

**DAEIL**  
VIBRATION ISOLATION SYSTEMS

**DVID Series**

**DESK TYPE  
ISOLATORS**



# DESK TYPE ISOLATORS

DVID Series desk type isolators are more advanced pneumatic isolation systems in design and performance than existing ones.

The thin wall rolling diaphragms provide high degree of vertical and horizontal isolation performance.

Complete separation between the isolated top & work space allow easy operation, free from troublesome disturbances.

The ultimate high performance with attractive design will fully satisfy the customer's needs.

Here is the best solution to make you free from vibration problems with DAEIL.

## DVID - C Type

For cleanroom requiring extremely clean circumstances such as semiconductor manufacturing equipments



## DVID - L Type

For general laboratory



## DVID - H Type

For patch clamping & optical instruments



# Features

## Any Directional Vibration Isolation

The conventional pneumatic isolators have lower efficiency in horizontal vibration isolation than vertical in general. But DAEIL's new isolators provide high performance of all directional vibration isolation through specially designed horizontal vibration removal mechanism. The reinforced thin-wall rolling diaphragms are only 0.7mm thick.

## High Damping

An ideal vibration isolation system should meet high degree of isolation performance with a high level of pneumatic damping efficiency, which have been never achieved so far. But, DAEIL has completely solved this problem by advanced pneumatic damping techniques accumulated for a long time. An special orifice built in the pneumatic isolator makes its table top stable very quickly, damping for gross transient disturbances, such as sudden load changes or bumping the top plate during operation.

## New Top Plate

The three important factors for the design of top plate are mass, stiffness & damping. DAEIL's stainless steel laminated tops provide an attractive working surface with high damping. DAEIL makes its stiffness higher than the conventional one in order to get higher first resonance frequency and achieved good damping characteristics by damping treatment on the underside of the top plate. For applications requiring the ultimate stiffness, damping & mounting holes, the special honeycomb table tops will be specified upon request.



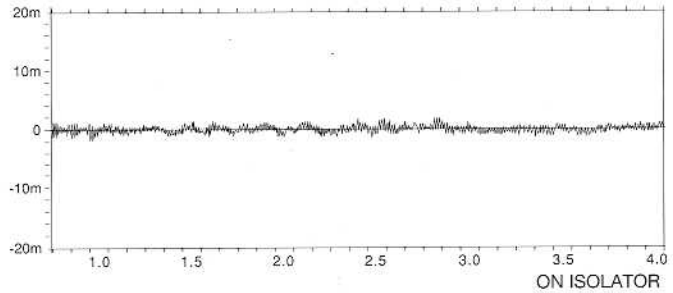
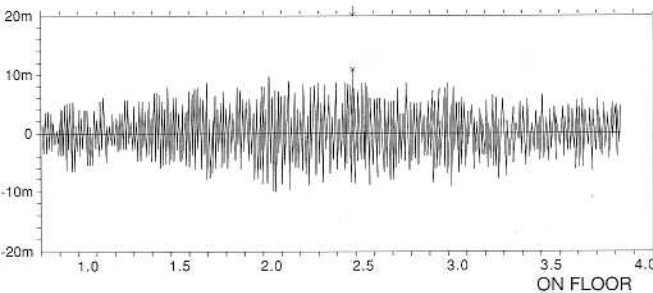
## Top Cover and Work Space

Top cover and work space are completely separated in function from the isolated top on which precision equipments are placed. The work space in simple and attractive design having a round finish edge is used for various peripherals such as work pieces, monitor, keyboard, etc, not requiring vibration isolation.

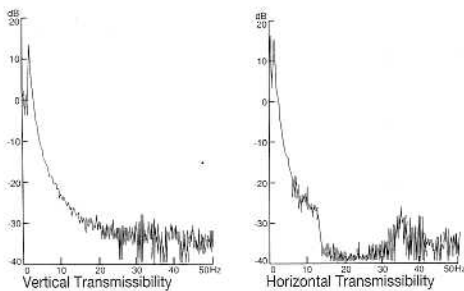
## Self Levelling Top

Air-operated system with three finger adjustable height control valves maintains the absolute level of top plate automatically. The standard model maintains height to  $\pm 1.2\text{m/m}$ , the precision model, to  $\pm 0.05\text{m/m}$ .

