SANWOOD
One-Stop Test Solutions Provider

One-Stop Test Solutions Provider

www.sanwood.com

SANWOOD
One-Stop Test Solutions Provider

To become a globally renowned brand **in the environmental testing industry.**

Our global reach extends to over 100 countries and regions,
where we collaborate with industry leaders in the EV lithium-ion battery sector.

Temperature

In extremely cold conditions, mechanical cooling is used to cool the system to -85°C, cooling with LN 2 (liquid nitrogen) to a temperature as low as -184°C, even rapid temperature change is able to achieve.

Extremely high temperature: the maximum temperature can reach up to +180°C, and the higher temperature range can be customized according to customer's requirements.

Humidity

Humidity environment: relative humidity ranges from 20% RH to 98% RH.If the low humidity option is added, lower relative humidity can be achieved.

Altitude

Low air pressure: simulates an altitude of 30,000 meters, or by options to an altitude of 40,000 meters.

Vibration

Vibration integrated system: the integrated environmental test chamber has temperature and humidity test functions, it can also be an integrated test system with an electromagnetic vibration table and a mechanical vibration table interface.

Sanwood Group

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E-mail: Info@sanwood.com

Factory Address
No.98 Changtian Road,Changping Town,Dongguan 523560, Guangdong, China

Headquarter Address
Bldg# 60, No. 2 of Technology 10th Road, SSL High Tech Park, Dongguan 523808, Guangdong, China

Linkedin

Tiktok

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Company Profile

30 years
R&D and design experience

800 +
Well-known cooperative

15,000 +
R&D and production area (㎡)

SANWOOD Technology was founded in 1995. With years of dedicated effort, the company has now strategically established a large-scale and fully functional network of production and R&D bases in major domestic cities such as Dongguan, Suzhou, Tianjin, Ningde, and Xi'an, as well as in countries and regions including Germany and North America.

Sanwood Technology focuses precisely on technologies for reliability environment test equipment and the overall laboratory solutions.With continuous technological innovation and a persistent commitment to quality, the company has successfully become a National High-Tech Enterprise, Guangdong specialized and special new enterprise, and an innovative enterprise. At the same time, it serves as an Executive director Member Unit of the China Academy of Space System Science and Engineering, awarded the ISO 9001 / ISO 14001 quality system certifications.

Deeply empowering strategic emerging industries,the solutions have been successfully applied in key scenarios such as airworthiness testing of low-altitude aircraft, safety verification of energy storage systems, and accelerated aging of semiconductor devices. The service fields cover multiple industries including new energy, national defense and military industry, and electronic communication.

Simulate Various Environmental Conditions

Temperature | Humidity | Air pressure | Atmospheric composition | Rain | Snow | Fog | Air, wind | Sunlight | Noise | Vibration

Polar Cold	In extremely cold conditions, mechanical cooling is used to cool the system to -85℃, cooling with LN2(liquid nitrogen) to a temperature as low as -184℃, even rapid temperature change is able to achieve.
Extreme Heat	Extremely high temperature：The maximum temperature can reach up to +180℃, with higher temperature ranges customized upon customer request.
Humidity	Humidity environment：The relative humidity ranges from 20% RH to 98% RH. With the low humidity option is added, lower ralative humidity can be achieved.
Altitude	Low air pressure：simulates an altitude of 30,000 meters, or optionally up to 40,000 meters, corresponding to an absolute pressure of 0.1 Pa.

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Production Plant Area B

Production Plant Area A

Debugging Area

Assembly Area

Sheet Metal Workshop

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Songshan Lake Headquarters Base

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Patents And Certificates

SGS CE Certification

ISO9001/ISO14001
Quality System Certification

National High-tech
Enterprise

SGS CE Certification

Invention Patent

Utility Model Patent

Customer Cases

Customer Cases

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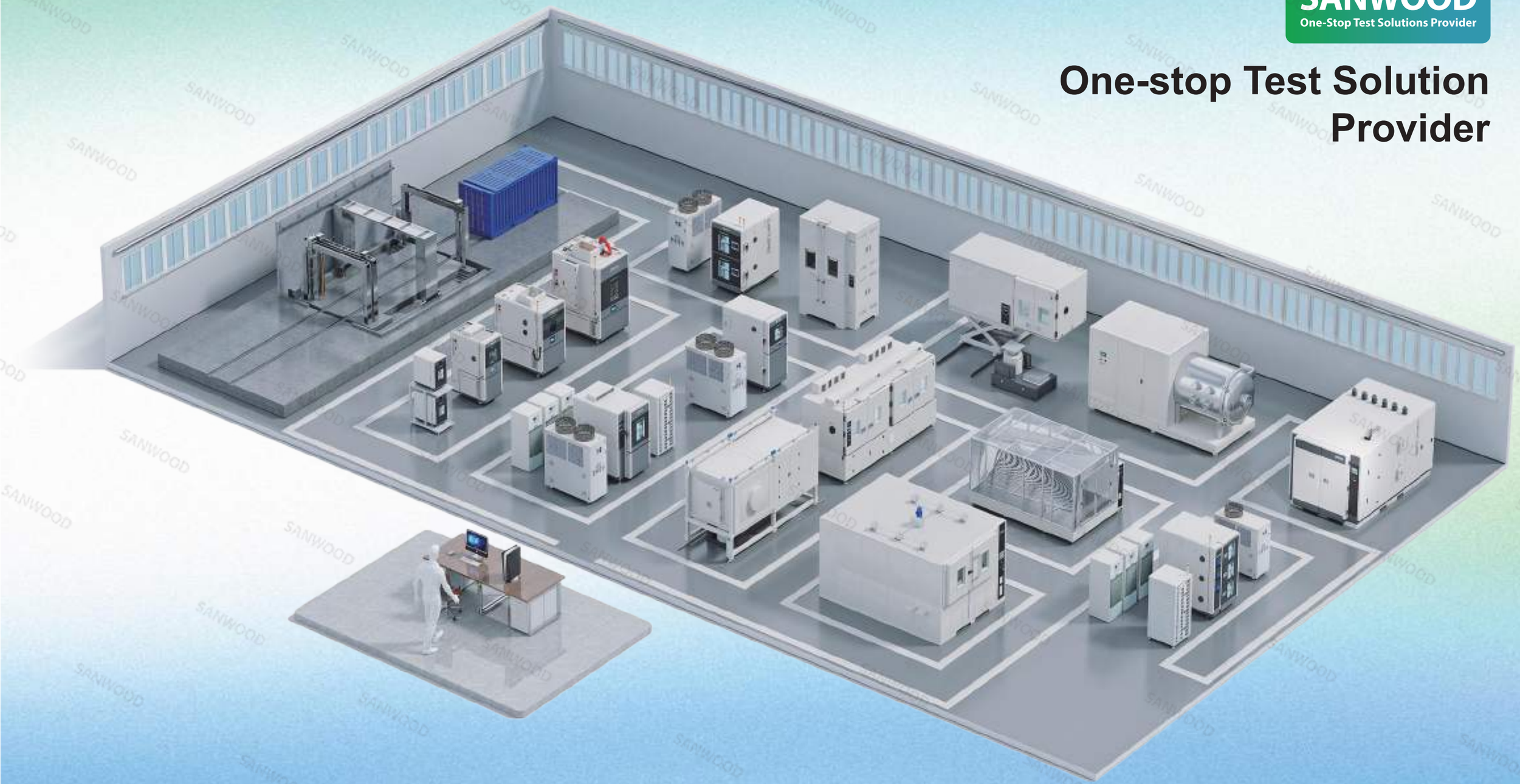
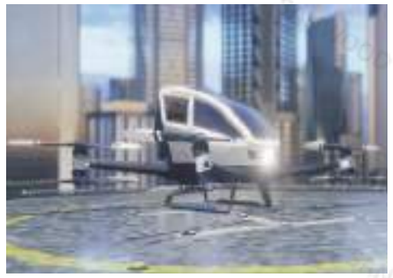


Areas Of Application

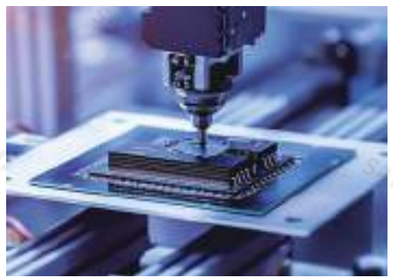
Aerospace

Carry out environmental tests, reliability simulation tests, reliability enhancement tests, reliability qualification tests, and reliability acceptance tests for aviation onboard products such as flight control systems, aircraft fuel systems, electrical systems, and satellite communication systems.



Low-altitude Economic

Sanwwood environmental test chambers are mainly used in the low-altitude economy areas to simulate natural environments such as high and low temperatures, damp heat, high altitude, and vibration. They are applied to conduct environmental adaptability tests on low-altitude aircraftsuch as drones and their components, helping to evaluate product performance under extreme conditions, improve product reliability, and provide support for airworthiness certification.



Electrical Semiconductor

Sanwood Technology environmental test chambers are widely applied in the electronics and semiconductor areas. They can simulate various extreme environmental conditions such as high temperature, low temperature, damp heat, and sand and dust.

By exposing potential issues in advance, they help optimize product design and manufacturing processes, ensuring stable operation in complex and variable real-world environments.

Civil Electrical Product

Environmental test chambers play a critical role in the environmental testing of electronic products. They can simulate diverse conditions such as high temperature, low temperature, humidity, and sudden changes in air pressure.

Product Range:

Civil electrical and electronic products such as consumer communication devices, electronic components, and household appliances.

Storage Areas

By simulating complex environments such as temperature and humidity fluctuations, vibration, dust contamination, and electromagnetic interference, rigorous testing is conducted on storage devices such as hard drives and SSDs to evaluate their data integrity, read/write stability, and long-term durability.

