

(Vertical and horizontal) temperature, humidity and vibration combined environmental test system
Reproducing more realistic field condition with simultaneous vibration along the X, Y and Z axes

Today, the automotive industry accelerates electronic multi-functions. According to this trend, safety standards such as ISO26262 and IEC61508 require high environmental stress that is generated by thermal shock chambers for higher reliability of vehicle equipments.

The Multi-axis Vibration Combined Environmental Test System is a environmental test system that combines a temperature and humidity chamber and multi-axis vibration test system. This model uses a multi-axis vibration test system, which enables simultaneous vibration along the X, Y and Z axes in the vibration equipment, thereby eliminating the need to change samples when changing the vibration axis (X, Y and Z axes) and reproducing a vibration environment similar to that in which the sample is actually used. With these advantages, this chamber is the ideal test system for performing combined environmental tests on automotive parts and car electronics products and parts.

Improved test efficiency by eliminating switch vibration axes

With a vibration device in which vertical (Z axis) and horizontal (X/Y axes) vibration are performed using separate tables, changing from a vertical vibration test to a horizontal test requires switching the power transmission from the vibration generator from the Z axis to the X and Y axes, and the sample must be moved from the vertical table to the horizontal table at the same time. This chamber, however, can perform both vertical and horizontal vibration on one table, thereby preventing a waste of time due to stopping of the test. Testing can also be automated for more efficient work.

Ideal for drive simulations with a more realistic vibration environment

To evaluate whether automotive parts functions properly, the parts must be subjected simultaneously to environmental factors, such as temperature, humidity and vibration, similar to the actual field condition, and mutually-induced flaws must also be checked.

Independent testing of temperature/humidity and vibration (simultaneously along the X, Y and Z axes)

With a separate temperature and humidity chamber and multi-axis vibration test system, this device can perform temperature characteristic testing with the temperature and humidity chamber and vibration testing simultaneously along the X, Y and Z axes. (See "Device mechanism" below)

Safety devices

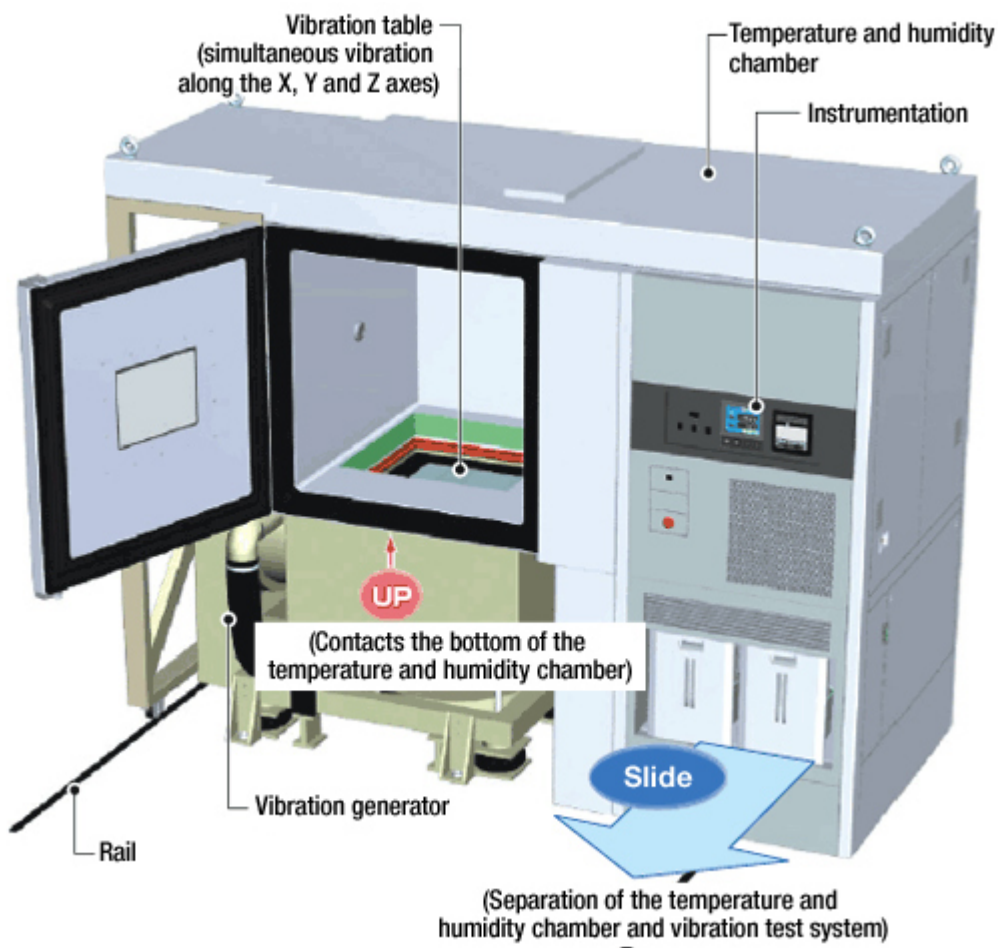
It is possible to equip the system with safety devices for testing flammable or gaseous specimens, including rechargeable batteries and fuel cells.

Typical devices:

- Pressure release vent
- Gas detector
- Forced ventilation system
- CO₂ gas extinguisher
- Safety lock mechanism

* Be sure to install the safety device if the specimens are Li-ion battery packs or Li-ion battery modules.

Device mechanism



Main specifications

Model		PVL-5KPH	
Temperature and humidity chamber	Performance	Temperature range	-40°C to +150°C
		Humidity range	20 to 98%rh
		Temperature heat-up time	Within 80 minutes from -40°C to +150°C
		Temperature pull-down time	Within 100 minutes from +20°C to -40°C
	Dimensions	Inside dimensions	W1000×H1000×D1000mm
		Outside dimensions	W3275×H2412×D1368mm
Combination	Combined system		Direct coupling to the chamber floor method
	Combination range		Vibration test system 2.9 kN to 80 kN
Vibration device	Performance	Force	9.8 kN (1000 kgf) sine
		Frequency range	3 to 800Hz
		Maximum displacement	51mmp-p
		Maximum velocity	1.2m/s
		Maximum acceleration	122m/s ²
		Vibration table	500×500mm

* The model is for operational purposes and may be changed after order. Thank you for your understanding.

* The specifications of vibration devices (sign wave vibration test(fixed-frequency vibration, sweep vibration), random vibration test, shock test) will be adjusted according to the requirements of individual customers.

* The most suitable method will be proposed considering the customer's installation space and the requirements for coupling the system with the vibration generator (method: direct coupling to the chamber floor/coupling shaft, vibration: horizontal/vertical).

Recommended products for customers viewing this product

Combined
Temperature &
Humidity Chamber



Vertical/Horizontal
Vibration Combined
Environmental Test
System

