Simplewell昇微

Rapid temperature change test chamber

Simplewell Technology Co., Ltd

Address：No.221, Shuixin Road, Dalang Town, Dongguan City

Tel：0769-88887909　Fax：0769-88885229

Website：www.simplewell.com.cn

Email：sales01@simplewell.com.cn

Contents

01

Part

Production description

1.1 Production description

1. The rapid temperature change test chamber is mainly suitable for aerospace products, information electronic instruments, materials, electronic products and components to test various performance indicators under the condition of rapid temperature changes.
2. The front part of the chamber is the space for the test product, and the rear part is the air conditioning channel. There is a hollow toughened glass observation window and a control panel on the door, and there is a lighting lamp inside the chamber.
3、The standard model is divided into STH and NTH series.The electric control box of NTH is at the rear of the chamber and the cable ports can be customized on the left and right sides； The electric control box of STH is at the right side of the chamber and the cable ports can be only customized on the left side
4、The temperature change rate can be linear or nonlinear
5、The function of the battery chamber can be customized, and it is dedicated to the battery cell experiment.

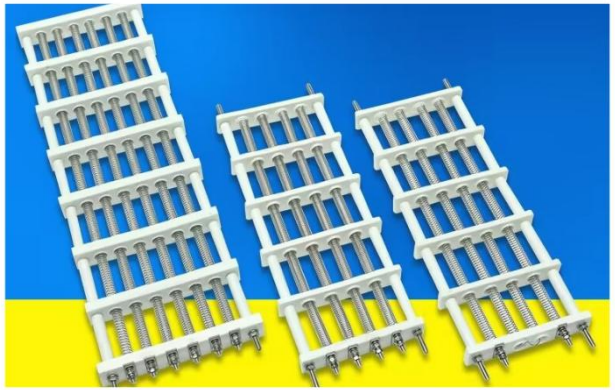
1.2 Heating and humidification system

Heating system：

1. Ceramic screw heater, composed of stainless steel screw, screw, ceramic block, ceramic end cover;
2. The heater has anti-corrosion, anti-oxidation, explosion-proof and air-burning protection functions;
3. Control method: adopt PWM pulse intelligent width adjustment control technology

Humidification system：

1.Using nickel-chromium alloy humidifier, 316 seamless stainless steel tube armor molding
2.Quick humidification, water saving, electricity saving, safety and leakage prevention
3.With water shortage alarm and anti-dry burning protection function



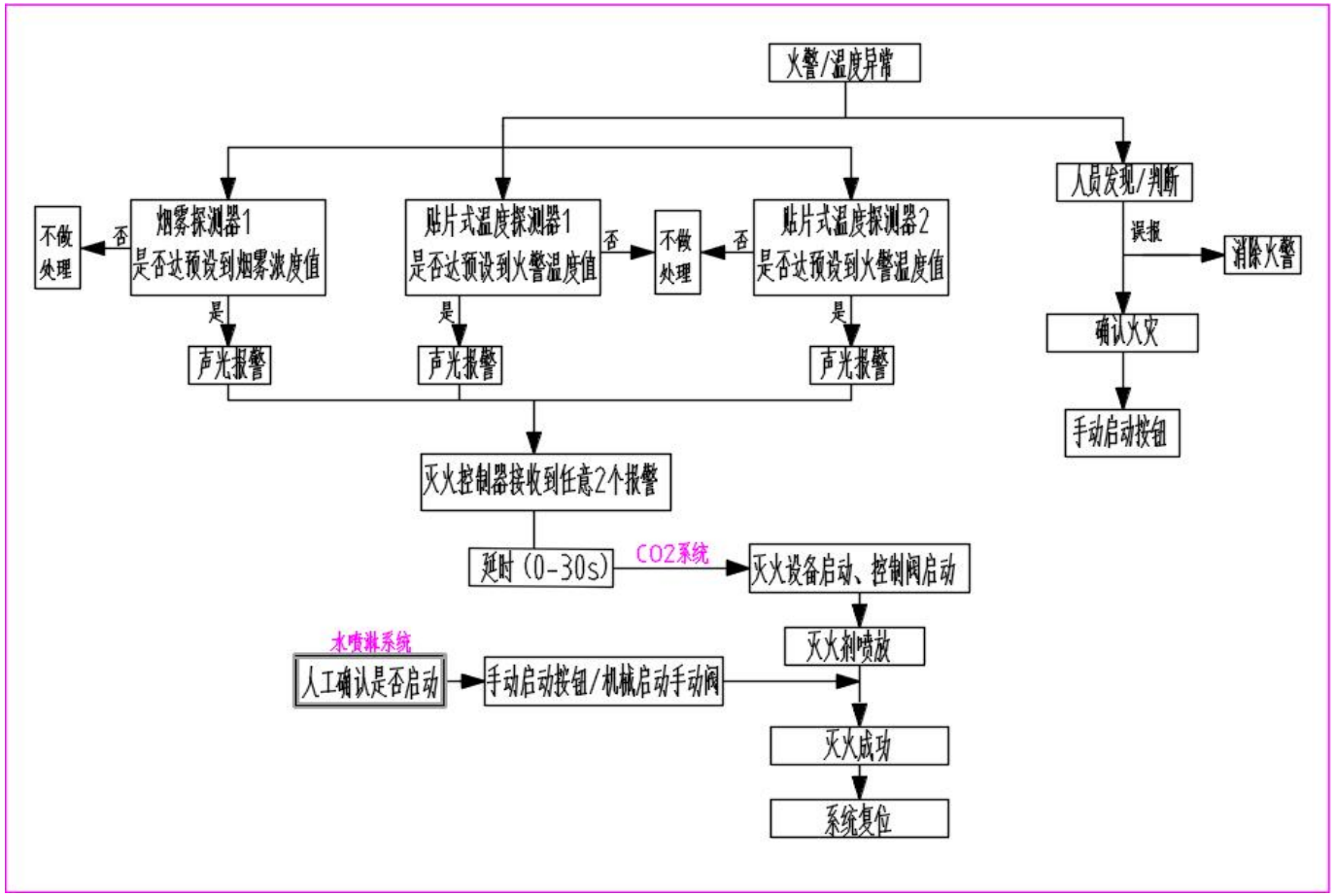
Ceramic Bare Wire Heater

Stainless steel humidification water tank

Humidifier

Humidification tube

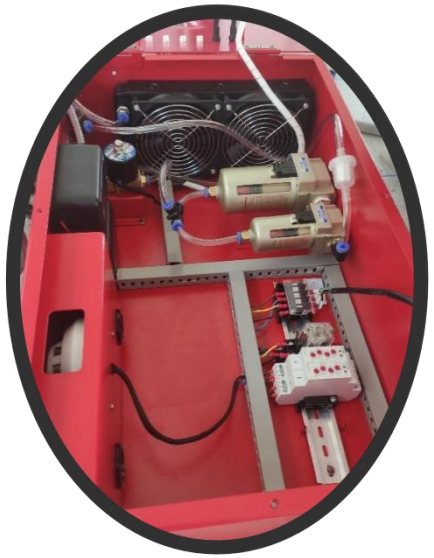
1.3 Principles of fire fighting (For battery test)



