

# 产品介绍

PRODUCTS INTRODUCTION

PT-2091 Constant Temperature & Humidity Testing Machine ( standard type )



Touch screen controller, realize the Internet interface and interconnect with computers, mobile phones and tablets.

Large window anti - scald design, safe and convenient.

Inner liner SUS304, external advanced spray treatment

Emergency stop switch and break protector, double protection



**Application:** The constant temperature and humidity test box is used for testing the properties of materials in various environments and testing the heat resistance, cold resistance, dry resistance and moisture resistance of various materials. Suitable for testing quality of electronic, electrical, mobile phone, communication, instrument, vehicle, plastic products, metal, food, chemical, building materials, medical, aerospace and other products.

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### Standards:

GB-2423.1-89 (IEC68-2-1) test A: low temperature test method,  
GB-2423.2-89 (IEC68-2-2) test B: high temperature test method,  
GJB 360.8-87 (mil-std-202f) high temperature life test,  
GBJ150.3(mil-std-810d) high temperature test method,  
GJB150.4(mil-std-810d) low temperature test method.  
JJF/1101-203 environmental test equipment temperature and humidity calibration specification.

### Machine Features:

1. Arc modeling and fog surface line processing, high texture appearance, and the use of plane no reaction handle, simple operation, safe and reliable
2. The inner box is made of mirror stainless steel, with clean body, easy to clean and long service life;
3. Three-layer vacuum coating window and philips energy-saving fluorescent lamp are adopted, no wiper is needed to remove fog, so as to maintain clear observation effect and observe the status of the sample at any time.
4. The pipelines of the humidification system are separated from the power supply, controller and circuit board, so as to avoid the influence of pipeline leakage on the circuit, thus improving the safety of products.
5. The original imports Europe and the United States completely closed compressor, imports environmental refrigerant, world famous brand refrigeration device, the original imports LCD touch screen controller, friendly interface, easy to learn operation. Fully enclosed structure with strong circulating motor and low voice refrigeration device;
6. Equipped with test holes, with power test function (load test);
7. new refrigeration, single compressor can not only achieve any temperature within 0°C ~ -40°C, high efficiency and energy saving, low temperature zone energy saving more than 30%, energy saving and consumption reduction
8. Excellent performance, the performance index is better than national (military) standards, and meets the test procedures
9. Compact appearance, saving space, getting rid of site limitations, convenient

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movement, 30% less floor space than the previous model

10. Optimize the air duct, design the fluid dynamics based on professional CFD, make the air duct compact and reasonable
11. simple operation, user-friendly operation interface, a key to start and stop, can do the fixed value and programmed two test methods
12. Multiple protection, the whole machine is equipped with a powerful alarm system, self-inspection alarm system, safe operation, worry-free use
13. With the same volume in the larger storage area and under load heat
14. Adopt the new PWM refrigerant control technology of the United States to realize low-temperature energy-saving operation
15. Prevent the test product from dew formation control condition
16. RS232 interface and USB storage and download function are configured for communication
17. Multiple alarm monitoring of the machine and wireless remote alarm function
18. The safest waterway system and recycled water circulation system
19. Humidity effect can reach 15 °C / 5%RH (customized) efficiency, with fast dehumidification speed
20. Strong capacity to prevent static electricity consumption reduction and achieve the best performance in the industry
21. Low temperature operation for 1000 hours without frost
22. Check leakage by water immersion, intuitive and thorough, ensure air tightness and stable operation
23. It can connect computers, mobile phones, tablets and other communication tools through the Internet, monitor the operation of the machine remotely, and control the machine remotely

### Working Principle:

1. It consists of two parts: temperature regulation (heating and cooling) and humidification. By rotating the fan installed in the casing at the top of the air into the cabinet gas circulation, balance the temperature and humidity inside the box

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body, the body of the built-in temperature and humidity sensor to collect data, spread to temperature and humidity controller (processor) micro information edit processing, wet thermal control instructions, heating unit, through the air condenser pipe and sink inside heating evaporation unit.

2. It is through the built-in temperature sensor in the box, collecting data, through the temperature controller (micro information processor) adjustment, through the air heating unit to increase the temperature or adjust the cooling solenoid valve to reduce the temperature in the box, in order to achieve the required temperature control. Constant temperature and humidity box humidity control is through the body humidity sensor, data acquisition, the humidity controller (micro information processor) regulation, through to tank heating element, by evaporation of the water in the tank to increase the humidity of the casing or adjust refrigeration solenoid valve to achieve dehumidification function, in order to achieve the humidity control need.