# Input vs Output



# Transmissibility



$$Tr = \left| \frac{1}{1 - (f/f_n)^2} \right| \times 100\%$$

Tr : Transmissibility(%)

f/f<sub>n</sub> : The ratio of forcing frequency to natural frequency

f : Forcing frequency(Hz)

f<sub>n</sub> : Natural frequency(Hz)  $\frac{1}{2\pi} \sqrt{\frac{\gamma AG}{V}}$

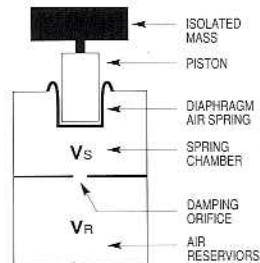
$\gamma$  : Ratio of specific heat

A : Cross section area of air piston

G : Gravity

V : Volume of air chamber

# Pneumatic Isolation



# Unit

1. Displacement( $\mu\text{m}$ )  $A = (\alpha \div (2\pi f))^2 \times 10^4$
  2. Velocity(mm/sec)  $V = A \times 2\pi f \div 10^3$
  3. Acceleration( $\text{cm/sec}^2$ )  $agal = A \times (2\pi f)^2 \div 10^4$
- A :  $\mu\text{m}$   
 1G = 980gal  
 1gal  $\div$  1cm/sec<sup>2</sup>

## DVID Series "C" Type

### ■ Features

- Highly damped stainless steel laminate top.
- For class one cleanroom compatibility, all polished stainless steel finish free from particles or contaminants.
- Designed to be easily cleaned, no dust-collecting grooves or ledges.
- No outgassing components, all air used to support the table is appropriately vented.
- Perforated top cover to reduce air turbulence in clean rooms.
- The isolated top and work space are completely separated, so that it allows easy operation, free from troublesome operation.

### ■ Applications

- Probe Station
- Microscope
- Ellipsometer
- A.F.M
- S.T.M
- Wafer inspection machine



## DVID Series "L" Type

### ■ Features

- The thin wall rolling diaphragms with horizontal vibration removal mechanism provide both vertical and horizontal vibration isolation.
- The new round edge top cover of melamine resin coating finish.
- Isolated top completely separated from top cover for working space provide improved functionality.
- The swivel casters used to change layout easily.
- Options such as drawer unit, monitor stand, under shelf increase the functionality of the isolators.

### ■ Applications

- Optical Microscope
- Roughness / Roundness Tester
- Hardness Tester
- U.T.M
- Vision System
- Other precision equipments



## General Specification

Natural Frequency Vertical Horizontal	1.2Hz ~ 2.0Hz 1.5Hz ~ 3.0Hz	Net Load Capacity	30 ~ 500kg
		Shipping Weight	150 ~ 250kg
Isolation Efficiency Vertical (@10Hz) Horizontal (@10Hz) Vertical (@20Hz) Horizontal (@20Hz)	85% ~ 97% 65% ~ 95% 90% ~ 99% 80% ~ 98%	Top Plate	Stainless Steel Laminate
		Material Frame & Top	All Stainless Steel ("C" Type) Steel Tube, Baked Enamel ("L" Type)
		Top Cover	Stainless Steel ("C" Type) Melamine H.P. Boards ("L" Type)
Damping	Pneumatic Damping using an Orifice	Operation	3~5kg / $\text{cm}^2$ Compressed Air or Bottled Nitrogen
Levelling	Self-Levelling Top by 3 Auto Levelling Valves Repeatability : $\pm 1.2\text{mm}/\pm 0.05\text{mm}$		

## Ordering Chart

Model No.	Size	Model No.	Size
DVID-C/L-45	400 × 500	DVID-C/L-97	900 × 750
DVID-C/L-56	500 × 600	DVID-C/L-99	900 × 900
DVID-C/L-77	750 × 750	DVID-C/L-107	1000 × 750
DVID-C/L-86	800 × 600	DVID-C/L-127	1200 × 750
DVID-C/L-88	800 × 800	DVID-C/L-128	1200 × 800
DVID-C/L-96	900 × 600	DVID-C/L-158	1500 × 800

- C/L: For Clean Room(C Type), For Laboratory(L Type)