1.The carbon dioxide cooling system adpots a 70L bottle group, and a nozzle is installed in the environmental test chamber. After receiving the start signal, the valve is opened to spray CO2 into the chamber。

2.The water fire extinguishing system consists of manual valves, electric valves, open water nozzles, Y-type filters, pipelines, etc. The water supply of the system needs to be provided by the user. The water fire extinguishing start is manually started. After the CO2 is sprayed, the fire continues to burn and the water fire extinguishing system is manually started. The water fire extinguishing system is stopped manually. Press the stop button and the fire extinguishing system stops spraying water.

1.4 Fire Parts（For battery test）

Fire fighting system：

1. Fire extinguishing controller (built-in independent power supply)；
2. Detection system (suction sampling device, smoke detection, patch temperature detector, 8-way temperature controller)
3. Water spray manual ball valve switch, solenoid valve；
4. CO2 extinguisher

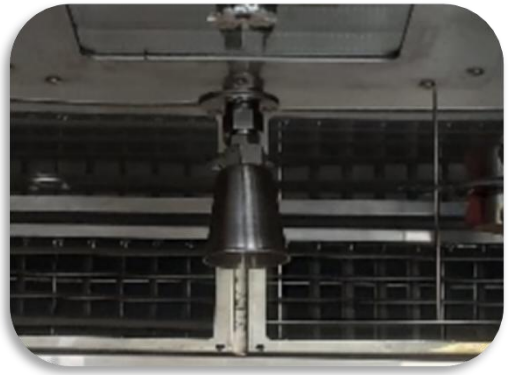
1.4 Fire Parts（For battery test）

Water sprinkler nozzle

Audible alarm

Y-type filter

SMD temperature sensor

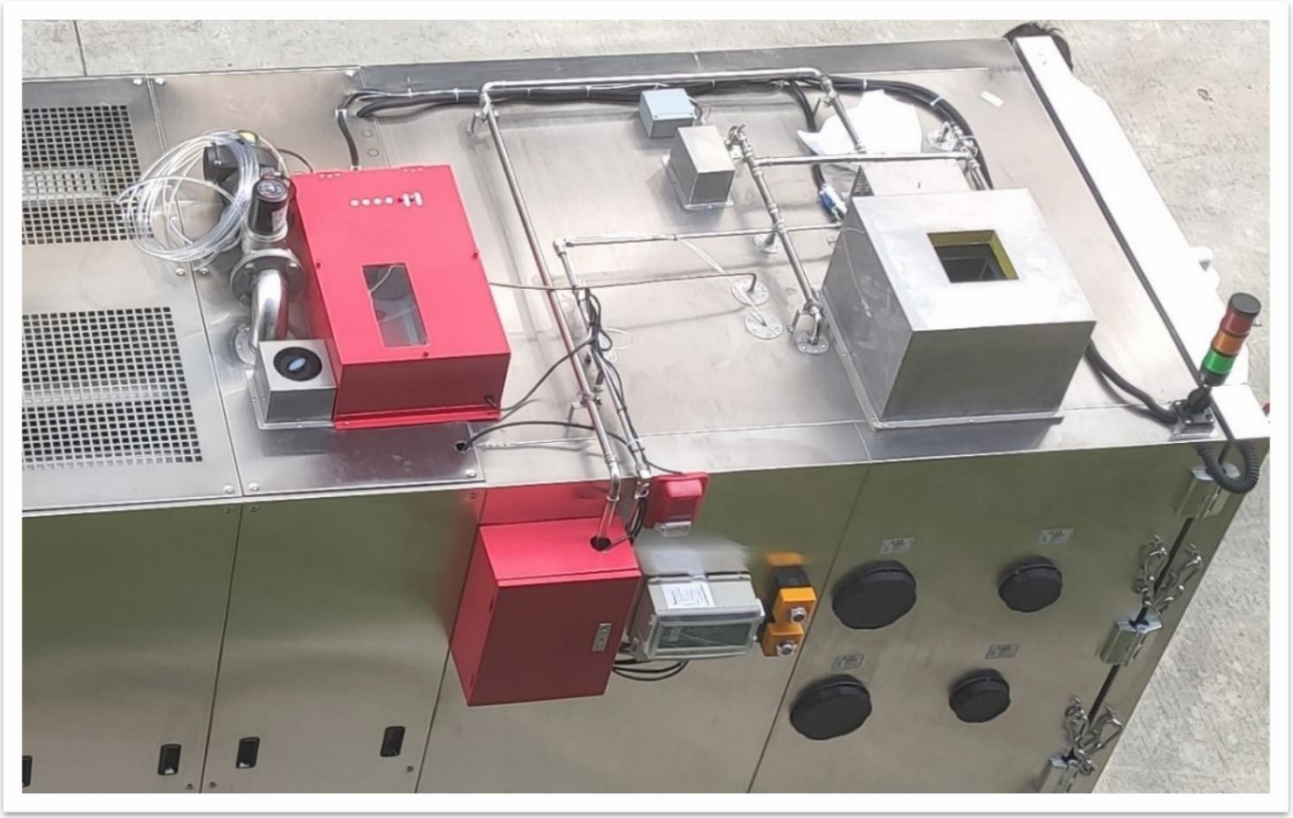


CO2 nozzle

Electric button

Round head valve main unit

1.5 Exhaust system（For battery test）



Smoke exhaust system：

1.When the experimental sample spontaneously ignites, a large amount of harmful gas and smoke will be produced. After the smoke detector is detected, the solenoid valve is automatically opened, and the blower is started to extract the smoke and harmful gases from the cabin and discharge them to the waste gas for filtration and purification.