Robotics Areas

Through tests such as high and low temperatures, vibration and shock, and electromagnetic interference, the stability of robotic mechanical structures, sensor accuracy, and control systems under complex operating conditions is verified.

Military Equipment & Electronic Products

The military environment is complex and harsh, making environmental test chambers essential. They can simulate extreme conditions such as severe cold and heat, high humidity, sand and dust, and strong electromagnetic interference to conduct comprehensive testing of military electronic products.

Product Range:

Military electronic products such as military communication devices, fuzes, and military-grade electronic components.

Rail Transit

Product Range:

Complete systems, modules, and components of high-speed rail and EMU vehicles, such as inverters, various power supplies, wipers, train doors, air conditioners, electrical cabinets, windows, control units, and seat assemblies.

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Areas Of Application

Energy Storage Areas

The energy storage areas is highly sensitive to environmental conditions. Environmental test chambers simulate extreme conditions such as high and low temperatures, humidity, vibration, and salt spray to accurately assess the performance degradation, thermal stability, and safety of energy storage devices such as batteries and capacitors during charge-discharge cycles.

Hydrogen Utilisation Areas

Sanwood environmental test chambers are primarily used in the low-altitude economy areas to simulate natural environments such as high and low temperatures, damp heat, high altitude, and vibration.

New Energy Vehicles Areas

Environmental test chambers simulate extreme conditions such as high and low temperatures, vibration and shock, salt spray corrosion, and electromagnetic interference in the new energy vehicle areas. They are used to conduct rigorous testing on core components such as batteries, motors, and electronic control systems to verify their thermal management, sealing protection, and anti-interference performance.

Solar PV Areas

Environmental test chambers play a critical role in the solar PV areas by simulating harsh climate conditions. Through multi-dimensional environmental stress testing such as high temperature and high humidity, low-temperature freezing, ultraviolet radiation.

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Aviation Equipment

Carry out environmental tests, reliability simulation tests, reliability enhancement tests, reliability qualification tests, and reliability acceptance tests for aviation onboard products such as flight control systems, aircraft fuel systems, electrical systems, and satellite communication systems.

Areas Of Application

Test Environment: Mechanical environment: Vibration, Shock, Free Drop, Crash Test.
Climate environment: Constant temperature and humidity, High and low temperature cycle, Damp heat cycling, UV accelerated, Altitude Test.
Biological and chemical environment: Sand and dust test, Salt spray test.
Integrated environment: Temperature and altitude, Temperature humidity and vibration Test.

Test Standards And Methods

GJB 150.1A~30A-2009	Environmental Test Methods for Military Equipment Laboratories
RTCA/DO-160E	Environmental Conditions and Test Procedures for Airborne Electronic Equipment
HB 6167.1-1989	Environmental Conditions and Test Procedures for Airborne Equipment of Civil Aircraft. Part 2: Test Methods: General
HB 6167.2-1989	Environmental Conditions and Test Procedures for Airborne Equipment of Civil Aircraft. Part 2: Test Methods: Temperature and Altitudel
HB 6167.3-1989	Environmental Conditions and Test Procedures for Airborne Equipment of Civil Aircraft. Part 2: Test Methods: Temperature Variation
HB 6167.4-1989	Environmental Conditions and Test Procedures for Airborne Equipment of Civil Aircraft. Part 2: Test Methods: Humidity
HB 6167.5-1989	Environmental Conditions and Test Procedures for Airborne Equipment of Civil Aircraft. Part 2: Test Methods: Crash Safety and Shock

Low-altitude Economic Areas

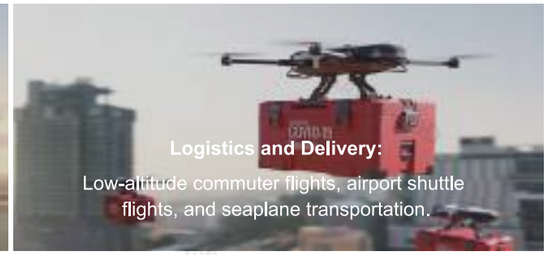
The low-altitude economy can be divided into upstream ground infrastructure and management support software from the perspective of the industrial chain,such as general airports, airspace management systems, etc.; midstream aircraft manufacturing, including drones, helicopters and eVTOL, etc.; downstream industrial integration applications, such as low-altitude logistics, low-altitude agriculture, low-altitude inspection, low-altitude tourism, etc.

Sanwwood environmental test chambers are mainly used in the low-altitude economy areas to simulate natural environments such as high and low temperatures, damp heat, high altitude, and vibration.

Areas Of Application

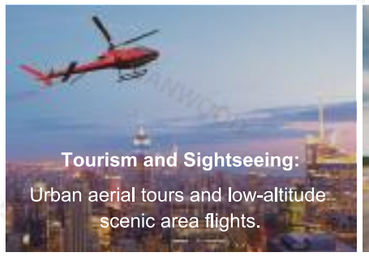
The application fields of the low-altitude economy are extensive and mainly include the following areas:

Urban Mobility:
Low-altitude commuter flights, airport shuttle flights, and seaplane transportation.

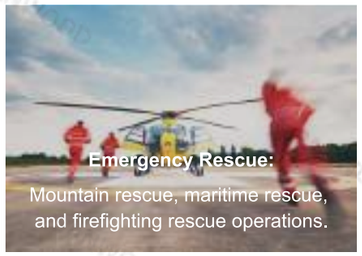


Logistics and Delivery:
Low-altitude commuter flights, airport shuttle flights, and seaplane transportation.

Agricultural Plant Protection:
Pesticide spraying, fertilizer distribution, and farmland monitoring.



Tourism and Sightseeing:
Urban aerial tours and low-altitude scenic area flights.



Emergency Rescue:
Mountain rescue, maritime rescue, and firefighting rescue operations.

Areas Of Application

Visions such as the Internet of Things, autonomous supercomputing vehicles, eye-tracking technology, wearable devices, and 3D printing are gradually becoming reality. These advancements are all founded on electronic components such as sensors, optoelectronic devices, processors, and connectors.

Electronic Device Product Classification

Semiconductor Industry

Applied to the core components of various fields including computers, servers, mobile phones, wired communications, consumer electronics, and automotive electronics.

Discrete Devices

Mainly include crystal diodes, transistors, rectifier diodes, power diodes, and compound semiconductors. Discrete devices are widely used in products such as household appliances,, computers,automotive electronics, network communications, and industrial control systems.

Optoelectronic Devices

These are functional components that utilize the photoelectric conversion effect. They can be categorized into light-emitting devices, photosensitive devices, and optoelectronic integrated devices.

Sensors

Sensors can be classified into physical sensors, chemical sensors, and biological sensors. They are primarily used in fields such as industrial automation, industrial robotics, and bioengineering.

Electronic Device Reliability Test Programme

- **Climatic Tests:** Cyclic damp heat, high and low temperature cycling, thermal shock, rapid temperature change, high pressure test, accelerated aging test.
- **Accelerated Aging Tests:** Salt spray test, gas corrosion test, acid atmosphere test, fluid contamination test, ozone test.
- **Mechanical Tests:** Vibration test, drop test, bump test, shock test, constant acceleration test.
- **Combined Environmental Tests:** Temperature + humidity + vibration, temperature + humidity + pressure.

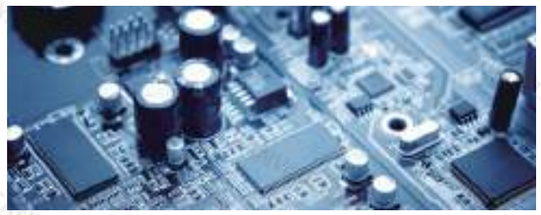
Areas Of Application

Product Range: Civil electrical and electronic products, such as consumer communication devices, electronic components, and household appliances.

Test environment: Mechanical environment: Vibration, Shock, Free Drop, Crash Test.
Climate environment: Constant temperature and humidity, High and low temperature cycle, Damp heat cycling, UV accelerated, Altitude Test.
Biological and chemical environment: Sand and dust test, Salt spray test, Mold test.

Test Standards And Methods

GB/T 2423.1-2008	Basic Environmental Testing Procedures for Electrical and Electronic ProductsA：Low Temperature Test Method
GB/T 2423.2-2008	Basic Environmental Testing Procedures for Electrical and Electronic ProductsB：High Temperature Test Method
GB/T 2423.3-2016	Basic Environmental Testing Procedures for Electrical and Electronic ProductsCa：Constant Damp Heat Test Method
GB/T 2423.1-2008	Basic Environmental Testing Procedures for Electrical and Electronic ProductsDbCyclic Damp Heat Test Method
GB/T 2423.16-2008	Basic Environmental Testing Procedures for Electrical and Electronic ProductsJ and guide：Mould Growth
GB/T 2423.17-2008	Basic Environmental Testing Procedures for Electrical and Electronic ProductsKa：Salt Spray Test Method
GB/T 2423.18-2008	Basic Environmental Testing Procedures for Electrical and Electronic ProductsKb：Alternating Salt Spray Test (Sodium Chloride Solution)



Storage Products

Storage Device Core Environment Test Items And Standards

■ Temperature Testing

- **Test Contents:** High and low temperature cycle, extreme temperature storage.
- **Standards:**
  Consumer grade: IEC 60068-2-1 (Low Temp.) / IEC 60068-2-2 (High Temp.).
  Industrial grade: GB/T 2423.1-2008 (Chinese national standard).
  Military grade: MIL-STD-810H Method 501.7/502.7.

■ Humidity Testing

- **Test Contents:** Constant humidity, humidity and heat cycle, condensation test.
- **Standards:**
  IEC 60068-2-78 (constant humidity and heat).
  JESD22-A101D (electronic component humidity and heat reliability).

