

Test Systems



Temperature & Humidity Test Chambers



The temperature test chambers developed by Sanwood are capable of simulating a wide range of temperature and humidity conditions. These chambers can be used in a broad range of applications, from simple thermal cycles to accelerated stress testing. Depending on your specific needs, Sanwood offers volume options ranging from 35L to 1500L. Our temperature chambers are designed with ease of use, reliability, and performance in mind, featuring a touch screen interface that allows for easy programming and monitoring of test operations.

Technical Specifications:

- Operating range: -70°C~180°C
- Internal volume: up to 1500L
- Humidity range: 20.0%RH~98.0%RH
- Compliant with international test standards including MIL-STD, TIEC 62660-2, SAE J2464, IEC 60086-4, UL 1642, UN 38.3, IEC 61960, IEC 62133, UL 2054, IEEE 1625, and IEEE 1725

Temperature, Humidity & Vibration Test Chambers



Sanwood brand test chambers used to simulate the temperature, humidity, and vibration conditions that products will encounter during use. Thanks to the ability to simulate many environmental conditions at once, it provides both the ability to see all conditions simultaneously and significant gains in terms of space and time.

Technical Specifications:

- Operating range: -70°C~180°C
- Internal volume: up to 3500L
- Humidity range: 20.0%RH~98.0%RH
- Compliant with international test standards including TIEC 62660-2, SAE J2464, IEC 60086-4, UL 1642, UN 38.3, IEC 61960, IEC 62133, UL 2054, IEEE 1625, IEEE 1725



Lab Ovens



Lab Ovens can provide a stable test space for pre-heating, drying, and changes in physics and chemistry testing. It supplies a precision temperature controller with high stability of platinum resistance to temperature that makes the temperature well-distribution.

Additionally, for our customers who want to separate chambers and test different products, Sanwood offers a 2-chamber lab oven and 3-chamber lab oven test chambers.

Characteristic

- Continuous working time $\geq 1,000$ hours under the test condition of $+140^{\circ}\text{C}$.
- Equipped with an explosion-proof pressure relief port, when the pressure increases sharply, the pressure relief port automatically opens.
- The smoke sensor detects the smoke or fire and active the fire extinguishing system to extinguish the fire in the oven.



Sand And Dust Test Chambers

Sanwood brand dust and sand test cabinets are testing devices/cabinets used to simulate the dust and sand conditions under which products will be exposed to. They offer device options that enable the testing of both dust and sand conditions together, or only dust or sand conditions separately.

Technical Specifications:

- Internal volume of 2000x2000x3000mm
- Internal volume of up to 12000L
- Complies with MIL-STD-810G Method 510.5 Procedure 1 and Procedure 2, GB4208 and GB/T2423.37-198 test standards.

Altitude Test Chambers



Sanwood brand altitude test chambers are testing devices/chambers used to simulate high-low temperature, low pressure, and altitude tests during product operation. The test chambers can be divided into high-low temperature and altitude, low pressure, and only altitude tests.

Technical Specifications:

- Working range of -70°C to 180°C
- Internal volume up to 2000L
- Humidity range of 20.0% RH to 98.0% RH
- GB/T2423.1-2001 test A: Low-temperature test
- GB/T2423.2-2001 test B: High-temperature test
- GB/T2423.21-2001 test M: Low-pressure test

Temperature Humidity Altitude Test Chambers



The Sanwood brand temperature and humidity chamber is integrated with altitude testing capability, which allows for the simulation of high-low temperature, low pressure, and altitude conditions during product operation. This testing environment is particularly useful for products that operate in intense and constantly changing conditions, such as automobile parts, aviation equipment, photographic equipment, building materials, and electrical and electronic systems. Thanks to its ability to simulate multiple environmental conditions at once, the chamber provides the ability to view all conditions simultaneously and offers significant advantages in terms of space and time.

Salt Spray Corrosion Test Chambers



Salt Spray Corrosion Test Chamber uses to test the corrosion resistance capacity of products, which stay in the intense change environment, such as automobile parts, aviation types of equipment, photographic equipment, building materials, and electronic systems.

Technical Specifications:

- Internal volume up to 1440L
- Operating temperature <math><35\text{ }^{\circ}\text{C}</math>
- Humidity <math><85\% \text{RH}</math>
- pH 6.5-7.2 3.0-3.2
- MIL-STD standard, ISO14993-2001 Dry and wet salt spray test standard
- GB/T 20854-2007 Dry and wet salt spray test standard

Temperature Humidity and Salt Spray Corrosion Test Chambers



Sanwood brand temperature, and humidity integrated with salt spray corrosion test chamber tested the corrosion resistance capacity of products, which stay in the intense change environment, such as automobile parts, aviation equipment, photographic equipment, building materials, and electrical and electronic systems. Thanks to the ability to simulate many environmental conditions at once, it provides both the ability to see all conditions simultaneously and significant gains in terms of space and time.