2、After the smoke in the cabin is exhausted, the solenoid valve is automatically closed and the blower is stopped to prevent a large amount of external humid air from entering the test chamber。

3、The smoke exhaust system can be directly controlled by the switch on the control panel, or other equipment can give a control signal to control the opening and closing of the exhaust fan.

1.6 Smoke exhaust element (For battery test)

Blower

Smoke Detector

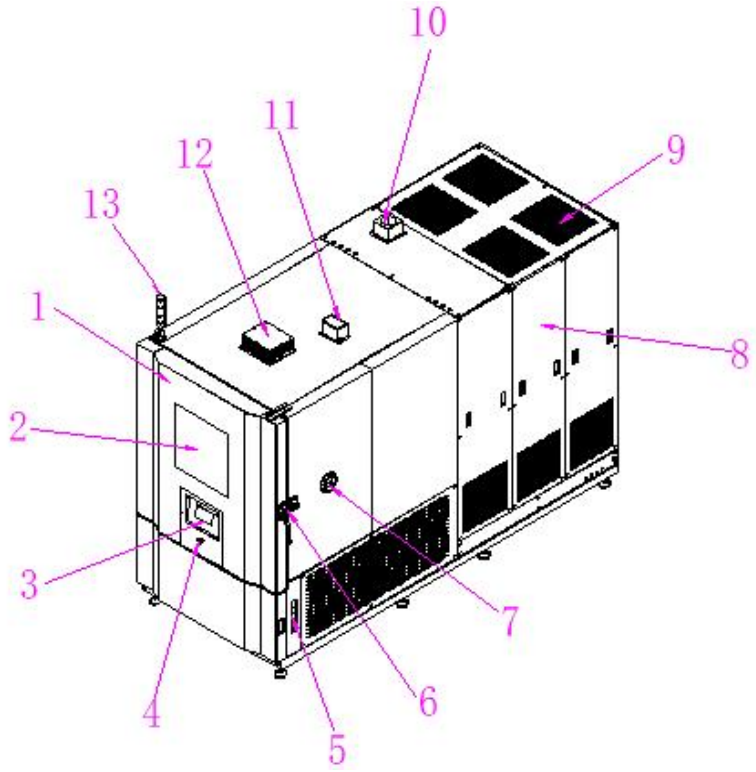
Electric valve

Exhaust hose

1.7 Pressure relief system (For battery test)

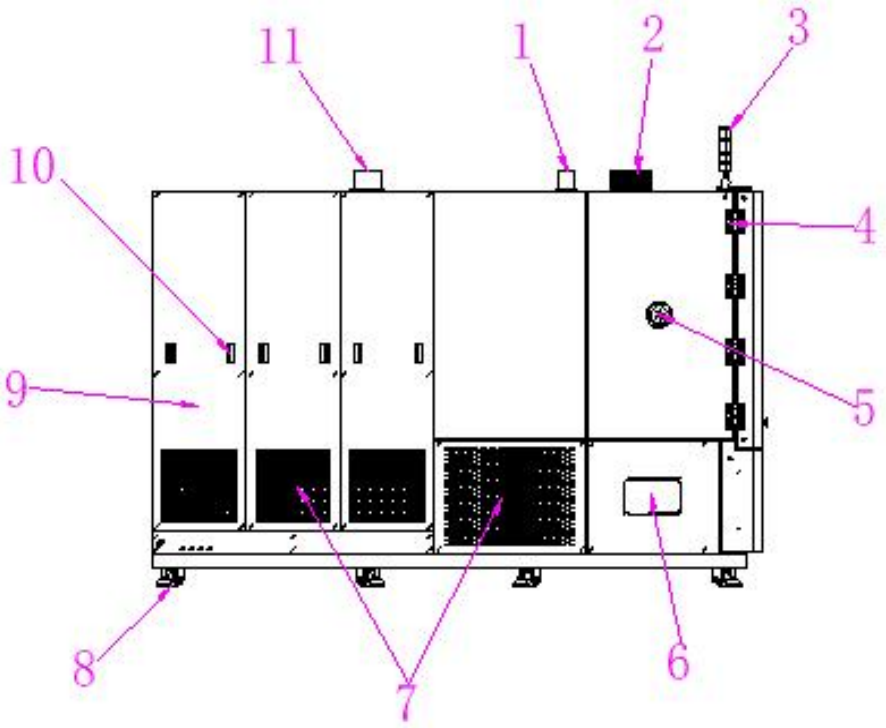
Battery chamber pressure relief system:
1. When the battery explodes, the pressure in the box increases sharply due to abnormal working conditions, and the pressure relief device is automatically pushed open to relieve the destructive pressure in the box and quickly discharge high-pressure gas;
2. After the pressure is balanced, the pressure relief device automatically returns to its original position, making the cabin airtight;
3. One pressure relief port is located on the top, which is safe and reliable; the picture shows the external view of the pressure relief device, and the top opening is connected to the exhaust gas filtration system

1.8 Function introduction



Serial number	Name	Function
1	LOGO area	Paste company LOGO
2	Window glass	Three layer hollow actinic glass
3	Control panel	Install the controller, switch, indicator light, data port
4	Emergency stop switch	shut down the machine urgently
5	Over temperature protection	Control temperature upper limit
6	Door lock	Place or take out samples after opening the door
7	Cable port	cable access hole
8	Electrical cabinet	Electrical parts installation room
9	Refrigeration cabinet	Refrigeration parts installation room
10	pressure balance port	Balance the pressure inside and outside the chamber
11	Sensor fixing port	For installing temperature and humidity probes
12	LED light	20W lamp lighting

1.8 Function introduction



Serial number	Name	Function
1	Sensor fixing port	For installing temperature and humidity probes
2	LED light	20W lamp lighting
3	Three-color light	Equipment status warning
4	door hinge	Connect the cabin and the door
5	Cable port	cable access hole
6	Main power switch	Turn on/off the main power supply of the test chamber
7	Heat dissipation mesh	Heat discharge port of refrigerator element
8	balance goblet and caster	Adjust height and move equipment
9	Refrigeration cabinet	Refrigeration parts installation room
10	Recessed handles	for easy installation and removal of side panels
11	pressure balance port	Balance the pressure inside and outside the chamber

