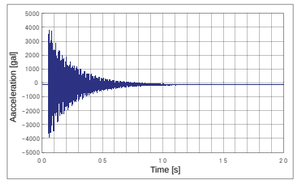
HERZ creates a stable measuring environment

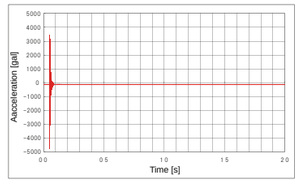
Support stand for improving the vibration isolation performance of TS

The active vibration isolation system controls the vibration amplitudes of 20 um for both vertical and horizontal directions. If the bench or table is not rigid, it would reduce the isolation performance of TS series or the vibration would amplify. We offer a rigid frame with built-in damping function to enable the ideal performance of TS series.

Before damping



After dampig



The frame will be manufactured in accordance with the request.

Mounting plates with drilled and tapped holes

The picture on left shows TS-150/LP with M6-25 mm XY matrix drilled and tapped holes mounting plate. This mounting plate is made of bonded ferromagnetic stainless steel and aluminum. It is available for all three models. A customized drill hole positions are also available upon request. However, a specific tap size may not be available. For a specific surface precision, please contact us.

Specifications:

Model	TS-140/LP	TS-150/LP	TS-300/LP	TS-300/LT/LP
※Also available	TS-140/LP/TP25	TS-150/LP/TP25	TS-300/LP/TP25	TS-300/LT/LP/TP25
System configurations	Fully integrated			
Active control range	Frequency: Approximately 0.7 ～ 100 Hz (Passive beyond 100 Hz) Amplitude: 20 um (Vertical and horizontal)			
Height adjustment	Automatic			
Locking during relocation or transportation	Automatic locking function			
Isolation condition	Can be observed on the front display. The vibration status of 8 axes can be observed by connecting an oscilloscope to BNC socket on the rear panel.			
Mounting plate dimensions	500 (W) x 600 (D) mm	400 (W) x 450 (D) mm	600 (W) x 800 (D) mm	600 (W) x 800 (D) mm
Overall dimensions (Approximately)	500 (W) x 600 (D) x 84 (H) mm	400 (W) x 450 (D) x 78 (H) mm	600 (W) x 800 (D) x 121 (H) mm	600 (W) x 800 (D) x 121 (H) mm
Load capacity (Equally / low center of gravity)	140 kg	150 kg	300 kg	120 kg
	Considering the off center weight on load, please use within 80% of the maximum load capacity.			
System weight (Approximately)	29 kg	18 kg	60 kg	60 kg
Input voltage	90 ～ 120 VAC, 200 ～ 240 VAC, 43-60 Hz			
Power consumption	Maximum 10 W when isolating Maximum 20 W during load adjustment			
Temperature range	5 ℃ ～ 40 ℃			
Relative humidity	10 ～ 90 %(5 ～ 30 ℃),10 ～ 60 %(30 ～ 40 ℃)			
Service place	Indoors only			
Operating attitude	Up to 2,000 m			
Option 1	TP25 Mounting plate: Ferromagnetic brushed stainless steel 410 surface, no painted, M6-25 mm XY matrix drilled and tapped holes Effective tap depth: 6 mm			
Option 2	Remote control box			
Option 3	High rigid frame with built-in damping function			

N.B.: The specifications are subject to change without prior notice.

※ We are the exclusive distributor of The Table Stable Ltd. (Switzerland) in Asia (excluding India and Australia).

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TABLE STABLE

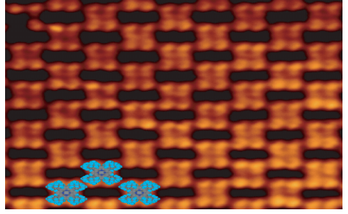
HERZ

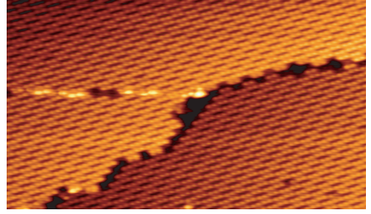
Active Vibration Isolation System

TS-150/LP
TS-140/LP
TS-300/LP
TS-300/LT/LP

Herz Co., Ltd.

Active Vibration Isolation System





Active Vibration Isolation System

Active isolation in six degrees of freedom in three dimensions from 0.7 Hz through 100 Hz

In the nano technology of 21st Century (i.e. advanced semiconductor representing the information related technology, life science related technologies such as gene therapy, atomic or molecular processing such as MEMS and engineering technology such as new material production), vibrations, noise, electro-magnetic fields, heat, humidity, disturbance and etc. will be inhibiting factors of the measuring environment.
In nano technology, to obtain a reliable result, an active-isolation is required in the low frequency range which are difficult to isolate with air tables.
The advanced active vibration isolation system "TS series" will support as the vibration isolation technology basis of the nano technology in the 21st century. It will contribute to the development of the present technology and measurement, creation and development of the unknown technology.