3. It is equipped with multiple protective measures; The temperature system is equipped with an overheat protector under the maximum allowable temperature. The air heating element can automatically cut off the power when the rotating fan stops. The humidification system can stop power supply as the water level of the humidification tank decreases; The refrigeration system also stops working as the temperature of the box increases (more than 40°C) or the humidity increases.

### **Machine Structure :**

1. SUS304 stainless steel plate is adopted in the test box; Both sides of the inner box are provided with trial rails; Thermal insulation with at least 100mm rigid polyurethane foam; The front door of the inner box is connected with high quality bakelite and glass fiberboard door frame for heat conduction partition, excellent low temperature insulation performance; The sealing strip on the door is silica gel foam with specific temperature resistance range.

2. Air supply and circulation system: high and low temperature resistant multi-blade aluminum wind wheels are uniformly adopted. The upper louver is driven by the motor for air supply and the lower louver is driven for air return.

The range of -70-100 ° c is less than 2 ° c (10 points distribution according to GB standards)

- insulation material: hard polyurethane foam + glass cotton

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- Machine Door :
  1. Single door, left open, handle on right
  2. Product observation window, three vacuum layers
  3. Embedded non-reaction plane handle
  4. Door hinge : SUS#304
  5. The light in the test box , 11W
  6. Silicone foam rubber strips , 2 pieces
  7. Electric heating automatic defogging device, 1 set
  8. Anti-touch cold scald device, 1 set

### Control system :

- Full color 7 "TFT, Chinese/English touch control system
- USB2.0 stores interface with curve records and downloads
- Automatic control and safety protection coordination system
- New refrigerant demand algorithm, refrigeration without heating control technology, save 30% of electricity compared with the same period last year
- Appointment start setting, operation expected end time, power on time integration, operation time integration
- Program end planning (program connection, go to set value, stop, etc.)
- remote monitoring of machine operation through the Internet, and remote