1.9 Structural components

Snap-on door handle

Door hinge

Special treatment floodlight
High and low temperature resistance

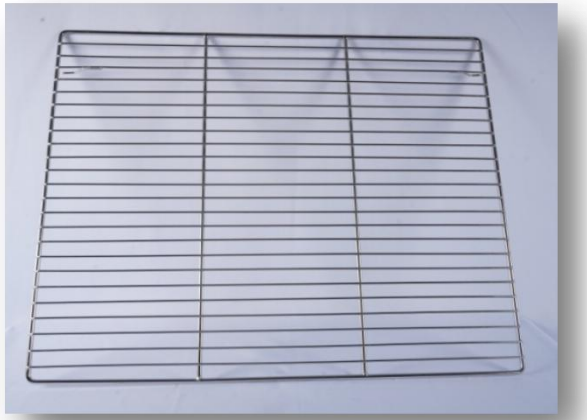
Multi-wing wind wheel

Custom motor
High and low temperature resistance

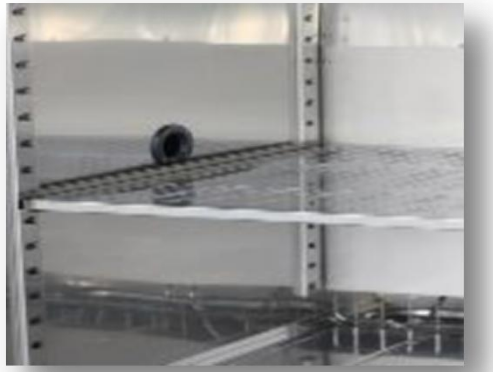
Balance goblet and caster

1.10 Structural components

One-piece stamping water tray, well formed and beautiful



Sample holder
Bearing 25Kg, can be upgraded to 50Kg



Sample holder installation, Adjustable position up and down

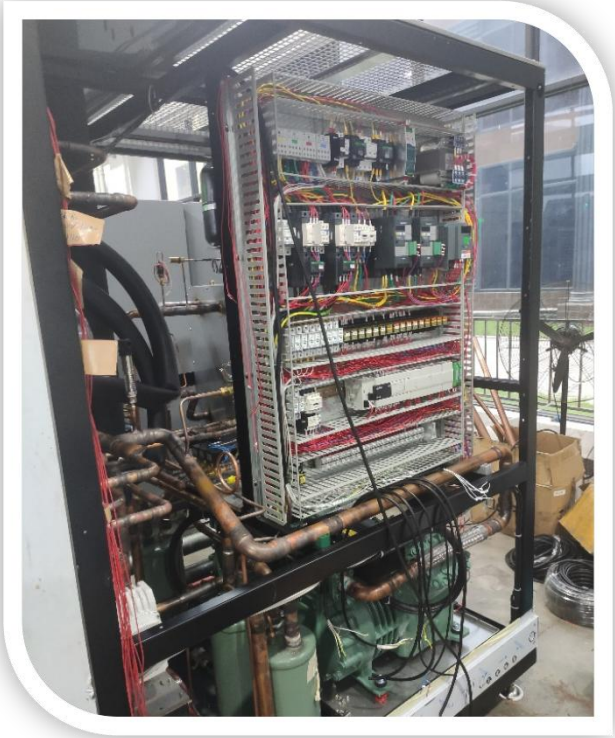
1.10 Structural components (for battery test)

Battery chamber explosion-proof chain:
1、Fixed installation at the connection between the door and the left and right sides of the outer cabin;
2、Main function: prevent the door from detaching from the explosion of the battery experiment sample in the cabin.

Observation window:
1、It is composed of three layers of hollow tempered glass, with heating wire and anti-condensation.
2、The inside of the window is additionally equipped with an explosion-proof mesh structure for battery test.

1.12 Electric control and refrigeration

On the front of the cabinet: Observation window, control panel, emergency stop switch, over-temperature protection, USB interface, camera (optional)



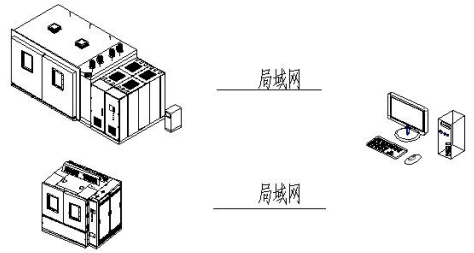
Electric control box

Refrigeration unit

1.13 Electronic control system

Electronic control system

1.Control: Adopt Japanese Mitsubishi new generation high-performance FX3U series PLC, 7.0 inches 600×480 dot matrix TFT color LCD display, Chinese/English menu, touch-type man-machine dialogue.The control unit adopts Japanese Mitsubishi PLC module to enter each system control, the control temperature is accurate and the equipment runs stably.



2、Connect to PC (optional): Through the centralized monitoring software, the test data can be recorded and automatically displayed as a curve in the PC, which can be printed directly, and the recording time is unlimited.File size depends on hard drive capacity. The PC can also be used as an operation terminal to realize remote monitoring.

1.14 Electronic components

Electronic Humidity Sensor
(Switzerland/Finland)

Temperature sensor
(Switzerland/Finland)

Overload protector
(Schneider)

PLC controller
(Mitsubishi)

No fuse switch
(Schneider)

Flame retardant wire

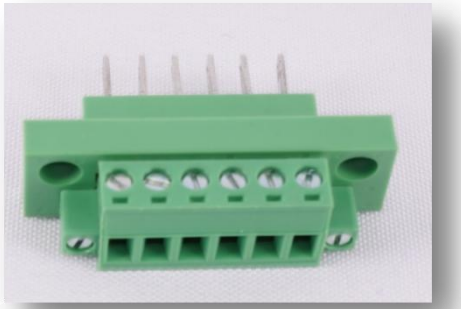
Main power switch
(Schneider)

Solid State Relay
(Carlo gavazzi)

Contactor
(Schneider)

1.14 Electronic components

Emergency stop switch



Sample terminal

USB interface

Over temperature protection

Three-color light

PVC junction box

1.15 Refrigeration components

2. Emerson's high-efficiency oil separator is used to separate the lubricating oil in the high-pressure steam discharged from the refrigeration compressor to ensure the safe and efficient operation of the refrigeration system.