Technical Specifications:

- Operating range: - Internal volume: up to 8000L (customizable)
- Complies with MIL-STD, IGB/T4 part 5.5.2 test method, test according to GT/T2423.17 test conditions. ASTM B117/B268, CNS: 3627/3385/7669/8886 Test Standards



Rain Spray Test Chambers



Sanwood offers a range of rain test chambers designed for testing products' resistance to rain and water. The test chambers are available in different types that can perform IPX-12/34/56/9k test standards separately or altogether.

The rain test chambers are built to the highest quality standards and provide accurate and reliable test results. They are designed with internal dimensions and volumes suitable for testing a wide range of products.

Technical Specifications:

- Internal volume range of 1000x1000x1000mm
- Temperature range of 5°C-35 °C
- Water flow rate of 14~16L/min
- Compliant with MIL-STD, IEC60529, JIS D0203, D5500, SAE J585e, CNS 7138 test standards.

Rain Resistance Test Chambers



Sanwood brand immersion test chambers are used for rain protection and water resistance tests of products. They are specifically designed for IPX-7/8 test standards.

The destruction of products and materials by natural water (rain, sea, river, etc.) causes unpredictable economic losses every year. The damage caused mainly includes corrosion, fading, deformation, strength reduction, expansion, mildew, etc., In particular, electrical products are prone to fires due to short circuits caused by rain. Therefore, enclosure protection water testing for specific products or materials is an essential procedure.

Technical Specifications:

- Temperature range between 5°C-35 °C
- Humidity $\leq 85\%$
- Air pressure 86kPa~106kPa
- Complies with MIL-STD, IEC60529, JIS D0203, D5500, SAE J585e, CNS 7138 Test Standards



Crush Test Chambers



The Sanwood brand crush test chambers are used for product crush tests. This testing equipment simulates the conditions of the product crushing and displays comminution results. Besides, it has excellent security measures, such as an explosion-proof pressure relief device, smoke exhaust device, and explosion-proof chain.

Technical Specifications:

- Driven by a Panasonic servo motor, providing high accuracy.
- Can be operated based on force, deformation, and voltage individually or in a combination of these three factors.
- Crush fixture: semi-cylinder, semi-sphere (according to the test standard)
- Test standards: IEC 62133-2017, UL 1642, UN 38.3.

Impact Testers



The Sanwood brand impact test device tests the product safety with different weights, heights, and impact areas. After undergoing a series of tests in this product impact test device, there should be no flame or explosion in the product.

Test Standards:

- UL 1642
- UN 38.3



Burning Testers



The Sanwood brand burning test device is suitable for testing the flame resistance and combustibility of various consumer products. It is easy to use, safe, and reliable in terms of quality.

Test Standards:

- UL 1642

Drop Testers



The Sanwood brand drop testers is a drop test machine that is used to test the drop impact performance of large, heavy-duty packaging products by simulating real surface, edge, and corner differences.

It is primarily used to test the ability of packaging products to prevent drops during transportation, loading, and unloading, and thus improve packaging design

Test Standards:

- IEC 62133-2017

Shock Test Systems



Sanwood brand shock test chambers are specially designed to perform shock and collision tests on products. Although shock tests can be performed with vibration test equipment (shakers), special shock devices are required to achieve high shock values. According to test standards, they can be designed to operate pneumatically or hydraulically, horizontally or vertically.

Technical Specifications:

- Up to 2000kg loading weight
- Max table size up to 1500*1200mm
- Acceleration up to 3000g
- Suitable for half-sine, Sawtooth, Post-peak, and trapezoid acceleration tests
- Temperature range between 0-40°C
- Humidity \leq 90% (25°C)
- Heating range of 3.0 to 5.0°C/min
- Compliant with international test standards such as MIL-STD, RTCA-DO, and IEC68-2-27.



Centrifugal Constant Acceleration Testers



Sanwood Brand Centrifugal Constant Acceleration Testers are used to evaluate when components, equipment, and other electrical and electronic products are subjected to a constant acceleration environment (except gravity), whether the structure adaptability and performance are good, and obtain the unit's electrical parameters. It is mainly applied in the industries of aerospace, aviation, and ships.

It is most suitable for testing electronic components or devices. Under high g effect on microcircuits, to check adaptability and reliability of wiring and the internal structures. It may expose mechanical and structural defects that are not found with vibration and shock tests.