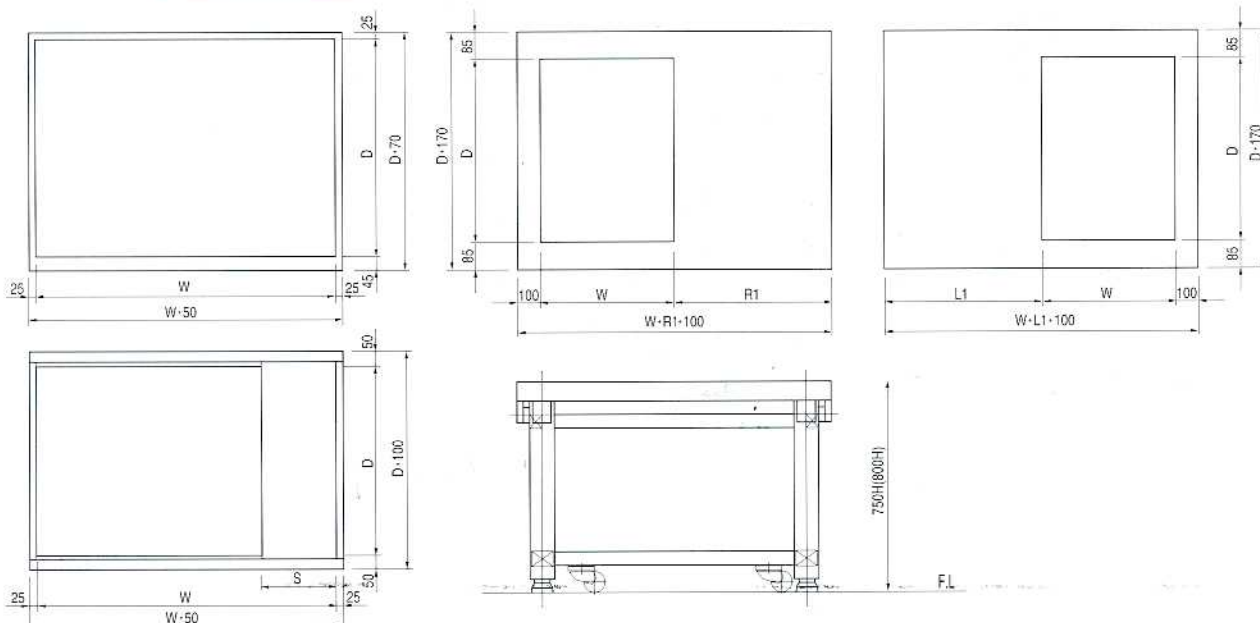
## Ordering Information

- 1) The custom dimensions are available upon request beside standard sizes.
- 2) The standard dimension of work space, R1 & L1 are 600mm width, but custom dimensions available upon request.
- 3) The location of optional drawer will be specified upon request.
- 4) Examples: **DVID - L - 86 - L 600**

Series      Size      R1, L1 Size

Laboratory Type	L	L	Work Space(Left Side)
Clean Room Type	C	R	Work Space(Right Side)

## Configuration



## DVID Series "H" Type

### ■ Features

- The ultimate stiffness honeycomb table tops.
- Mounting holes for optical components and equipments.
- High performance of pneumatic vibration isolation systems.
- High degree of pneumatic damping using a special orifice.

### ■ Applications

- Patch Clamp
- Micro Manipulation
- Mass Spectrometer
- Precision Optical Experiments
- Cell Injection



## Ordering Chart

Model No.	Size	Model No.	Size
DVID-H-96(R)	900 × 600	DVID-H-126(R)	1200 × 600
DVID-H-99(R)	900 × 900	DVID-H-127(R)	1200 × 750
DVID-H-107(R)	1000 × 750	DVID-H-129(R)	1200 × 900

(R): Rigid Support 형식임

## Ordering Information

1) The custom dimensions are available upon request beside standard sizes.

2) The size & q'ty of sliding shelf can be specified upon request.