■ Vibration And Shock Testing

- **Test Contents:** Random Vibration, Sine Vibration, Mechanical Shock.
- **Standards:**
  General Standard: IEC 60068-2-64 (Random Vibration).
  Transportation Simulation: ASTM D4169 (Packaging Reliability).
  Military Standard: MIL-STD-810H Method 514.8 (Vibration).

■ Aging Testing

- **Test Contents:** High temperature and high humidity accelerate aging (HAST).
- **Standards:**
  JEDEC JESD22-A110 (HAST Test).

■ Electromagnetic Compatibility (EMC) Testing

- **Test Contents:** Radiated immunity, electrostatic discharge (ESD).
- **Standards:**
  IEC 61000-4-2（ESD) CISPR 32 (Radiated Emission).

■ Hypobaric Test (Plateau Simulation)

- **Test Contents:** Low pressure storage, low pressure start.
- **Standards:**
  MIL-STD-810H Method 500.6(Altitude Simulation: 15,000 meters).

Other Tests: Dust and Water Ingress Protection Testing (IP Rating).
Test content: IP6X Dust Protection, IPX7 Water Immersion.
Standard: IEC 60529 (Ingress Protection Rating Certification).
Salt Spray Corrosion TestingTest content: Salt spray exposure, Cyclic Corrosion Test (CCT).
Standard: IEC 60068-2-52 (Cyclic Salt Mist).

Robotics Area

Robot Core Environment Test Items And Standards

■ Extreme Temperature Test

- **Test Contents:** High Temperature Operation.
  (Motor Overheating Protection Verification).
  Low Temperature Start-up (Lithium Battery Performance Degradation Testing).
  Rapid Temperature Change (Thermal Expansion-Induced Mechanical Deformation).
- **Standards:**
  Industrial robots: IEC 60068-2-14 (Temperature Cycling Test).
  Service robots: GB/T 37718-2019 (General Specifications for Service Robots).
  Special robots: MIL-STD-810H Method 501.7 (-50℃~70℃).

■ Vibration And Shock Testing

- **Test Contents:** Transportation Vibration (Simulated transport of packaged equipment).
  Operational Vibration(Obstacle impact during mobile robot movement).
  Multi-Axis Vibration (Dynamic stability of drones/robotic arms).
- **Standards:**
  ISO 13355 (Random Vibration Testing for Transportation).
  ASTM D4169 (Packaging Reliability for Logistics).
  MIL-STD-810G (Method 514.8(Composite Vibration Testing).

■ Damp Heat And Corrosion Test

- **Test Contents:** Damp Heat Cycling (Condensation Risk for PCBs).
  Salt Spray Corrosion (Protection of Metal Components in Coastal/Chemical Environments).
- **Standards:**
  IEC 60068-2-30 (Damp Heat, Cyclic).
  ISO 9227 (Neutral Salt Spray Test).

■ Dust And Waterproof Test (IP Rating)

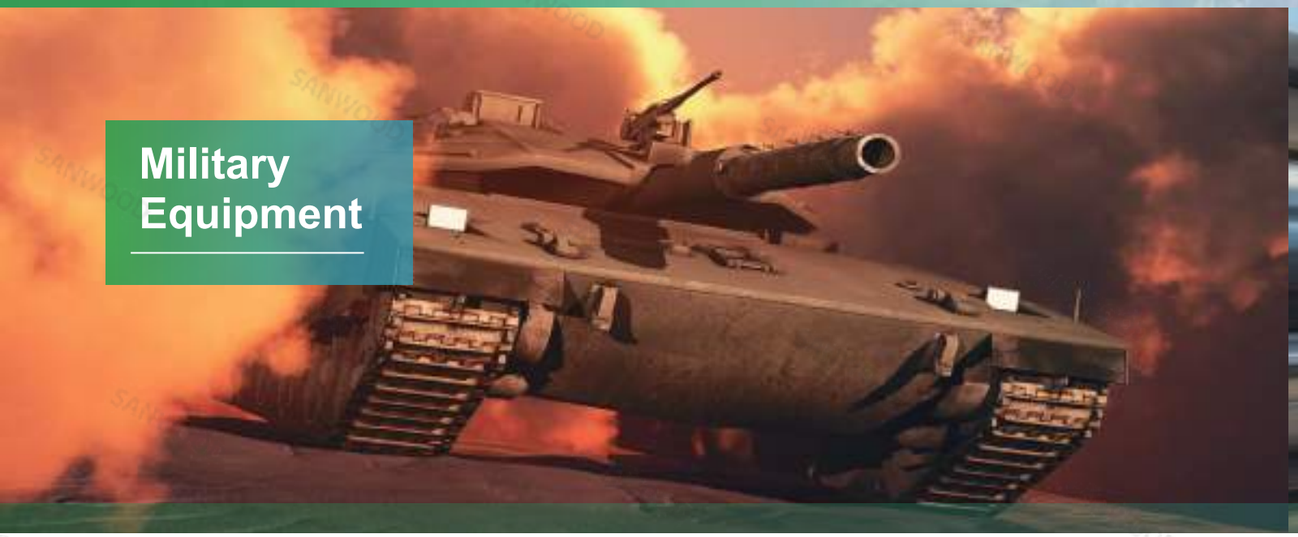
- **Test Contents:** IP65/IP67 (Dust-tight and short-term. immersion protection for industrial robots).
  IP69K (High-pressure washdown protection for cleaning robots).
- **Standards:**
  IEC 60529 (Ingress Protection Rating Certification).
  + DIN 40050-9 (High-Pressure Jet Protection – IP69K).

■ Electromagnetic Compatibility (EMC) Testing

- **Test Contents:** Motor Interference Suppression (Radiated Emissions from Servo Systems).
  Wireless Communication Immunity (Wi-Fi/5G Signal Stability).
- **Standards:**
  CISPR 11 (Industrial Equipment EMC).
  EN 61000-6-2 (Immunity for Industrial Environments).

■ Special Environment Simulation Test

- **Test Contents:** High-altitude low pressure (UAV operations at high altitudes).
  Explosion-proof testing (Petrochemical industry robots).
  Underwater pressure (Waterproof sealing of underwater robots).
- **Standards:**
  GB/T 2423.21 / ATEX/IECEx / ISO 13628-8.



Military Equipment

Provide test solutions for the production, transportation, and acceptance of military equipment to ensure the safety and stability of the equipment.

Areas Of Application

Test environment: Mechanical environment: vibration, mechanical shock, free fall, collision, etc.

Climate environment: Constant temperature and humidity, high and low temperature cycle, wet and hot cycle, ultraviolet light, low pressure, rain, etc.
Biological and chemical environment: sand and dust, salt spray, mold, etc.

Test Standards And Methods

GJB 150.1A-2009	Laboratory environmental test methods for military equipment	Part 1: General principles
GJB 150.2A-2009	Laboratory environmental test methods for military equipment	Part 2: Low pressure test
GJB 150.3A-2009	Laboratory environmental test methods for military equipment	Part 3: High temperature test
GJB 150.4A-2009	Laboratory environmental test methods for military equipment	Part 4: Low temperature test
GJB 150.5A-2009	Laboratory environmental test methods for military equipment	Part 5: Temperature shock test
GJB 150.7A-2009	Laboratory environmental test methods for military equipment	Part 7: Solar radiation test
GJB 150.8A-2009	Laboratory environmental test methods for military equipment	Part 8: Rain test
GJB 150.9A-2009	Laboratory environmental test methods for military equipment	Part 9: Damp heat test

Rail Transit Products

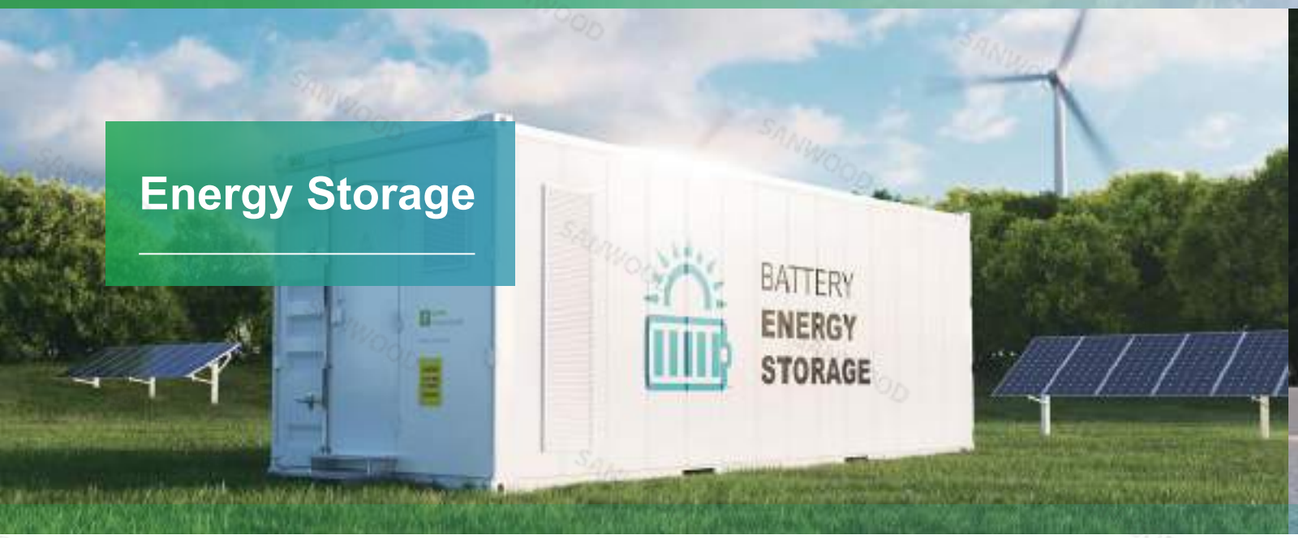
Test Items

Product range: complete machines, modules and components for high-speed rail and EMU vehicles, such as inverters, various power supplies, wipers, door air conditioners, electric cabinets, windows, control units, seat assemblies, etc.

