg

***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

※ Product demonstrations of Active Vibration Isolation are available upon request.

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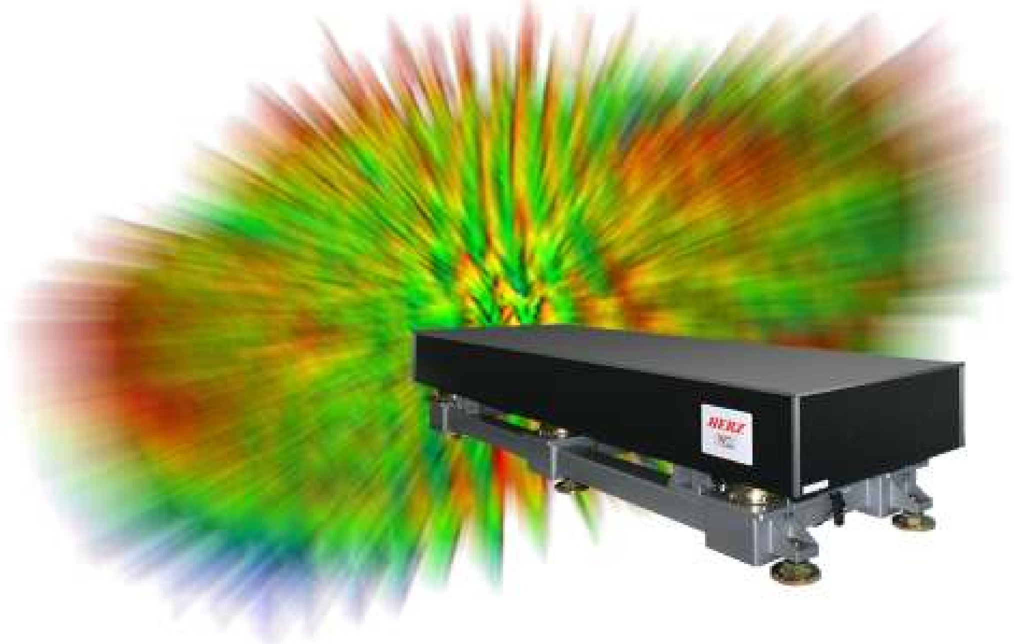
HERZ

Acoustic Isolation
Vibration Isolation
Supporting the measuring environment

High Damping
Nano Table

TDI ODI



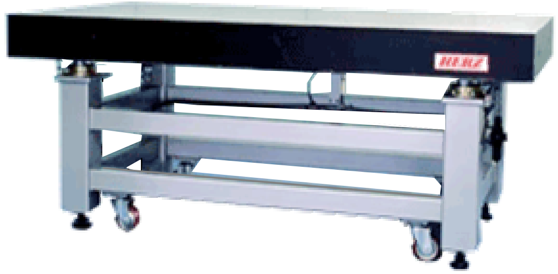
The Nanotechnology Standard

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. The superior TDI isolates vibration from every direction because the horizontal and vertical isolation mechanisms are unified.
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.

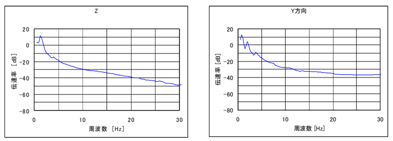


Characteristics

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 with the degree and type of input vibration.

Vibration Isolation Performance of the TDI-150LA

Vertical transmissibility　　Horizontal transmissibility



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 be 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 my be 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.

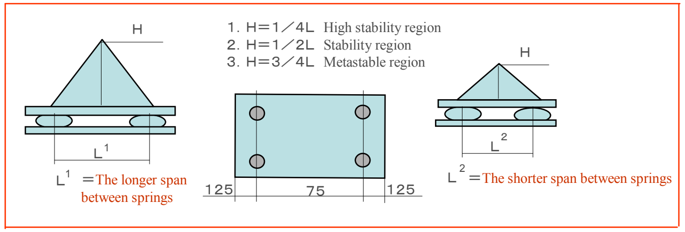
Automatic Horizontal Leveling:
Three auto-leveling sensors maintain the system's horizontal position. (External air supply not included.)

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.

①Determining 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.

②We 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

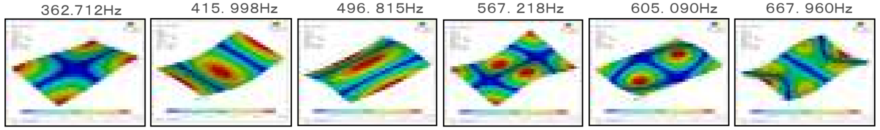
In the process of developing our honeycomb benches, we perform modal analysis in order to understand the benches’ dynamic properties. Modal analysis provides two benefits:
1, We can avoid resonance with floor vibrations by understanding the natural frequency and mode shapes of the benches and comparing 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.

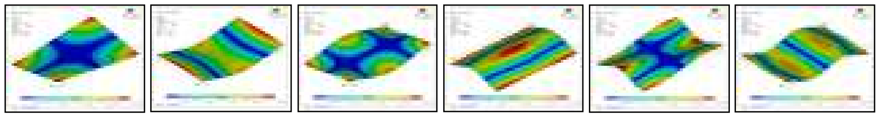
①An analysis model (in two dimensions)　An aluminum honeycomb bench　1000*700*100t　Materials: Upper surface　SUS410　t=5.0　Lower surface　SPHC　t=4.5

Mode 1	Mode 2	Mode 3	Mode 4	Mode 5	Mode 6
362.712Hz	415. 998Hz	496. 815Hz	567. 218Hz	605. 090Hz	667. 960Hz



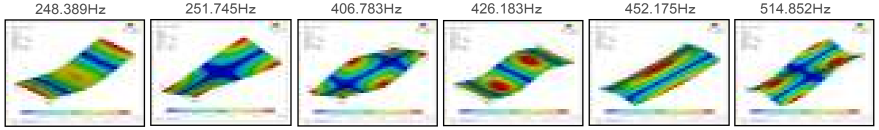
①An analysis model (in two dimensions)　A steel honeycomb bench　1000*700*100t　Materials: Upper surface　SUS410　t=5.0　Lower surface　SPHC　t=4.5

Mode 1	Mode 2	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