3) Examples: **DVID - H - 96(R) - 50 M**

Series	Size	Thickness of Bread Board(Top)	Metric	M
Honeycomb Top	Rigid Support		Inch	E

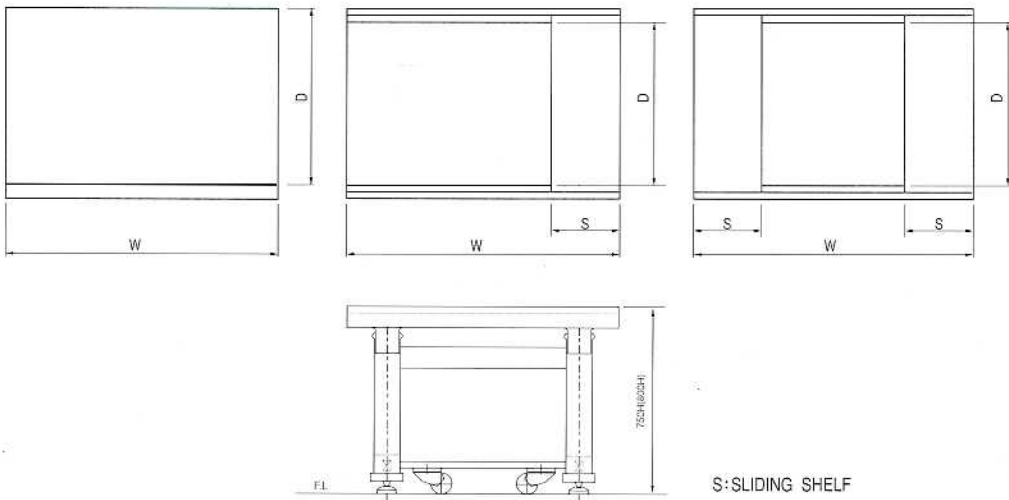
## General Specification

Natural Frequency of Isolator	
Vertical	1.2 ~ 1.5Hz
Horizontal	1.5 ~ 1.7Hz
Damping	Air Damping by Orifice
Levelling	Auto Levelling by 3 Automatic Levelling Valves
Levelling Repeatability	±0.1mm
Load Capacity	30 ~ 300kg
Air Supply	5~7kg/cm <sup>2</sup> Compressed Air or Nitrogen Gas
Top Construction	Epoxy Bonded Sandwich Structure
Top Plate	3.2t ~ 4.5t Stainless Steel (SUS 430)
Core	Steel Honeycomb
Bottom Plate	3.2t ~ 4.5t Carbon Steel (SPHC)
Flatness (Top)	0.15mm / 1000mm
Mounting Holes	M6 Tapped Holes, 25mm Pitch Centers
Thickness of Honeycomb Top	50t, 100t Selectable at each Size

· The custom specifications are available upon request



## Configuration



# DAEIL SYSTEMS

## Accessories



Monitor Stand



Keyboard Shelf



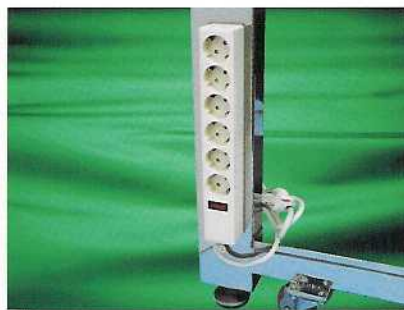
Drawer Unit



Under Shelf



Sliding Shelf

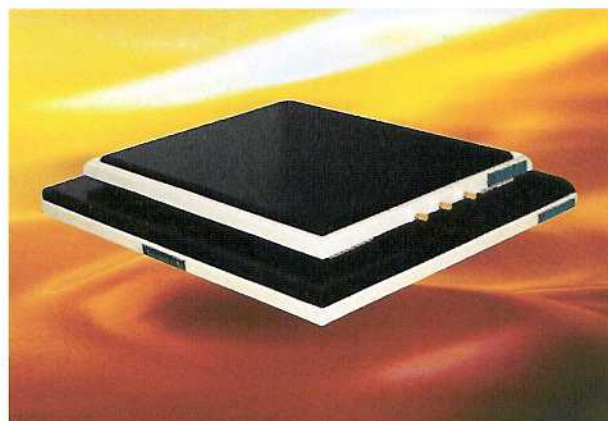


Electric Outlet

## Other DAEIL Products



DVIO Series



DVIT Series



DVIP Series



DOTS Series

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