1. “Tecumseh/Bitzer、Bock” Full/semi-hermetic low-noise piston compressor with reliable and stable performance

3. UAR shell and tube condenser

4、Danfoss solenoid valve/thermostatic expansion valve is adopted to effectively prevent the migration of refrigerant in the refrigeration system during shutdown

1.15 Refrigeration components

Customized oil-free finned evaporator
High heat transfer coefficient and low pressure loss

Plate heat exchanger
High heat transfer efficiency, small heat loss, compact structure, easy to clean

Liquid storage tank
Store refrigerant and adjust load changes demand for evaporator

1.9 Circulating waterway accessories (optional)

Water tower

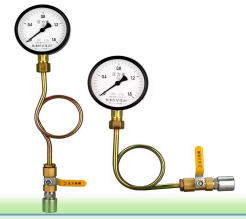
Water pump

Ball valve

Y type strainer

Ball valve

Check Valve



Pressure gauge

Water temperature gauge

water filter (optional)

Flow meter (optional)

GLT series circular counter-flow cooling tower is a glass fiber reinforced plastic cooling tower, which adopts counter-flow air heat exchange technology. The filler is made of high-quality PVC oblique wave film. Reliable, durable and easy to assemble.Widely used in various cooling and heat dissipation places, especially suitable for cooling water circulation systems such as air conditioning refrigeration, air compressor stations, heating furnaces and condensation processes.

1.17 Optional components

HD Camera
remote monitoring operation

Cable port
φ50、φ100、φ150

Cable port
rubber stopper

Combustible gas
detector

Air source
dryer

Ultrasonic humidifier

Pure water system
Softening, Filtration, Wastewater
Discharge

Pressure sensor

1.18 Process design

1. Pipeline welding process: high-quality copper tube nitrogen shielded welding method is adopted, which avoids the damage to the compressor caused by the oxide impurities on the inner wall of the copper tube entering the refrigeration system caused by the traditional welding method.

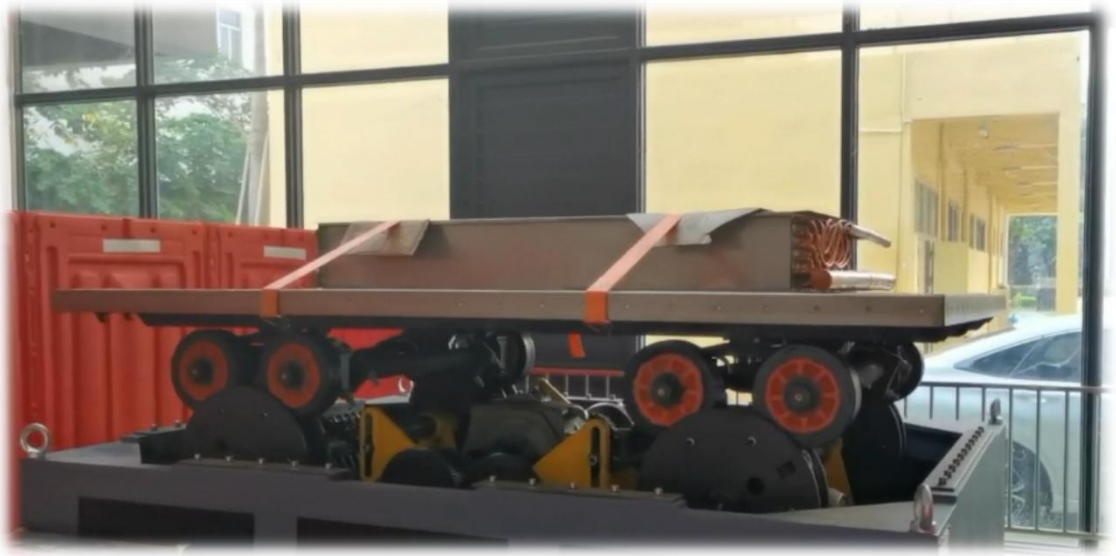
2. Damping measures: Install damping springs and anti-vibration soft rubber pads at the bottom of the compressor and pipeline to reduce vibration.

3.Pipeline protection measures: The pipeline of the refrigeration system adopts the method of adding anti-vibration hose and C-shaped elbow to avoid copper pipes and cracks caused by vibration and temperature changes.

5. When the equipment is running, detect the circuit temperature of the power distribution cabinet.

4. Noise control: The condenser adopts the German Marl low-speed high-air volume condensing fan, and installs wave-shaped sound-absorbing sponge around the refrigeration unit to achieve lower noise.

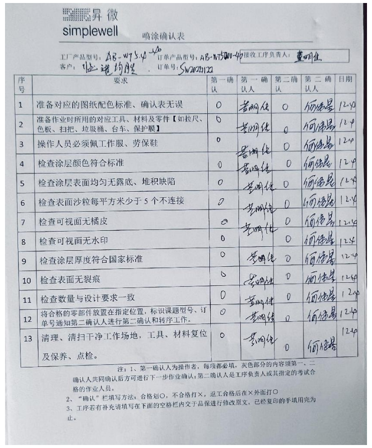
1.18 Simulated road condition vibration test

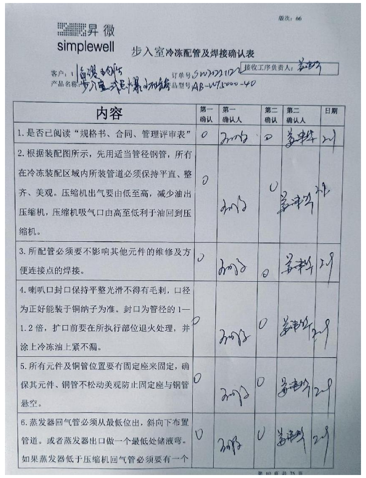


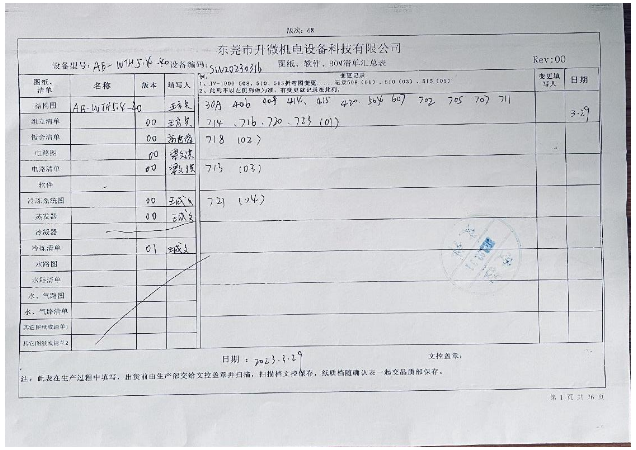
Parts such as evaporators are subjected to vibration tests before installation