Test environment: Environmental tests: low temperature resistance, high temperature resistance,alternating damp heat, salt spray, vibration, impact.
Electrical properties: withstand voltage, insulation resistance, contact resistance, leakage current.

Test Standards And Methods

GB/T 25119-2010 IEC 60571:2006	Rail transit rolling stock electronic devices
TB/T 2953-2015	High temperature and low temperature test methods for railway ground signal products
TB/T 2846-2015	Vibration test methods for railway ground signal products
GB/T 32347-2015	Environmental conditions for rail transit equipment
GBT 21563-2018 IEC 61373:2010	Shock and vibration test for rail transit rolling stock equipment
GB/T 24338.5-2018 IEC 62236-4:2008	Rail transit Electromagnetic compatibility Part 4: Emission and immunity of signal and communication equipment



Energy Storage

Areas Of Application

Product range: flywheel energy storage, biomass energy, chemical energy.

Test environment: Mechanical environment: vibration, mechanical shock, free fall, collision.
Climate environment: constant temperature and humidity, high and low temperature cycle, wet and hot cycle, ultraviolet light, low pressure.
Biological and chemical environment: sand and dust test, salt spray test.

Flywheel Energy Storage

Test Standards And Methods

GB/T 14048.1	General rules for low-voltage switchgear and control equipment
GB/T 2423.1-2008	Environmental testing for electric and electronic products Part 2 Test methods
GB/T 2423.3-2016	Environmental testing for electric and electronic products Part 2: Test methods: Alternating damp heat(12h+12h cycle)
GB/T 2423.4-2008	Environmental testing for electric and electronic products Part 2: Test methods Test Db: Alternating damp heat
	(12h+12h cycle)
GB/T 10586-2006	Technical conditions for damp heat test chambers
GB/T 10589-2008	Low temperature test chamber technology
GB/T 10592-2008	Technical conditions for high and low temperature test chambers
GB/T 5170.2017	Test methods for environmental test equipment Part 2: Temperature test equipment

Hydrogen Energy Utilization

Areas Of Application

Product range: Hydrogen fuel cells, hydrogen fuel vehicles.

Test environment: Mechanical environment: vibration, mechanical shock, free fall, collision.
Climate environment: constant temperature and humidity, high and low temperature cycle, wet and hot cycle, ultraviolet light, low pressure.
Biological and chemical environment: sand and dust test, salt spray test.

Test Standards And Methods

GB/T 3634	Hydrogen
GB 4962	Safety technical regulations for the use of hydrogen
GB/T 7445	Pure hydrogen, high-purity hydrogen and ultra-pure hydrogen
GB/T 16942	Gas hydrogen for the electronics industry
GB/T 19773	Technical requirements for pressure swing adsorption hydrogen purification system
GB/T 19774	Technical requirements for water electrolysis hydrogen production system
GB/T 20042.1	Proton Exchange Fuel Cell Terminology
GB 50177	Hydrogen station design specifications
GJB 2645	Liquid hydrogen storage and transportation requirements
GJB 5064	Safety requirements for hydrogen production by water electrolysis
GJB 5405	Liquid hydrogen safety application guidelines
JB/T 5903	Equipment for hydrogen production by water electrolysis
JB/T 9082	Terminology for hydrogen production equipment by water electrolysis
QJ 2298	Technical specifications for hydrogen safety
QJ 3028	General specifications for liquid hydrogen refueling vehicles

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Areas Of Application

Product range: photovoltaic power station, civil solar energy.

Test environment: Mechanical environment: vibration, mechanical shock, free fall, collision.
Climate environment: constant temperature and humidity, high and low temperature cycle, wet and hot cycle, ultraviolet light, low pressure.
Biological and chemical environment: sand and dust test, salt spray test.

Photovoltaic Component Testing


Junction Box Testing


Connector Testing


Cable Testing

Photovoltaic Raw And Auxiliary Material Testing

The design service life of solar photovoltaic modules is about 20-30 years; in order for the modules to operate for more than 20 years under normal climatic conditions, multiple tests such as temperature cycling, humidity freezing, and humidity heat need to be carried out according to specifications to confirm that the modules and materials can withstand the impact of sub-zero temperatures immediately after high temperature.

EVA material: peel test	Back panel, silicone: water vapor transmission rate, weather resistance	Glass: light transmittance, thermal shock resistance

Major Component Test items And Applicable Standards

Power Battery System

- **Test Contents:** High and low temperature cycle test (-40℃~+85℃ temperature shock).
  Wet heat test (85% humidity, +40℃~+60℃ alternating).
- **Standards:**
  ISO 6469、GB/T 31467.3、IEC 62133.

On-Board Charging(OBC)

- **Test Contents:** Temperature Alternation Test (-40℃~+85℃ Fast Switching).
  Damp Heat Aging Test (+85℃/85% Humidity Long-term Storage).
- **Standards:**
  GB/T 34657.1、IEC 60068-2-30、SAE J1772.

Vehicle Mounted Electronics Unit (BMS/VCU)

- **Test Content:** Electromagnetic compatibility test (EMC anti-interference/radiation).
  Electrostatic discharge test (±15kV ESD protection).
- **Standards:**
  CISPR 25, ISO 11452, GB/T 28046.

Drive Motors And Controllers

- **Test Contents:** High temperature endurance test (continuous operation at +120℃).
  Low temperature start test (cold start performance at -30℃).
- **Standards:**
  GB/T 18488、ISO 19453、GB/T 2423.17.

Thermal Management Systems (PTC/heat pumps)

- **Test Contents:** Extreme temperature test (-40℃ cold start/+120℃ high temperature operation).
  Thermal shock test (cycle temperature difference ≥80℃).
- **Standards:**
  GB/T 12734、ISO 16750-4、SAE J639.

Body Lightweight Materials (Aluminum Alloy/carbon Fiber)

- **Test Content:** UV aging test (simulation of long-term exposure).
  Salt spray cycle test (corrosion resistance of composite materials).
- **Standards:**
  ASTM G154、ISO 9227、GB/T 16422.

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Bench-top Environmental Test Chamber

- Compact design: saves laboratory space, suitable for desktop or small workbench placement.
- Accurate temperature and humidity control: uses PID intelligent temperature control algorithm to ensure a stable temperature and humidity environment.
- Multi-stage programmable function: supports more than 120 sets of custom programs, and can preset temperature and humidity change curves.

Model	SMC-22-CC
Temperature range	-40℃ ~ +150℃
Humidity range	20.0%RH ~ 95.0%RH
Volume（L）	22.5
Inner size (WxHxD) mm	300x300x250
Outer size (WxHxD) mm	440x740x885

Ultra-low Temperature Test Chamber

- Ultra-low temperature refrigeration system: Adopts cascade two-stage compression technology to achieve -85℃ ultra-low temperature.
- The inner tank is made of 304 stainless steel, with a high-density polyurethane foam insulation layer to effectively prevent low-temperature frost and heat loss.
- Multiple safety protection systems to ensure safe operation under extreme working conditions.

Model	SM-712	SM-812
Temperature range	-75℃ ~ +180℃	-85℃ ~ +180℃
Temperature fluctuation	±0.5℃	
Volume（L）	64	
Inner size (WxHxD) mm	400x400x400	
Outer size (WxHxD) mm	950x1200x630	

Temperature & Humidity Test Chamber

- Full temperature range composite environmental simulation, using PID + SSR intelligent algorithm to meet the testing requirements for material aging, electronic component reliability, and various other fields.
- Built-in fault warning system for real-time monitoring of compressor and sensor status, reducing maintenance costs.
- Full process data management with automatic temperature and humidity curve recording, equipped with USB/RS485 interfaces.

Model	SM-80-CD	SM-150-CD	SM-225-CD	SM-408-CD	SM-1000-CD
Temperature rang	-70℃～+180℃ （A: 0℃～+180℃; B: -20℃～+180℃; C: -40℃～+180℃; D: -70℃～+180℃）				
Humidity range	20.0%RH～95.0%RH				
Volume（L）	80	150	225	408	1000
Inner size (WxHxD) mm	400x500x400	500x600x500	600x750x500	800x850x600	1000x1000x1000
Outer size (WxHxD) mm	680x1588x1180	803x1723x1250	903x1880x1300	1103x1955x1395	1303x2090x1775

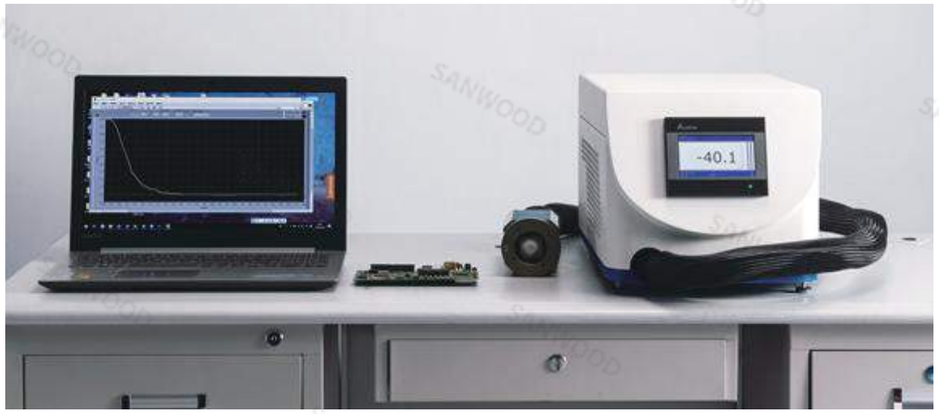
Rapid Temperature Change Test Chamber

- Ultra-High Speed Temperature Change Capability, with a temperature change rate of up to 25°C/min.
- High-Precision Environmental Control: Adopts PID control algorithm to ensure precise reproduction of complex temperature change curves, meeting military and automotive testing requirements.
- Preheating/Precooling Modules to avoid temperature overshoot, ensuring stability under extreme testing conditions.