catalog



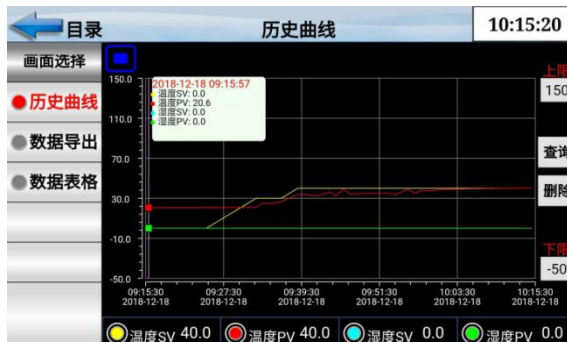
spy scene

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program edit

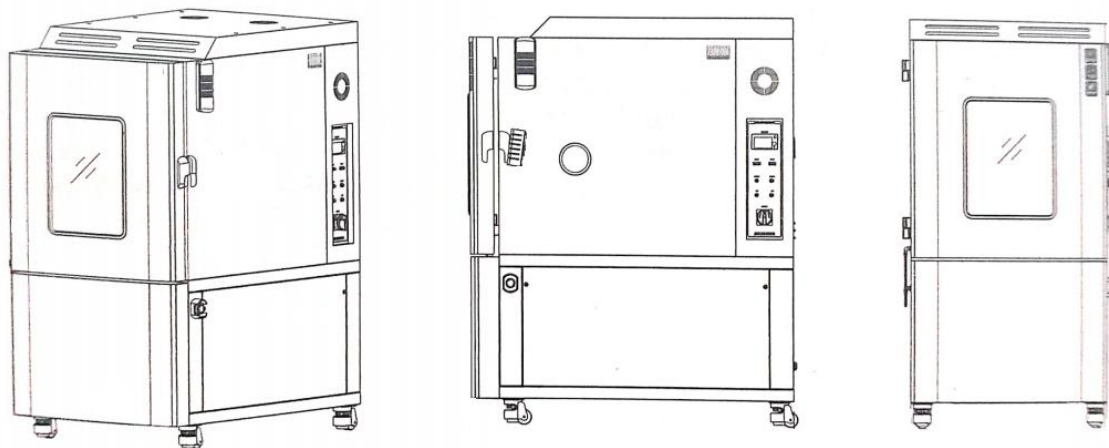


curve

Control System Parameters :	
Control Accuracy	Temperature : $\pm 0.3$ F.S.+1digit    Humidity : $\pm 1.0\%$ RH+1digit
Resolution	Temperature : 0.1    Humidity : 0.1
Turnaround Time	0.6 Second ( Temp、Humi 0.3s each )
Program Group	250 PATTERN / 12500 STEP
STEP Time	0~250h59m , adjustable
Constant Value Time	0~999999h59m, adjustable
Cycles	Each set of programs can be set for 1~32000 times
Contact Output	RUN、HRUN、H1、T1~T7、K1、TS1~TS2、DW、UP、END、ERR,etc
Energy Saving control	The new refrigerant demand algorithm can effectively reduce the mutual consumption of cold and heat and save 20% power
TROUBLEIN	Related processing information of the whole machine starting self-check alarm action
Historical Data Curve, Data Representation	<ol style="list-style-type: none"> <li>1. Actual PV value /SV set value shall be recorded and saved according to the sampling period</li> <li>2. Curve, historical data can be selected and copied by date by USB</li> <li>3. After sampling in 60S, data and curves can be recorded and saved for 120 days</li> </ol>
Communication Function	<ol style="list-style-type: none"> <li>1. Standard USB interface for downloading curves and data</li> <li>2. Standard r-232c computer interface</li> <li>3. the Internet interface, and computers, mobile phones, tablets and other interconnection</li> </ol>
Test Name Input	Test name of 250 groups in Chinese and English can be entered
LED Backlight & Screen Lock	Backlight protection 0~99min , access by password



Valid Representation Range	Photo grade full color 7 "88 ( H ) X155(W)mm
Internal Storage	Data memory saved EEPROM (can be saved for more than 15 years)
Additional Features	Appointment start setting, operation expected end time representation, power on time integration, program end planning, etc



**Sample limitation (the following storage of the test equipment is prohibited) :**

- test and storage of samples of easy ene, explosive and volatile substances;
- test and storage of corrosive material samples;
- test and storage of biological samples;
- test and storage of strong electromagnetic emission source samples;
- test and storage of radioactive material samples;
- test and storage of samples of highly toxic substances;
- test and storage of samples that may produce highly toxic substances during test or storage.

**Technical parameters :**

Model	PT-2091A	PT-2091B	PT-2091C	PT-2091D
Inner Size	400*500*500mm (W*H*D)	500*600*500mm (W*H*D)	500*750*600mm (W*H*D)	600*850*800mm (W*H*D)

Outer Size	600*1400*1300mm (W*H*D)	700*1500*1300mm (W*H*D)	700*1650*1400mm (W*H*D)	800*1750*1600mm (W*H*D)
Test Volume	100L	150L	225L	408L
Temperature	Low Temp : 0°C、-20°C、-40°C、-55°C、-60°C、-70°C ( optional ) High Temp : +150°C、+100°C、+80°C			
Humidity	20%R.H~98%R.H (standard type) 5%R.H~98%R.H ( customized ) 10%R.H~98%R.H ( customized )			
Temperature Fluctuation	±0.5°C			
Temperature Uniformity	≤±2.0°C			
Humidity Fluctuation	±2.5%RH			
Humidity Uniformity	A)>75%RH:≤+2,-3%RH , B)<75%RH:≤±5%RH			
Heating Rate	About 3~4°C/min , no load			
Cooling Rate	About 0.7~1°C/min, no load			

Temperature Change Rate	1°C/min、3°C/min、5°C/min、10°C/min、15°C/min、20°C/min、25°C/min ( customized )
Cooling Method	Air-cooling or water-cooling
Inner Material	SUS304, stainless steel
Outer Material	Stainless steel plate classic spray treatment
Heat Preservation Material	High density polyurethane foam
Compressor	Single end/compound type, semi-enclosed compressor
Refrigerant	R404A or R23
Work Environmental Temperature	+5°C~+35°C
Power Supply	AC 220V or AC 380V , three phase four wire plus ground wire
Special Note	Compressor, refrigerant, power supply and so on to choose the box size and



	temperature variable rate and temperature range as a reference
Standard Configuration	<ol style="list-style-type: none"> <li>1. Power line 4.0mm x5 core, low impedance rubber cable, 3m long</li> <li>2. Stainless steel SUS #304 square perforated steel plate rack, 2 pieces</li> <li>3. Stainless steel adjustable spacing rack track ,2 sets</li> <li>4. One energy-saving lamp</li> <li>5. The body on the left side of the bits of 50 mm bore test 1 with stainless steel cover 1, only the silicone stopper head, 1 only.</li> <li>6. Meteorological gauze for standard test, 1 roll</li> <li>7. Fuse (wearing parts), 1 set</li> <li>8. Operating instructions, 1 copy</li> </ol>