※The STM images on top are by courtesy of Yokoyama Laboratory of Yokohama CityUniversity.

Loading Equipments

- Scanning electron microscopes such as AFM
- Three dimensional surface profiler
- Laser microscope
- Laser interferometer
- Liquid surface tension measurement system
- Microhardness measurement instrument
- Medical inspection equipment and etc.

The operational panel of TS

With just 2 procedures, TS is ready to use: Push the power switch → (Automatic height adjustment) →
Push Enable / Disable isolation button. No manually adjustments required by a fully automatic control system.

Display Overview

Height Adjustment
The system is setting the correct height.

Isolation Enabled
System is isolating. Push ② to disable isolation.

Observing Mode
The trace shows the velocity for vertical and horizontal vibrations when the isolation is ON.

Observing Mode
The trace shows the velocity for vertical and horizontal vibrations when the isolation is OFF.

Weight and Balance
Showing the load on each corner and the center of the height adjustment.

Locking System
The system will be automatically locked by pushing the ③ button.

Features

- The TS series offers excellent active vibration isolation in wide range of 0.7 Hz through 100 Hz in all six degrees of freedom.
- The height adjustment will be performed automatically when the instrument is loaded.
- Even when the load is off center, the auto leveling function maintains the level.
  This gives a stability when a high center of gravity instrument is loaded.
- The system can be locked or unlocked just by pushing the button on the front.
  The locking function prevents damage during the system is reloated or transported.
- The front display shows the actual vibration levels in X, Y and Z directions.
- Active isolation can also be enabled or disabled externally by using the optional remote control box. (Sold separately)
  For details, please contact us.

※ The TS series can also be used as shaker. An optional Exciter Box, a commercially available function generator and BNC cable are required.

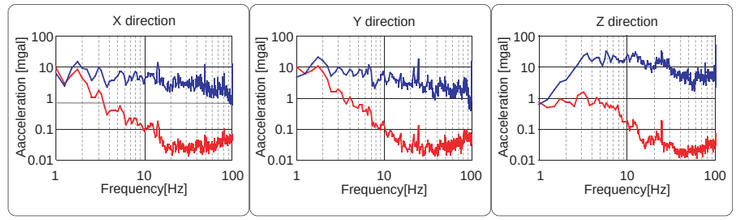
Performance of TS-150/LP

○ Comparison of vibration acceleration

Data on right shows the vibration isolation performance of TS-150/LP.

Horizontal (X, Y) and vertical (Z)

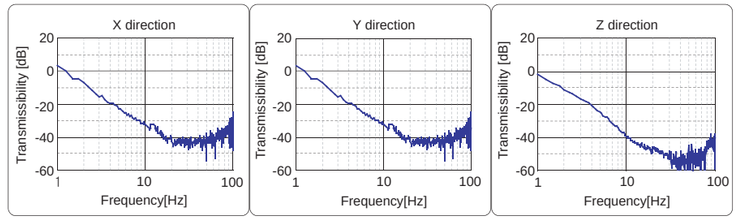
Blue line: Vibration acceleration on the floor
Red line: Acceleration of the mounting plate surface of TS-150/LP.



○ Vibration transmissibility

Data on right shows the vibration transmissibility of floor to mounting plate surface of TS-150/LP.
Horizontal (X, Y) and vertical (Z)
Vertical axis: Transmissibility in dB
(20 dB = x 10、0 dB = x 1、-20 dB = x 0.1、-40 dB = x 0.01、-60 dB = x 0.001)

This data shows the excellent vibration isolation efficiency in low frequency around 1 Hz through 100 Hz achieved by active vibration isolation control.



※ The vibration transmissibility of the active vibration isolation system may vary by the vibration status of the support surface and are for reference only.

Creating the measuring environment····Integration with the acoustic enclosure

For an atomic or molecular research such as scanning electron microscopes, TS series are vital vibration isolation systems. Additionally, not only the vibration, the acoustic inhibition will also needs to be considered. We manufacture the AEk acoustic enclosure for ultra-high resolution applications such as SPM. The integration of AEk with TS series provides the best measuring environment.

Application example of TS

AFM on TS
by courtesy of Morita Laboratory
of University of Osaka

Acoustic enclosure AEk-3000

AEk system provides an acoustic isolation from ultra low frequency of 3 Hz to 10 Hz which can not be heard by human, but affect the performance of an instrument.