Model	SM-KS-225-CD	SM-KS-408-CD	SM-KS-800-CD	SM-KS-1000-CD
Temperature range	-70℃～150℃（A: 0℃、B: -20℃、C: -40℃、D: -70℃） （Customization Available）			
Temperature change range	5.0℃、10.0℃、15.0℃、20.0℃、25.0℃/min			
Temperature fluctuation	±0.5℃			
Volume（L）	225	408	800	1000
Inner size (WxHxD) mm	500x750x600	800x850x600	1000x1000x800	1000x1000x1000

Low Power Consumption Bench-top Thermal Shock Test Chamber

- Anti-Condensation Test Cover: Anti-condensation technology for safer product testing.
- Supports local and remote control, with LAN/RS232/RS485 communication interfaces.
- Multiple temperature control modes available, including DUT/air temperature control options.



Model	SM-TS-100	SM-TS-150-50
External size of equipment/mm	W300xH300xD543	W360xH450xD650
Temperature range	-15℃~+180 ℃	-50℃~+150 ℃
Temperature change rate (Empty Load)	-10℃~+85 ℃/10s +85 ℃~-10℃/30s	-40℃~+85 ℃/15s +85 ℃~-40℃/20s
Control accuracy	± 0.1℃	± 0.1℃
Temperature setting and display accuracy	± 0.1℃	± 0.1℃
Stability	± 0.5℃	± 0.5℃
Temperature overshoot control	± 1.0C	± 1.0C
Temperature control method	Air surface temperature/DUT temperature	
Test operation method	Fixed/Program control mode	
Communication interface	LAN RS232/485（Optional GBIP Interface）	
Gas supply pressure	90Psi~110Psi （20℃~28 ℃）	
Gas supply flow rate	500L/min （25scfm ）	
Dew point temperature	≤-20℃	≤-10℃
Power supply	AC220V ± 10% 50/60HZ	

Ultra Thermal Shock Test chamber

- Low Power Consumption, Energy Saving of Over 30%.
- Long-Term Low Temperature Operation with Frost-Free Testing.
- Supports Local and Remote Control, with LAN/RS232/RS485 Communication Interfaces.

Operating Interface


Communication Interface

Model	SM-TS-210-10S	SM-TS-310-10S	SM-TS-410-10S
External size of equipment/mm	W500xH1200xD890	W600xH1200xD890	W600xH1200xD890
Temperature specification	-55℃~+180 ℃	-65℃~+220 ℃	-80℃~+220 ℃
Temperature Change Rate (Empty Load)	-40℃~+85 ℃；+85 ℃~-40℃约10s		
Control accuracy	± 1.0℃		
Temperature setting and display accuracy	≤ 0.1℃		
Stability	≤ 0.5℃		
Temperature overshoot control	≤ 1.0℃		
Temperature control method	Switchable Control Between Air Temperature and Sample Temperature		
Test operation method	Program and Fixed Value Control		
Communication interface	LAM RS232/485（Optional GBIP Interface）		
Gas supply pressure	90Psi~110Psi （20℃ ~28℃）		
Gas supply flow rate	700L/min （25scfm）		
Dew point temperature	≤10℃		
Power supply	AC220V/380V ±10% ， 1PH/3PH ， 50/60HZ		

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Two/Three-zone Thermal Shock Test Chamber

- Two-zone chamber: Through the rapid switching between the high temperature zone and the low temperature zone, the sample is completed high and low temperature shock in a short time.
- Three-zone chamber: The high temperature zone, low temperature zone and test zone are separated, and the sample is stationary in the test zone to avoid mechanical vibration.
- Safety protection: Equipped with multiple protection devices to ensure long-term stable operation.

Model	SM-50-2P-B	SM-200-2P-B	SM-500-2P-B	SM-80-3P-B	SM-300-3P-B	SM-500-3P-B
Temperature shock range	-65℃ ~ +150℃ （A: -40℃ ~ +150℃; B: -65℃ ~ +150℃）					
Switching time/temperature recovery time	Switching time/temperature recovery time					
Volume(L)	50	200	500	80	300	500
Inner size (WxHxD) mm	350x400x350	650x460x670	960x650x800	400x500x400	960x460x670	960x650x800
Outer size (WxHxD) mm	1400x1985x1700	1700x2045x2020	2010x2235x2150	1450x1880x1810	2010x1840x2080	2010x2030x2210

High Low Temperature Combined Tensile Test Chamber

- High precision: driven by Japanese Panasonic AC servo motor, force accuracy up to ±0.25%, displacement accuracy up to 0.001mm.
- High intelligence: automatic fracture identification, automatic return, curve function, unit switching, multiple languages for choice.
- Professional test report: report developed based on Crystal Reports 10.0 version.

Model	SM-80-TCT-CC
Temperature range	-40℃ ~ 150℃ （A: 0℃; B: -20℃; C: -40℃） （Can be customised）
Max. load	20KN （Can be customised）
Effective stretching space	900mm can be customised
Effective measuring range	0.25% ~ 100% F.S
Inner size (WxHxD) mm	350x600x350

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Altitude Test Chamber

- Excellent Constant Temperature Performance and Pressure Control Inside the Test Chamber.
- Communication Protocol: Provides programming interface functions, requires monitoring software.
- The Equipment Features Good Temperature Stability, Safety Performance, Environmental Friendliness, and No Harm to Human Health.

Model	SM-VTH-250-CD	SM-VTH-500-CD	SM-VTH-1000-CD	SM-VTH-2000-CD
Temperature range	-70℃ ~ +180℃ (A: 0°C; B: -20°C; C: -40°C; D: -70°C)			
Pressure range	Normal Pressure ~ 0.5kpa （500pa）			
Volume (L)	250	500	1000	2000
Inner size (WxHxD) mm	600x700x600	800x800x800	1000x1000x1000	1000x2000x1000
Outer size (WxHxD) mm	900x1950x1905	1100x2050x2105	1300x2250x2305	1300x3250x2305

Walk-in Environmental Test Chamber

- Walk-In Environmental Simulation Chamber is widely used in automotive, metrology, aerospace, and defense industries.
- Wide Temperature and Humidity Range: The comprehensive environmental parameters have high reliability requirements, and the testing conditions are complex.
- Accessible Test Chamber: Operators can enter the test chamber to manipulate the test items.

Model	SCB-8-CD-3	SCB-22.5-CD-3	SCB-48-CD-3
Temperature range	-70℃ ~ 150℃ （A: 0℃、B: -20℃、C: -40℃、D: -70℃） （Customization Available）		
Humidity range	(20 ~ 98)%RH (20 ~ 85)℃; (10 ~ 98)%RH （Customization Available）		
Volume (L)	8	22.5	48
Inner size (WxHxD) mm	2000x2000x2000	3000x2500x3000	4000x3000x4000
Outer size (WxHxD) mm	2200x2250x3550	3550x2880x3350	4200x3250x5750

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Battery High & Low Temperature Explosion-Proof Test Chamber

- Multiple Safety Devices Available as Options.
- Stable and Balanced Heating and Humidification Performance.
- Manufactured to Meet UL, IEC, SAE, GB/T Testing Standards and comply with EUCAR Hazard Levels (0-7) for optimal safety testing.

Model	SMC-80-CD-FB	SMC-150-CD-FB	SMC-225-CD-FB	SMC-408-CD-FB	SMC-800-CD-FB	SMC-1000-CD-FB
Temperature range	-70℃～180℃（A: 0℃; B: -20℃; C: -40℃; D: -70℃）（Customization Available）					
Volume (L)	80	150	225	408	800	1000
Inner size (WxHxD) mm	400x500x400	500x600x500	600x750x500	800x850x600	1000x1000x800	1000x1000x1000
Outer size (WxHxD) mm	680x1588x1180	803x1723x1250	903x1880x1300	1103x1955x1395	1303x2090x1575	1303x2090x1775

Liquid-cooled Battery Test Chamber

- Longer Operation Time, More Energy-Efficient.
- Reserved Standard Positions: Can integrate standard charging and discharging modules from multiple manufacturers.
- Intelligent Output Control Method: Avoids frequent starting and stopping of the compressor, effectively extending the compressor's lifespan.

内箱、液冷板

Model	SG - 1638 - CA
Temperature range	0℃ ~ +100℃
Cold plate temperature	(0～RT)℃
Volume (L)	1638
Inner size (WxHxD) mm	1400x1800x650
Outer size (WxHxD) mm	2050x2420x1695

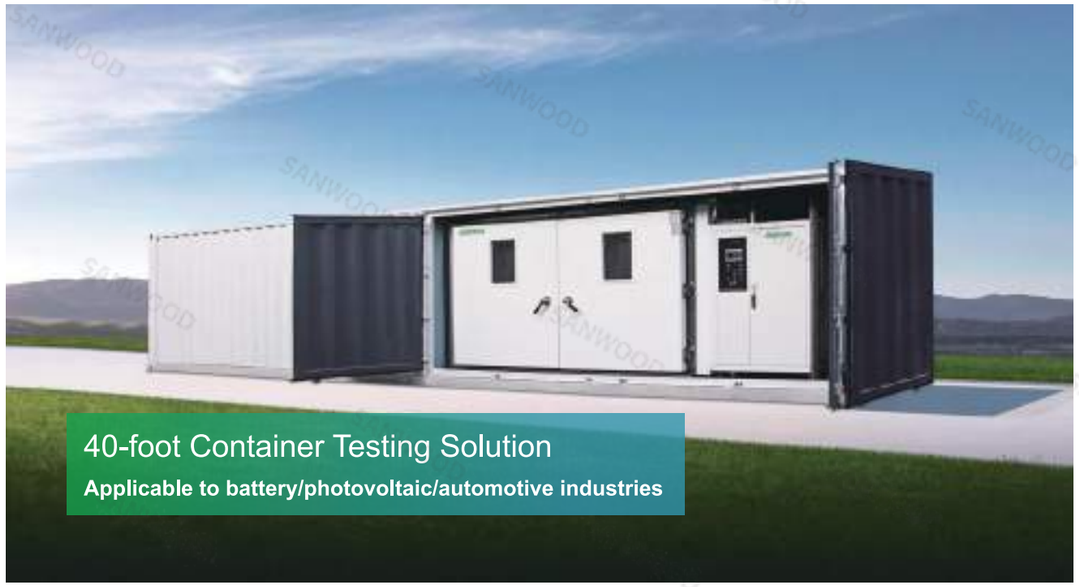
Battery Explosion-proof High & Low Temperature And Charge/Discharge Integrated Equipment

- Reliable connection and control, more accurate test results.
- Reserve standard positions to integrate standards from multiple manufacturers.
- The charging and discharging module has multiple protection functions, which can effectively avoid safety risks during the test process.