**Assembly detail photos:**



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**Key components( The configuration base on customer specific model selection. )**

Item Name	Brand	
Compressor	 Germany BOCK	
Filter	 Denmark (DANFOSS)	
Plate heat exchanger	 Alfa laval, Sweden.	
Oil pressure controller	 Japan, Saginomiya	
Oil-water separator	 America (AICO)	
Vacuum explosion-proof glass	Taiwan Zhuanfeng	

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<p>Heater</p>	 <p>hotflex# Ø 6.5 柔性管状加热 Flexible tubular heater</p>	<p>Germany  ( Hotset )</p>	
<p>Contactor</p>		<p>Schneider</p>	
<p>Thermorelay</p>	 <p>LRD-08C</p>	<p>Schneider</p>	
<p>Dry burning protector</p>		<p>Italy</p>	
<p>Time relay</p>		<p>Japan,  OMRON</p>	
<p>Main source switch</p>		<p>Japan,  Mitsubishi</p>	

# INTRODUCTION

## 企业简介

### ● COMPANY HONOR 公司荣誉

东莞市民营科技型企业	Private technological type enterprises in Dongguan city
东莞市质量协会会员单位	Member unit of quality association in Dongguan city
旅行箱包相关标准起草单位	Member unit in relevant standards of traveling case and bag
中国胶粘剂协会会员单位	Chinese member unit of adhesive association
中国皮革协会会员单位	Chinese member unit of leather association

### ● CORE COMPETENCIES 核心能力

公司一直从事材料及其制品的物性检测的开发、研制工作。通过近二十年的发展，已建立起公司的“工程技术研发中心”和精密制造团队。主要开展材料及其制品的物性检测方法及相关检测技术研究，检测方法标准的制定，检测仪器开发研制，检测技术培训等多项业务。已在以下行业具备了强劲、领先的专业优势：

The company had been engaged in the development of the physical performance test about materials and their products, Through nearly 20 years of development, had established the "engineering and technology research and development centers" and precision manufacturing team. Mainly develop the testing methods of material and products and measure technical research, the formulation of the detection method standard, the development of testing instrument, technical training and other business. Had already possessed the powerful, leading professional advantage in the following industries:

### ● COMPANY VISION 公司愿景

成为先进检测方法的开创者，成为企业产品品质提升的方法的引导者。  
营造一个创造价值、全员满意的优质工作环境。

Become the pioneers of advanced test methods and the guide of methods for upgrading the quality of product  
Creat the high quality working conditions for the creation of value and the staff

### ● COMPANY MISSION 公司使命

为客户提供产品质量提升的最佳解决方案，消除一切产品的缺陷和使用隐患，为提升人类的生活品质而执着追求！  
Provide the best solution to upgrade product quality for customers and eliminate defects and the use of hidden dangers of all products, persistent quest for upgrading the quality of human life.

### ● CORE VALUE 核心价值

<ul style="list-style-type: none"> <li>• 顾客满意 主动倾听顾客的声音 提供顾客最佳解决方案</li> <li>• 团队合作 专业分工，相互支持 主动沟通，实时协调 彼此信任，遵守纪律</li> <li>• 贯彻执行 目标明确，追求成长，坚持到底</li> <li>• 创造价值 鼓励创新，持续学习</li> </ul>	<ul style="list-style-type: none"> <li>• Satisfy the customers Take the initiative to listen to the voice of customers Provide customers with the best solution</li> <li>• Teamwork Professional division of labor, support each other Active communication, real-time coordination Mutual trust and observe discipline</li> <li>• Carry out Clear objectives, pursue development, persist to the end</li> <li>• Creat value Encourage innovation, continuous learning</li> </ul>
提供员工安全、健康、绿色的工作环境	Provide secure, healthy and green working environment for the staff