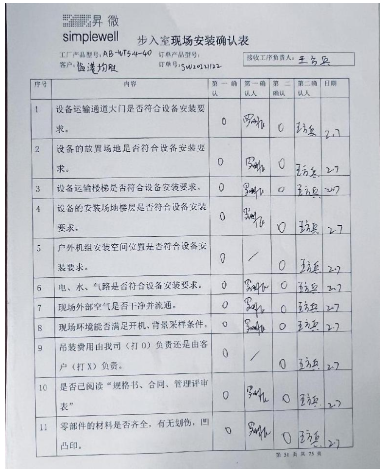
Vibration test for small equipment before shipment

1.18 Confirmation of each process





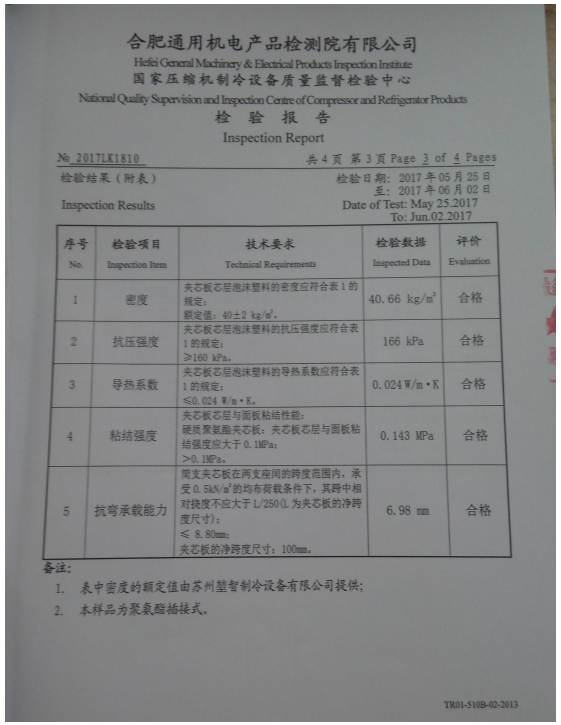




Confirmation of the production process:

After the production of the equipment begins, the person in charge of each link will carefully fill in the confirmation form to correct the problems in the production process in a timely manner. At the same time, trace the source, optimize the production process, improve production efficiency, and ensure the quality of each equipment produced

1.18 Manufacturing process and requirements



合肥通用机电产品检测院有限公司
Hefei General Machinery & Electrical Products Inspection Institute
国家压缩机制冷设备质量监督检验中心
National Quality Supervision and Inspection Centre of Compressor and Refrigerator Products
检 验 报 告
Inspection Report

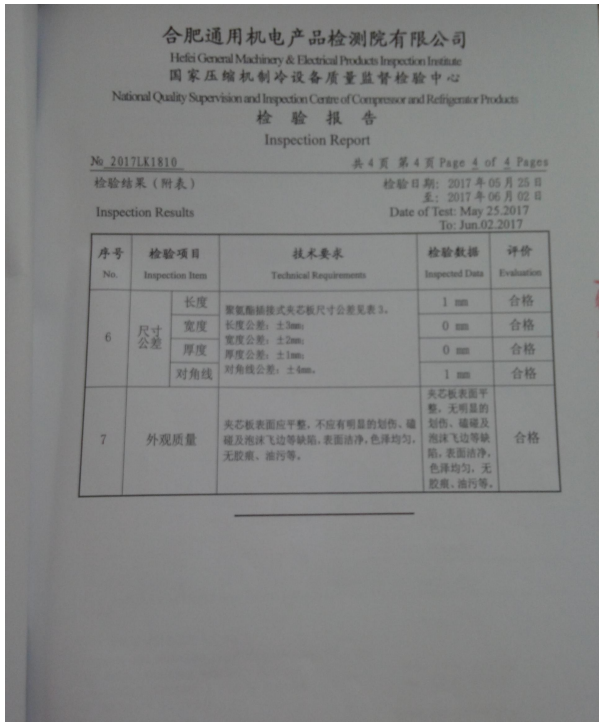
No. 2017LK1810　　共 4 页 第 3 页 Page 3 of 4 Pages

检验结果（附表）　　检验日期：2017 年 05 月 25 日 至：2017 年 06 月 02 日
Inspection Results　　Date of Test: May 25.2017 To: Jun.02.2017

序号 No.	检验项目 Inspection Item	技术要求 Technical Requirements	检验数据 Inspected Data	评价 Evaluation
1	密度	夹芯板芯层泡沫塑料的密度应符合表 1 的规定；额定值：40±2 kg/m³。	40.66 kg/m³	合格
2	抗压强度	夹芯板芯层泡沫塑料的抗压强度应符合表 1 的规定；≥160 kPa。	166 kPa	合格
3	导热系数	夹芯板芯层泡沫塑料的导热系数应符合表 1 的规定；≤0.024 W/m·K。	0.024 W/m·K	合格
4	粘结强度	夹芯板芯层与面板粘结性能：硬质聚氨酯夹芯板：夹芯板芯层与面板粘结强度应大于 0.1MPa；>0.1MPa。	0.143 MPa	合格
5	抗弯承载能力	简支夹芯板在两支座间的跨度范围内，承受 0.5kN/m² 的均布荷载条件下，其跨中相对挠度不应大于 L/250(L 为夹芯板的净跨度尺寸)；≤ 8.80mm；夹芯板的净跨度尺寸：100mm。	6.98 mm	合格