Model	SMT-287-CD	SMT-504-CD
Temperature range	-70℃～+150℃（A: 0℃; B: -20℃; C: -40℃; D: -70℃）（Can be customized）	
Cooling method	Air cooling / Water cooling	
Volume (L)	287	504
Inner size (WxHxD) mm	820x700x500	1200x700x600
Outer size (WxHxD) mm	1650x1860x1655	2030x2010x1600

Energy Storage Solutions

- It's mainly used for power battery modules, battery packs, energy storage cabinets, energy storage containers, large electrical and electronic and other products, parts and materials to conduct high and low temperature and humidity alternating tests or constant tests, and to conduct quality and reliability tests on products, parts and materials under simulated temperature and humidity changes.



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AGREE Test Chambers

-Temperature/Humidity/Vibration

- Can be customized according to user requirements.
- Provides fast temperature ramp rates from 5°C to 30°C.
- For temperature, humidity, and vibration testing in accordance with MIL-STD 781 and 883.

Model	SM-MVH-500-CD	SM-MVH-1000-CD	SM-MVH-1700-CD	SM-MVH-3400-CD
Temperature range	-70℃ ~ +180℃ (A: 0°C; B: -20°C; C: -40°C; D: -70°C)			
Humidity range	(20～98) %RH (20～85)℃; (10～98) %RH (Can be customized)			
Volume (L)	500	1000	1700	3400
Inner size (WxHxD) mm	800x800x800	1000x1000x1000	1200x1200x1200	1500x1500x1500
Allowable heat load (W)	800	1000	1500	1800

Four Comprehensive Test Chambers

- Low pressure/temperature/humidity/vibration

- Flexible parameter setting: when the test system is working, temperature stress, vibration stress and electrical stress are applied to the sample simultaneously or separately in the prescribed combination and periodic space.
- Real simulation, compared with single stress action, has the advantages of more realistic environmental simulation and higher test efficiency.

Model	EORT-Vibration
Inner size (WxHxD) mm	1500x1500x1300 (Can be customized)
Temperature range	-70℃ ~ +120℃
Temperature fluctuation	≤±0.5 (Normal pressure, no load)
Pressure range	Normal pressure~500Pa
Depressurization time	≤30min
Humidity range	20%RH~98%RH (+10℃ ~ +85℃)

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AGV Automated Temperature Test Chamber

- Each cavity is equipped with multiple temperature monitoring channels, and the temperature difference between the main temperature.
- Customized material tray placement, automatic power on, convenient for AGV to obtain and collect material data accurately.
- Automatically identify battery information and equipment information, and connect humans and machines.

Model	SG-200×4-CC	SG-280-CC-6
Temperature range	-40℃～+100℃（temperature continuously adjustable）	
Temperature fluctuation	≤±0.5℃（with standard pallet, empty, constant state）	
Volume (L)	200Lx4	280Lx6
Single layer inner size (WxHxD) mm	850×470×500	850x480x690
Load capacity	50KG lithium battery per chamber, 30W heat generation	100KG lithium battery per chamber, 300W heat generation

Chip ESSD Test Chamber

- Convenient temperature probe for easy inspection of temperature accuracy in the chamber.
- Each shelf in the rear warehouse has an independent switch for easy power-off operation.
- Automatic door design, combined with automation mechanism, effectively utilizes space.

Single Chamber

Double Chamber

Model	LS407 (SC-588-CD-F)	LS410 (SC-462-CD-F)
Temperature range	-70℃～+150℃	
Volume (L)	588	462
Inner size (WxDxH) mm	800x700x1050	600x700x1100
Outer size (WxDxH) mm	1890x1520x1925	2070x1540x2220
Door opening method	Manual door	Automatic door

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Highly Accelerated Stress Test Chamber

- Convenient program entry, test setup and product monitoring.
- Test data can be exported to Excel format and transferred via USB interface.
- HAST test conditions are 130℃, 85%RH, 230KPa atmospheric pressure, 96hour test time.

Model	SM-HAST-350	SM-HAST-450	SM-HAST-650
Temperature range	A : +100°C ~ +132°C ; B : +100°C ~ +142°C; C : +100°C ~ +155°C		
Pressure range	0.2 ~ 2kg / ㎠ (0.05 ~ 0.196Mpa) / 0.2 ~ 3kg / ㎠ (0.05 ~ 0.294Mpa)		
Humidity range	65% ~ 100%R.H		
Volume (L)	350	450	650
Inner size (Φ × D) mm	300x450	400x550	650x750
Outer size (WxHxD) mm	795x1500x1450	750x1070x1300	1010x1250x1550

Thermal Vacuum Test Chamber

- The thermal vacuum test chamber can provide a vacuum degree of more than 10^{-3} Pa, and the internal annular heat sink can simulate the cold black space environment.
- The temperature control base can shorten the temperature stabilization time of the test piece under high vacuum. The temperature measurement system can monitor and record the test process.

Model	SM-TC-CD
Heat sink temperature range	-70℃ ~ +150℃
Mounting base temperature range	-70℃ ~ +150℃
Average temperature change rate of heat sink	≥ +2℃/min
Average temperature change rate of base	≥ +2℃/min
Ultimate pressure	≤5x10^{-5} Pa
Working pressure	≤1.3x10^{-3} Pa
Main pump	Cryogenic pumps
Oil pump	High and low temperature magnetic pumps
Pre-stage pump	Vane pumps + Roots pumps
Cooling method	Mechanical cascade refrigeration (liquid nitrogen assisted refrigeration)
Noise	≤ 75dB(A)
Condensation method	Water Cooling

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Temperature Humidity And Salt Spray Corrosion Test Chamber

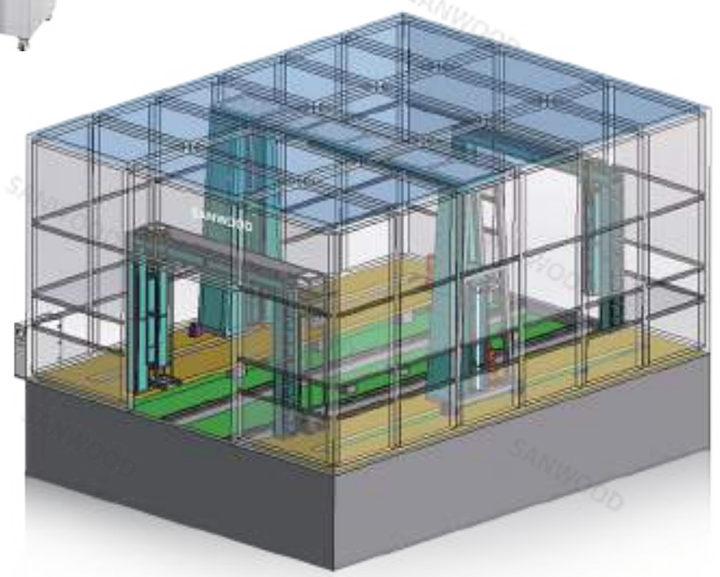
- Excellent cabin fluid system design.
- High-precision programmable controller, R232 interface can be connected to PC directly.
- Composite nozzle fully compresses air and mixed solvent to maintain uniform salt spray concentration in the cabin and ensure the accuracy of the test.

Model	SM-Y-90D	SM-Y-120D	SFY-6-CB	SFY-10.5-CB	SFY-12-CB
Temperature range	0℃ ~ +85℃				
Humidity range	20 ~ 98%R.H				
Volume(L)	90	120	6000	10500	12000
Inner size (WxHxD) mm	900x500x600	1200x500x1000	2000x2000x1500	2000x1500x3500	3000x2000x2000
Outer size (WxHxD) mm	1400x1250x850	2100x1400x1250	2650x2500x2150	2200x2560x4850	4530x3200x4000

Large-scale Rain Test System

- Simulated rain test of the tested object in transportation, seaside, outdoor and other scenes.
- Fully automatic water spraying equipment, data can be upload.
- The flow rate of each nozzle can be automatically adjusted to realize flow detection and alarm when abnormal.

IPX 12/34/56/9K



Model	SMB-LYF-IPX5
Inner diameter of nozzle	6.3 mm
Water flow rate	12.5±0.625 L / min (Water pressure is adjusted according to the specified water flow)
Test time	0s ~ 9999h59m59s Adjustable (recommended minimum test time: 3 min; water spraying time per square meter of the shell is about 1 min)
Distance from nozzle to the shell of tested object	2.5 ~ 3 m (Center of main water flow: 2.5 m from the nozzle, 40 mm diameter, circular)
Spray movement speed	0 ~ 2000 mm / min Adjustable
Water spraying method	one-click fully automatic water spray

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Ice Water Immersion Test Chamber

- Mainly used for ice water shock test of battery packs.
- High temperature zone simulates GB/T2423.2-high temperature test method technical conditions.
- ice water tank simulates JB/T5376-low temperature constant temperature tank conditions.