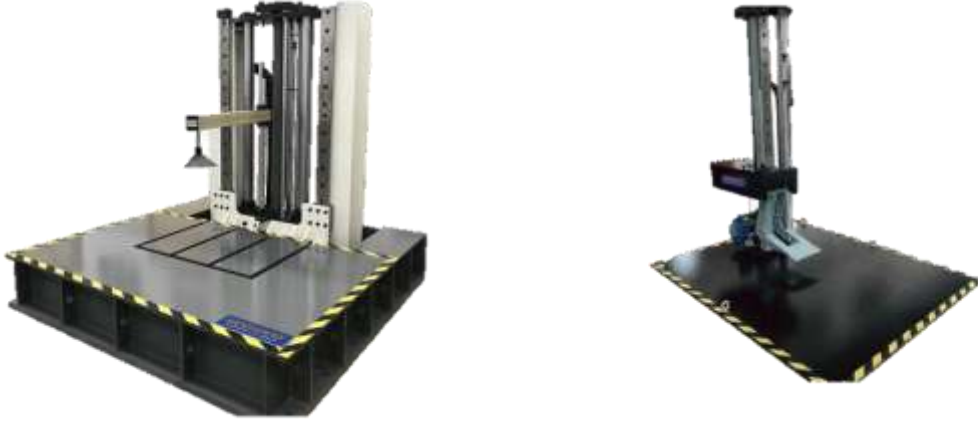
Centrifugal Constant Acceleration Testers are used to test articles under extreme acceleration conditions based on a standard like MIL-STD-810F, MIL-STD-202, and IEC68-2-7.

Technical Specifications:

- Up to 2000kg loading weight
- Max table size up to 1500*1200 mm
- Acceleration up to 80000g
- Temperature range between 0-40°C
- Humidity \leq 80%



Drop Test Systems



Sanwood Brand Drop Test Systems mainly simulate the resistance to drop and impact of large and heavy packaging products. It's strong power system and unique sample holder facilitate easy loading and unloading of oversized and overweight items and automatically rise to the setting. After the height, the drop test is completed. It can realize the drop test of the edge, surface, and angle of the sample. This equipment is mainly used to evaluate the ability of product or packaging to withstand drops during transportation and loading and unloading, so as to improve product and packaging design.

Technical Specifications:

- Drop height range from 0 to 1500 mm
- Max product weight of 1000 kg
- Product size of 1800x1800x600 mm
- Compliant with MIL-STD ,ISO2248-1985 (E), IEC68-2-27 test standards.



Transportation Simulation Test System



Sanwood brand transportation simulation test system is to simulate the actual road conditions such as shocks and vibrations during the transportation of various items of a specific load and to evaluate the effect of the actual working conditions on the loading, unloading, transportation, packaging, sealing or internal structure of the goods. In order to assess or confirm the products and packaging.

Test Standards:

- GB/T4857.15—89
- QJ/T815.1-94
- QJ/T815.2-94
- GJB150.16-86

Transportation Bounce Test System



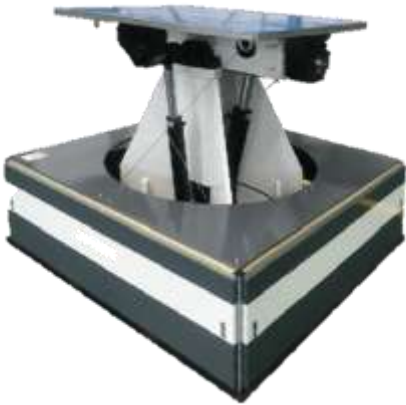
Bounce testing simulates the constant loose cargo state during truck transport. Oftentimes, containers carrying military and civilian hardware (such as medical supplies, electronics, weaponry, and communication devices) travel for extended periods of time and must be transported off-road. All of these items must maintain functionality upon arrival at their destinations.

Test Standards:

- MIL-STD-810
- ISTA



Simulation Tables (3 DOF)



The Sanwood 3-DOF simulation table simulates various mechanical, electrical, and electronic products installed on ships, seaplanes, and other equipment to determine the product's ability to withstand severe shaking and tilting requirements and structural integrity. The tilt test is mainly applicable for ship damage, manipulation, loading and unloading imbalances, and wide-angle tilting caused by wind.

Technical Specifications:

- Ability to handle loading weights up to -10,000kg
- Ability to work on three axes
- Product height size between 500-1000mm
- Temperature range between 0-40 °C
- Humidity level $\leq 80\%$
- Compliant with MIL-STD, RTCA-DO, AC156, ISO 12405, ISO 13849-1, ISO 130901, ISO 2631-1 test standards.