备注：
1. 表中密度的额定值由苏州塑智制冷设备有限公司提供；
2. 本样品为聚氨酯插接式。

TR01-510B-02-2013

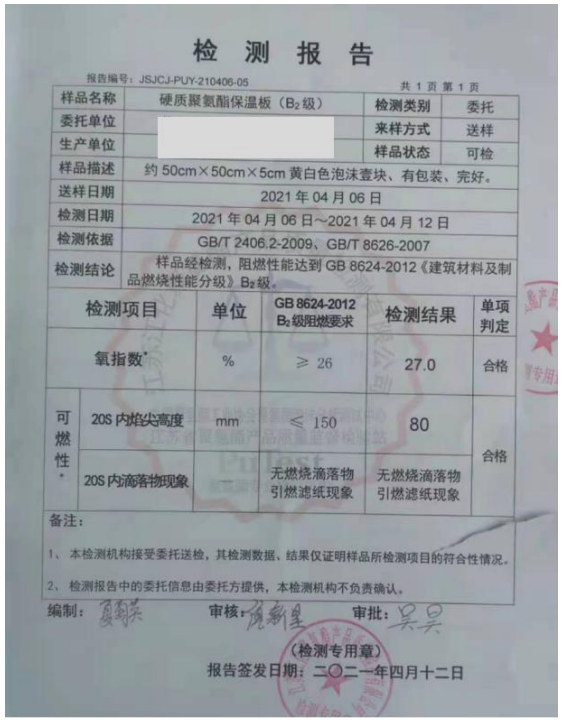


合肥通用机电产品检测院有限公司
Hefei General Machinery & Electrical Products Inspection Institute
国家压缩机制冷设备质量监督检验中心
National Quality Supervision and Inspection Centre of Compressor and Refrigerator Products
检 验 报 告
Inspection Report

No. 2017LK1810　　共 4 页 第 4 页 Page 4 of 4 Pages

检验结果（附表）　　检验日期：2017 年 05 月 25 日 至：2017 年 06 月 02 日
Inspection Results　　Date of Test: May 25.2017 To: Jun.02.2017

序号 No.	检验项目 Inspection Item		技术要求 Technical Requirements	检验数据 Inspected Data	评价 Evaluation
6	尺寸公差	长度	聚氨酯插接式夹芯板尺寸公差见表 3。长度公差：±3mm；宽度公差：±2mm；厚度公差：±1mm；对角线公差：±4mm。	1 mm	合格
		宽度		0 mm	合格
		厚度		0 mm	合格
		对角线		1 mm	合格
7	外观质量		夹芯板表面应平整，不应有明显的划伤、磕碰及泡沫飞边等缺陷。表面洁净，色泽均匀，无胶痕、油污等。	夹芯板表面平整，无明显的划伤、磕碰及泡沫飞边等缺陷，表面洁净，色泽均匀，无胶痕、油污等。	合格



检 测 报 告

报告编号：JSJCJ-PUY-210406-05　　共 1 页 第 1 页

样品名称	硬质聚氨酯保温板（B_2级）	检测类别	委托
委托单位		来样方式	送样
生产单位		样品状态	可检
样品描述	约 50cm×50cm×5cm 黄白色泡沫壹块、有包装、完好。		
送样日期	2021 年 04 月 06 日		
检测日期	2021 年 04 月 06 日~2021 年 04 月 12 日		
检测依据	GB/T 2406.2-2009、GB/T 8626-2007		
检测结论	样品经检测，阻燃性能达到 GB 8624-2012《建筑材料及制品燃烧性能分级》B_2级。		

检测项目		单位	GB 8624-2012 B_2级阻燃要求	检测结果	单项判定
氧指数*		%	≥ 26	27.0	合格
可燃性*	20S 内焰尖高度	mm	≤ 150	80	合格
	20S 内滴落物现象	—	无燃烧滴落物引燃滤纸现象	无燃烧滴落物引燃滤纸现象	

备注：
1、本检测机构接受委托送检，其检测数据、结果仅证明样品所检测项目的符合性情况。
2、检测报告中的委托信息由委托方提供，本检测机构不负责确认。

编制：　审核：　审批：

（检测专用章）
报告签发日期：二〇二一年四月十二日

Flame-retardant storage board
The picture shows the performance test report of the storage board in terms of flame retardancy, compressive strength, and bending bearing capacity

1.18 Wire Flame Retardant Certificate

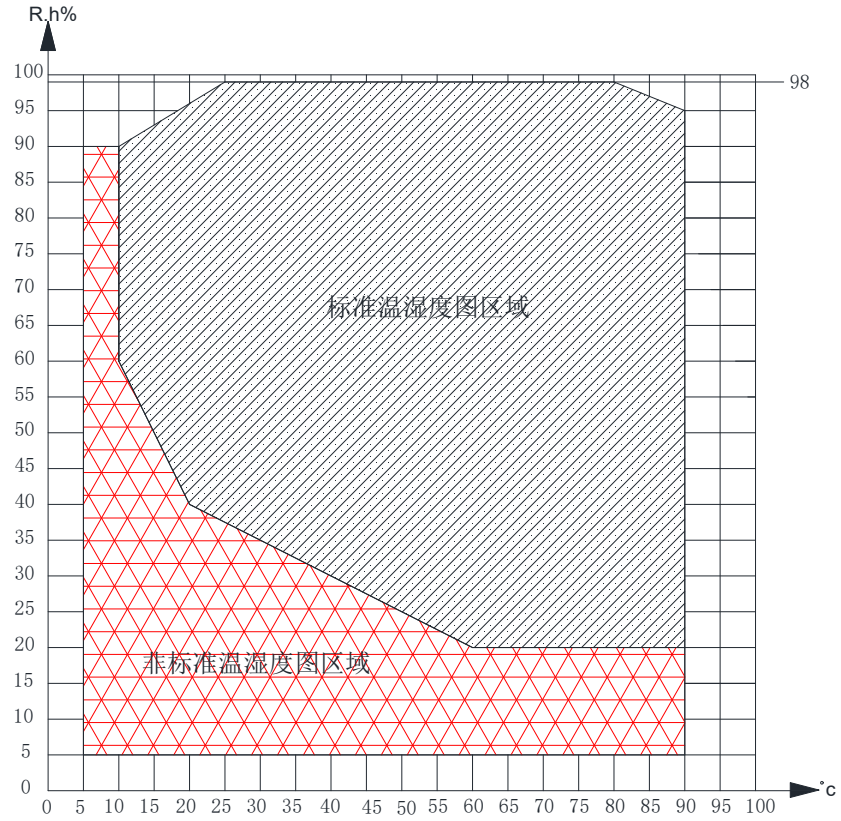
Adopt flame retardant wires, the picture shows the wire flame retardant certification