Model	S2-9600-DC-HSJP
Temperature range of ice water tank	0℃ ~ RT
Temperature range of high temperature zone	RT10℃~+80℃
Volume(L)	9600
Ice water tank dimension (WxHxD) mm	3700x1000x2450
Outer dimension (WxHxD) mm	5000x2720x3500

Walk-in Sand And Dust Test Chamber

- Uniform heating and dehumidification, dust is not easily clumped.
- Fully automatic powder changing device, easy to operate.
- Intelligent temperature controller for temperature control, temperature digital display.

SM-SC-1000

Model	SM-SC-1000	SMB-SC-8000
Temperature range	RT+15℃ ~ +60℃	
Dust concentration	2 ~ 4kg/m³ Cyclic dust blowing	
Volume(L)	1000	8000
Inner size (WxHxD) mm	1000x1000x1000	2000x2000x2000
Outer size (WxHxD) mm	1500x2050x1360	2500x3650x2250

Precision High Temperature Test Chamber

- Adopt imported famous international brand components.
- Adopt imported PLC for temperature control, 7-inch HMI, touch screen, easy to operate and set.
- PID adjustment, automatic calculation according to different temperature points, support program/fixed value operation.

Model	SM-G-1000-DA	SM-G-1800-DA	SM-G-2520-DA	SM-G-3600-DA	SM-G-5000-DA	SM-G-8000-DA
Temperature range	RT+℃～+300℃ （A: +25℃～+200℃; B: +25℃～+300℃）					
Heating rate	+25.0℃～+100.0℃ within 8 minutes, 6.0～10.0℃/min					
Volume(L)	1000	1800	2520	3600	5000	8000
Inner size (WxHxD) mm	1000x1000x1000	1000x1500x1200	1200x1500x1400	1200x2000x1500	1500x1800x1850	2000x2000x2000
Outer size (WxHxD) mm	1200x1685x1500	1200x2185x1700	1400x2185x1900	1400x2685x2000	1700x2585x2350	2200x2785x2500

Mold Test Chamber

- Simulates favorable growth conditions for mold testing.
- Automatically adjusts the optimal energy-saving mode according to the test load.
- High control accuracy.

Model	SC-1000-CA
Temperature range	±5℃～+63℃ （Continuously adjustable temperature）
Humidity range	20%RH～98%RH
Volume(L)	1000
Inner size (WxHxD) mm	1000×1000×1000
Outer size (WxHxD) mm	1200×1790×2085

Bench-top UV Accelerated Weathering Test Chamber

Lamp	3 pcs，20W
wavelength	313nm (or 340nm)
Lamp irradiation energy	0.7W/m²
Sample dimension	150mm x 70mm (18 standard samples can be exposed at one time)
External chamber dimension (LxWxH)	940mm x 490mm x 630mm

UV Accelerated Weathering Test Chamber

Lamp	UV-A（wavelength 340nm）or UV-B（wavelength 313nm）；40W×8pcs
Exposure area	5175cm² /828in²
Irradiance setting range	0.3 W/m² ～1.55 W/m²
Standard sample	24pcs standard sample rack（Can test 48pcs 150×70mm sample at one time）
External chamber dimension (LxWxH)	1360mm×560mm×1290mm

Bench-top Xenon Test Chamber

Lamp	1.8KW imported air-cooled xenon lamp or 1.8KW Chinese-made xenon lamp
Filter	UV extension filter (daylight filter or window glass filter for choice)
Effective exposure area	1000cm² (9pcs sample of 150mm x 70mm size can be placed at one time)
Irradiance monitoring point	340nm/420nm/300nm~400nm/280~800nm (Choose one of the four options)
External chamber dimension(LxWxH)	950mm x 570mm x 540mm

Small-scale Xenon Test Chamber

Lamp	1.8KW imported air-cooled xenon lamp or 1.8KW Chinese-made xenon lamp
Exposure area	1000cm²（9 pcs sample of 150mm x 70mm size can be placed at one time）
Irradiance monitoring point	340nm /420nm/300nm～400nm/280~800（ Choose one of the four options）
Black Panel temperature setting range	RT+30℃～+90℃
External chamber dimension (LxWxH)	1000mm×650mm×1020 mm

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Drawer-type Xenon Test Chamber

Lamp	3pcs 1.8KW air-cooled xenon lamp imported from USA
Filter	Daylight filter (window glass filter or UV extended filter are also available)
Effective exposure area	2800cm² (25pcs sample of 150mm x 70mm size can be placed at one time)
Irradiance monitoring point	340nm or 420nm or 300nm～400nm (Available)
External chamber dimension(LxWxH)	970mm×920mm×1850mm

Large-scale Xenon Test Chamber

Lamp	6.5KW water-cooled long arc xenon lamp
Exposure area	6500 cm² (63～65pcs standard sample of 150mm x 70mm size can be placed at one time)
Irradiance monitoring point	340nm、420nm、300nm～400nm、300nm～800nm
Adjustable temperature range in the workspace	RT～+70℃ (Black panel)
External chamber dimension (LxWxH)	1220mm×1200mm×2050mm

Sunlight Simulation Test Chamber

- High intensity lamp with good light intensity uniformity.
- Automatic load calculation, reasonable adjustment of system output, automatic compensation of light intensity.
- Optional sample surface temperature control function to ensure that the sample temperature reaches the test requirements.

Model	SM-SUN-600	SM-SUN-2624	SM-SUN-2628	SM-SUN-5228
Lamp	Metal halide lamp			
Spectral distribution	280nm to 3000nm			
Irradiation intensity	1000W/㎡ to 1200W/㎡			
Irradiation intensity adjustment range	50% to 100%Linear adjustable			
Irradiation area (mm)	600x600	2600x2400	2600x2800	5200x2800
Non-uniformity	B level (≤5%)			
Spectral level	B level (300nm to 1200nm)			
Temperature range	50℃±10℃ (Extended temperature range -45℃ to 150℃)			
Humidity range	20% to 95% (humidity control can be added to combine high temperature & high humidity & sunlight simulation or high and low temperature & humidity & sunlight simulation			
Lamp power	2KW/ pc			
Lamp quantity	1	12	16	32

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Storage Product Series-R&D Products

Desktop wide temperature SATA test system

SM-SATA-6

Desktop wide temperature PCIE test system

SM-PCIE-4

Application

Technical indication for wide temperature chamber	Main functions of the test software
Volume：12L	Suitable for SATA6 and PCIE4 product development performance verification
Temperature range：-45℃~+100℃	PCT function: power consumption, voltage deviation, abnormal power-off verification
Cooling rate：1～2℃ /min	BIT function: verify various pattern sequence or random read/write, automatic temperature control test
Heating rate：1～5℃ /min	MDT function: Verify whether ATA1-8 specification commands are supported
Temperature uniformity：≤1.0℃	FDS function: full disk read and write operations, verify whether the mapping table is correct
Temperature fluctuation：±0.5℃	Support network control, you can control the test remotely and view the test results
Full-color touch screen control, user-friendly operation interface	Support MES system and APP customization functions
Fixed-point test and automatic program test are available	
RS232/RS485，Ethernet computer interface, remote control	

Storage Product Series-R&D Products

Desktop wide temperature NAND test system

SM-NAND-8

Application

- Flash life prediction.
- Flash level definition and Flash classification.
- Data retention test.
- Flash stability under wide temperature range.

Wide temperature chamber technical index	Main functions of the test software
Volume：12L	Suitable for various types of performance certification such as SLC/MLC/TLC/QLC type NAND Flash chip particles (scope is being expanded) from manufacturers such as Micron/Intel/ YMTC/Hynix/Toshiba/Sandisk
Temperature range：-45℃~+100℃	
Cooling rate：1～2℃ /min	With power consumption, voltage deviation, abnormal power-off verification
Heating rate：1～5℃ /min	With life prediction and performance screening functions
Temperature uniformity：≤1.0℃	Support various test command types
Temperature fluctuation：±0.5℃	Support special packaging type specifications
Full-color touch screen control, user-friendly operation interface	Support Pattern testing
Fixed-point test and automatic program test are available	Support MES system and APP customization functions
RS232/RS485，Ethernet computer interface, remote control	

Storage Product Series-Mass Production RDT High Temperature Aging Cabinet

SATA high temperature aging cabinet

SM-SATA-RDT

PCIE high temperature aging cabinet

SM-PCIE-RDT

BGA high temperature aging cabinet

SM-PCIE-BGA

Technical indication	Main Features
Product quantity: 500~2000 pieces, BGA1664 pieces	Aging box, aging board, product power supply 3 in 1 integrated mode, no need for secondary development
Temperature range：RT+15℃~+10.0℃	Can be customized with software monitoring function
Control accuracy：0.5℃	Excellent energy consumption, using intelligent PID control technology, heating mode low power consumption control
Temperature uniformity：≤±2℃	Stable performance. When the temperature in the box exceeds the limit during the product aging process, the strong exhaust function is activated.
Temperature control: 1 main control, 6 monitoring	Rich expansion modes, one machine for multiple uses, different products can be mixed for testing
Communication：RS 485, RS 232 , LAN	Can carry product turnover cart to facilitate seamless connection between tested and untested products

Mass Production BIT Wide Temperature Aging Cabinet

PCIE wide temperature BIT aging cabinet

SM-PCCIE-BIT

Technical indication	Main features
Product test quantity: 24~1000 pieces	Suitable for SATA, PCIE product mass production performance verification
Temperature range: -70℃~+150℃ (expandable)	PCT function: power consumption, voltage deviation, abnormal power-off verification
Cooling rate：0.5℃～20℃/min	BIT function: verify various pattern sequence or random read/write, automatic temperature control test
Linear temperature change：1～15℃/min	MDT function: Verify whether ATA 1-8 specification commands are supported
Temperature uniformity：≤2.0℃	FDS function: full disk read and write operations, verify whether the mapping table is correct
Temperature fluctuation：±0.5℃	Support network control, you can control the test remotely and view the test results
Temperature control: 1 main control, 6 monitoring	Support MES system and APP customization functions

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Wide Temperature Screening Aging Cabinet For Mass-produced Pellets

• Technical indication of wide temperature chamber	• Main functions of the test software
Volume：200L~2000L	Suitable for various types of performance certification such as SLC/MLC/TLC/QLC type NANDFlash chip particles (scope is being expanded) from manufacturers such as Micron/Intel /YMTC/Hynix/Toshiba/Sandisk
Temperature range：-70℃~+150℃	
Cooling rate：1℃～2℃ /min	With power consumption, voltage deviation, abnormal power-off verification.
Heating rate：1℃～5℃ /min	With life prediction and performance screening functions.
Temperature uniformity：≤1.0℃	Support various test command types.
Temperature fluctuation：±0.5℃	Support special packaging type specifications.
Fixed-point test and automatic program test are available	Support Pattern testing.
RS232/RS485, Ethernet computer interface, remote control	Support MES system and APP customization functions.