Simulation Tables (6 DOF)



Sanwood 6 DOF simulation tables are closed-loop servo simulation platforms consisting of six servo actuators attached to the upper and lower platforms respectively, and six sets of specialized hinges. Through the telescopic movement of the six actuators, the upper platform can move in six degrees of freedom (X, Y, Z, α , β , γ), enabling the simulation of various space motion attitudes.

Technical Specifications:

- Ability to handle loading weights up to -10,000kg
- Ability to work in six axes (X, Y, Z, α , β , γ)
- Product height size between 500-1000mm
- Temperature range between 0-40 °C
- Humidity level $\leq 80\%$
- Compliant with AC156, ISO 12405, ISO 13849-1, ISO 130901, and ISO 2631-1 test standards.



Pneumatic Vertical Shock Bump Test System



Sanwood Pneumatic Vertical Shock Bump Test System is featured with advanced design, high degree of automation and reliability, simple operation and convenient maintenance. The system meets the requirements of both shock and collision test, can perform conventional half-sine wave, post-peak sawtooth wave, square wave and other waveform shock tests.

Technical Specifications:

- Up to 2000kg loading weight
- Max table size up to 1500*1200mm
- Bump Peak Acceleration:50-1500 m/s²
- Suitable for half-sine, Sawtooth, Post-peak, and trapezoid acceleration tests
- Temperature range between 0-40°C
- Humidity ≤ 90% (25°C)
- Compliant with international test standards such as MIL-STD-810F, IEC68-2-27

Bump Peak Acceleration



Pneumatic Bump Test Machine replaces the traditional mechanical cam-type crash bench and is suitable for repeated impacts on electronic components, equipment and other electrical and electronic products during transportation or working

Technical Specifications:

- Up to 2000kg loading weight
 - Max table size up to 2500*2000mm
 - Bump Peak Acceleration:50-1500 m/s²
 - Shock Waveform: half sine wave
 - Temperature range between 0-40°C
- Compliant with international test standards such as MIL-STD-810F, IEC68-2-27

Pneumatic Vertical Shock Response Spectrum Test System



Sanwood Pneumatic Horizontal Shock Response Spectrum Test System that adopts compressed gas energy to provide impact energy, pushes the shock hammer to impact the resonance plate, and generates high energy shock. Compared to traditional pendulum shock response spectrum testers, this machine has the advantages of high energy, stable performance, high reliability, good repeatability, easy adjustment,

Technical Specifications:

- Up to 1000kg loading weight
- Max table size up to 1200*1200mm
- Response Frequency Range (Hz): 10~5000
- Max. Response Acceleration (g) : 12000g
- Humidity \leq 90% (25°C)

Pneumatic Vertical Shock Response Spectrum Test System



Sanwood Pneumatic Vertical Shock Response Spectrum Test System is used to measure and determine the shock resistance of electrical and electronic products or packaging and to evaluate the reliability and structural integrity of the test product in a shock environment. The shock response spectrum is the total result of a series of single-degree-of-freedom linear systems with different natural frequencies subjected to the same shock excitation response.

Technical Specifications:

- Up to 1000kg loading weight
- Max table size up to 1200*1200mm
- Response Frequency Range (Hz): 10~10000
- Max. Response Acceleration (g) : 6000g
- Humidity \leq 90% (25°C)



High Impact Shock Test System



High impact shock test system meets the MIL-S-901D standard which covers shock testing requirements for shipboard machinery, equipment, systems, and structures, excluding submarine pressure hull penetrations. The purpose of these requirements is to verify the ability of shipboard installations to withstand shock loadings that may be incurred during wartime service due to the effects of nuclear or conventional weapons.

Incline Impact Tester



Sanwood Incline impact tester simulates the ability of product packaging to resist shock damage in the actual environment, such as handling, stacking of shelves, sliding of motors, loading and unloading of locomotives, product transportation, etc.

Incline impact testers can also be used as common test equipment for scientific research institutions, colleges and universities, packaging technology test centers, packaging materials manufacturing plants, and foreign trade, transportation, and other departments to conduct incline impact tests.

Technical Specifications:

- Up to 2000kg loading weight
- Max table size up to 2000x2000mm
- Shock Panel Size up to 2400x2400mm
- Max. Sliding Distance : 4000mm
- Shock Velocity Range : 0.59 -3.87 m/s



Vibration Systems



Sanwood vibration testers with dynamic factors such as displacement, velocity, acceleration, and force. Electromagnetic vibration accurately simulates a wide range of conditions that can help improve the quality and reliability of many products.

Technical Specifications:

- Up to 1000kg loading weight
- Max sine force : 6000 kgf
- Max Acceleration :100g
- Frequency Range: 2-2500 Hz



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