Mass Production Pellet Automation Line

• Main functions of the test software
Suitable for various types of performance certification such as SLC/MLC/TLC/QLC type NANDFlash chip particles (scope is being expanded) from manufacturers such as Micron/Intel/YMTC/Hynix/Toshiba/Sandisk
With power consumption, voltage deviation, abnormal power-off verification
With life prediction and performance screening functions
Support various test command types
Support special packaging type specifications
Support Pattern testing; Support MES system and APP customization functions

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SANWOOD

One-Stop Test Solutions Provider

SMS三木森
Intelligent Equipment Solutions

Semiconductor/Data Integration Automated Test Solutions

One-stop Service

Tooling
- Furnace jig
- Track jig
- Plate splitting jig
- Steel mesh jig
- Tooling jig

Automation
- Automatic burning machine
- Automatic maintenance machine
- Automatic ICT
- Automatic FCT
- Automatic counting machine
- Assembly line automation

ICT
- 3070 ICT jig
- TAILOR ICT jig
- TRI ICT jig
- Software development
- Equipment maintenance

FCT
- Functional jig
- Functional system
- System integration
- Platform development
- Automated testing

Solution integration
- Solution
- Software
- Hardware

Instruments and equipment
- ICT equipment
- Flying probe equipment
- X-Ray
- Instrumentation






Equipment Rental And Maintenance

ICT/Flying Probe

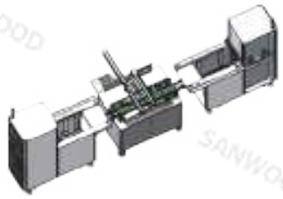
Instrument/AOI/X-Ray

Automative Automative GPU Power

FCT system series

FCT function series

Automation Series



BMS Automation

ICT Automation

FucntionAutomation

Module Development Series

IO Controller

IO Driver

GPIO/ADC/SPI/I2C

Power Controller

Power Load

LED Analyzer

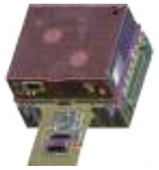
Semiconductor Packaging Jig

BP

Riser

Riser

OCP



MB BSI/FCT

SSD/NVME/SAS/SATA

PCIe

PCIe

Power ATE System Development

DC-DC Converter

AC-DC Converter

Battery Tester

HVDC PDU

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SANWOOD

One-Stop Test Solutions Provider

Riser Automatic Test Fixture

- OCP to PCIe card
- Custom MCU
- Line open and short circuit test
- EEPROM read and write
- I2C read and write
- Load testing
- Serial port output results

GPU FCT Test Fixture

- Board server
- Fully automatic cylinder in and out
- Selective cylinder ejector pin
- Connector floating docking
- Riser card protection
- LED visual inspection

X710 FCT Test Jig

- OCP board jig
- Dual card test
- Left and right anti-fouling
- Automatic scanning gun
- LED automatic detection

BP Test Jig

- Server backplane fixture
- All-in-one test
- Automatic scanning gun
- LED automatic detection
- MCIO/SlineSAS Floating plug-in

FCT –MB BFT Test

Test range:

- Power sequence/Voltage
- I2C Test/Backlight Current /Voltage
- Call/Headset/Microphone Test
- SD/USB_A/USB_C
- Wifi/BT self-test

Test equipment solutions:

- USB_A/C module
- Audio card
- SMU/E-load
- 16 channels 1Mhz/DAQ/ 40Mhz digital MM
- Wireless clamp
- Wireless motherboard design

FCT - WiFi 802.11 a/b/g/n Testing

NI –DAQ Card

RF-Shield encloser

Keithly2306

Test range:

- Maximum transmit power level
- Transmit spectrum mask
- Transmit modulation accuracy test
- Transmitter center frequency leakage
- Transmit center frequency tolerance
- Error vector magnitude
- Receiver sensitivity test

Test equipment package:

- NI PXI5644R
- Keithly 2303
- NI DAQ

Test platform:

- Test Stand + LabVIEW or C#

FCT – Phone/Pad AIO Test

Test range:

- Acoustics (speaker/microphone)
- Display
- Camera
- Touch-screen
- Touch (buttons)
- RF antenna connection
- Vibrator
- Accelerometer
- LED/Camera flash
- Proximity sensor
- Light sensor
- Charging

Automotive electronics-ATE test

Wiper motor electronic module test:

- CAN communication test
- LIN communication test
- Motor driver
- Flash programming

FCT – TV AIO Test

- High resolution industrial camera (500W CCD industrial camera * 8)
- High-speed data transmission via Giga-E Ethernet
- Supports TV displays from 49 to 65 inches
- TV speaker and LCD testing for AV, HDMI, USB, VGA, Ypbpr channels
- Detection of spots/lines/blemishes/scratches through visual analysis
- WIFI and Bluetooth radio function check
- Real-time image analysis and reporting of defect locations on the display
- Visual analysis is developed based on OpenCV and does not rely on third-party libraries and tools

BT Industrial Router Tester

- Power supply test
- uBoot Testing and Flash Download
- USB emulator testing
- Ethernet port test (packet loss)
- Power loss test/bit error rate test
- Bluetooth testing with MT8852B

Battery Pack Test

- Overvoltage test
- Undervoltage test
- Overcurrent test
- Temperature cut-off test

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SANWOOD

One-Stop Test Solutions Provider

BCM/VCU Body Control System

Based on Keysight platform TS-8900

Driver test:

- Car light switch
- Windshield wiper drive
- Heater driver
- Central locking actuator

Sensor testing:

- Lighting status
- Rain sensor
- Simulate collision sensor

DC Colletors

Test items:

- Body diode test
- Single input fault measurements
- Open circuit voltage test
- Short circuit voltage test
- Efficiency @MPPT mode
- Efficiency @ fixed duty cycle mode

LPCAMM CXL Pre_Function

Test range:

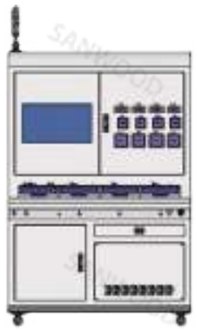
- OS
- PMIC
- SPD
- Sensors (temperature, current)
- Power supply test
- IIC/I3C/SPI/ttl/jtag
- CXL
- 100M PCIe Clock

HDD Tester

Test range:

- 30 slot test
- Power supply test
- TTL test
- LED test
- Burn-in

AM82 Tester



Test range:

- Resistors
- Heater sensor
- Open-circuit/Short-circuit
- PWM
- Temperature
- Power supply test
- Motor+PLC+PWM+cylinder

Server Components (Small Card Type) Testing Machine

Test range:

- O/S test
- Power supply test
- IIC test
- Jtag test
- FRU test
- Sensor test
- LED test

AC-PDU Programmable Power Distributor

Input parameters:

- Voltage：80V~ /3（380V~ /3）Phase (LLLNG)
- Current：63A x 5（32A x 5） Wires
- Maximum power：26 KW/35KW
- Frequency：50/60Hz
- Connector：32A/63A Industrial Connector Wire,
- Wire：16mm*3+10mm*2
- Switch：63A 4P

Output parameters:

- Total current：Max 62A
- Voltage：208-250V
- Maximum power per port：3.52KW
- Port：12 C13 + 4 C19 /24 C19

Control parameters:

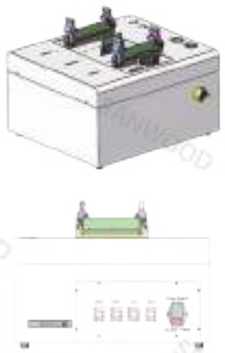
- Remote interface：RS232/RJ45
- Control mode：SSH/RS232/Telnet

Server MLB Tester

Test range:

- MCIO test
- Fan test
- Power supply test
- PCIE test
- GenZ test
- SlimeSas test
- CPU test
- DIMM test
- LED test

DDR5 Tester



Test range:

- OS
- PMIC
- SPD
- Sensors (temperature, current)
- Power supply test
- IIC/I3C/SPI/ttl/jtag
- UDIMM/UDIMM /SODIMM

ICT Test Fixture Automatic Maintenance Machine

- Automatic alignment
- Support multiple model configurations
- Automatic cleaning
- Perform smoothness test on each probe
- Identify and record the actual pinpoint location of the defective probe
- Maintenance and replacement record traceability

Automatic Counting Machine

Various indicators:

- Counting accuracy：2 ‰
- Number of speeds (forward and out)： 180MM/4 plates each time, 330MM, 380MM/1 plate each time
- Feeding speed 8S-9S/each time

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