1.19 Standards compliant

1. GB/T2423.1-2008 Environmental test of electrical electronic products Part 2: Test A: Low temperature test method
2. GB/T2423.2-2008 Environmental test of electrical electronic products Part 2: Test B: High temperature test method
3. GB/T2423.3-2016 Environmental Testing of Electric Electronic Products Part 2: Test Cab: Constant Damp Heat Test Method
4. GB/T2423.4-2008 Environmental Test for Electric Electronic Products Part 2: Test Db: Test Method for Alternating Damp Heat
5. GJB150.3A-2009 Laboratory Environmental Test Methods for Military Equipment Part 3: High Temperature Test
6. GJB150.4A-2009 Laboratory Environmental Test Methods for Military Equipment Part 4: Low Temperature Test
7. GJB150.9A-2009 Laboratory Environmental Test Methods for Military Equipment Part 9: Damp heat test
8. GB-T2423.34-2005 Environmental testing for electric and electronic products--Part 2: Test methods--Test Z/AD:Composite temeperature/humidity cyclic test
9. GJB360B-103 Steady state damp heat test
10. GJB360B-106 Humidity test
11. GJB360B-108 High temperature life test
12. Environmental testing—Part 2： Test methods -Test N: Change of temperature
13. GB-T2423.50-2012 Environmental testing- Part 2: Test methods- Test Cy: Damp heat, steady state, accelerated test primarily intended for components

1.20 Temperature humidity index

1.Temperature range: -70℃ ~ +150℃ ;
2.Temperature deviation: ±1.0℃;
3.Temperature uniformity: ±2.0℃;
4.Temperature fluctuation: ±0.5℃;
5.Humidity range: 10%RH-98%RH;
6.Humidity resolution: ±0.1%RH;
7.Humidity unifromity: ≤±3%RH;
8.Humidity fluctuation: ±2%RH;
9.Humidity deviation: ≤+2%, -3%RH (> 75%RH);
≤±5%RH (≤75%RH)
10.Combination of temperature and humidity: 10°C-90°C full cover with actual 10%-98%RH humidity;
11.Optional low humidity;



1.21 PV2005、PV1200

Optional PV2005 and PV1200 standard

一个周期(见图 1)持续 720 min (12 h),由下面的温度 – 空气湿度的曲线构成:

— 60 min, 升温相位,	温度为＋80℃,相对湿度为 80%.
— 240 min, 保持时间	温度为＋80℃,相对湿度为 80%
— 120 min, 降温相位,	在－40℃处, 当达到冻点附近约 30%空气湿度时, 从 T＜0℃起保持空气湿度不变, 即不再调节温度, (由于设备条件的限制, 从 T＜10℃开始, 湿度调节失效是允许的).
— 240 min, 保持时间,	在－40℃左右, 保持空气温度不变, 不调节温度.
— 60 min, 升温相位,	在＋23℃处,约在 T=0℃时, 相对湿度调到 30%.

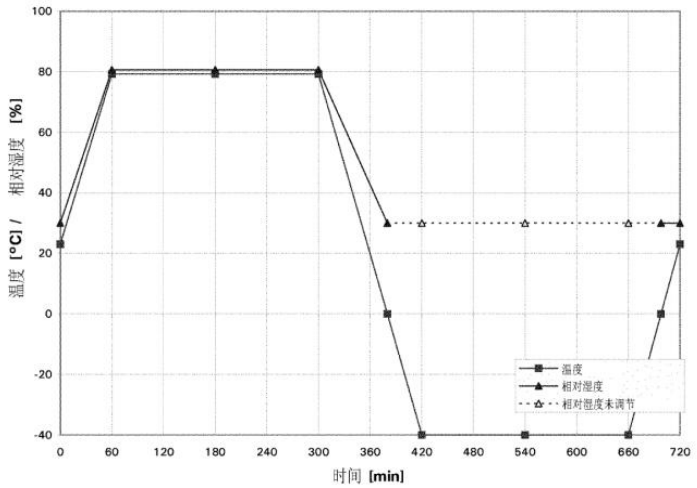


图 1. PV 1200 试验周期

The temperature humidity test chamber for interior parts meets the environmental test requirements for auto parts and materials in mainstream car companies and industry standards as follows (selected):

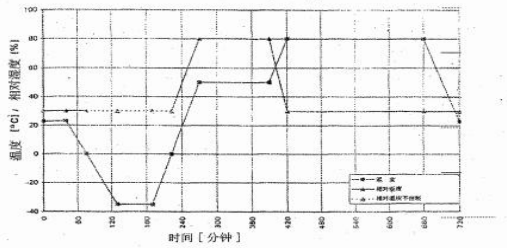
PV2005、PV1200

1 个循环持续 12 个小时（见过程图 1）包括以下温度和气候条件

- 40 分钟	保持时间	+23℃，30％相对湿度
- 90 分钟	冷却过程	从+23 到－35℃，30％相对湿度
- 60 分钟	保持时间	－35℃，最大相对湿度 30％
- 80 分钟	加热过程	升温到＋50℃，80％相对湿度
- 120 分钟	保持时间	＋50℃，80％相对湿度
- 30 分钟	加热过程	升至＋80℃，30％相对湿度
- 240 分钟	保持时间	＋80℃，30％相对湿度
- 60 分钟	冷却过程	至＋23℃，30％相对湿度

在升温过程－升至＋80℃，30％相对湿度，空气中的实际含水量不得超过 95g/m³进行汽车内饰件试验时，在任何时间都不能出现露水。

PV2005 单个零件



1.22 Metrology report

GRGTEST 广电计量 广州广电计量检测股份有限公司 GUANG ZHOU GRG METROLOGY & TEST CO.,LTD.

校 准 证 书
CALIBRATION CERTIFICATE

证书编号: [redacted] 第 1 页 共 8 页
Certificate No. Page of

委托方 Client: [redacted]

联络信息 Contact Inf.:

仪器名称 Description: 1立方米快速温变试验箱

型号/规格 Model/Type: SW-1000-L5-40 制造厂 Manufacturer: 东莞市升微机电设备科技有限公司

出厂编号 Serial No.: SW20210601 管理号 Asset No.: -----

接收日期 Receipt Date: 2021年06月05日 Y M D 校准日期 Cal. Date: 2021年06月05日 Y M D

发布日期 Issued Date: 2021年06月05日 Y M D

批准 Approved by: 林会江 (副总监)

审核 Inspected by: 刘艳

校准 Calibrated by: 钟毅强

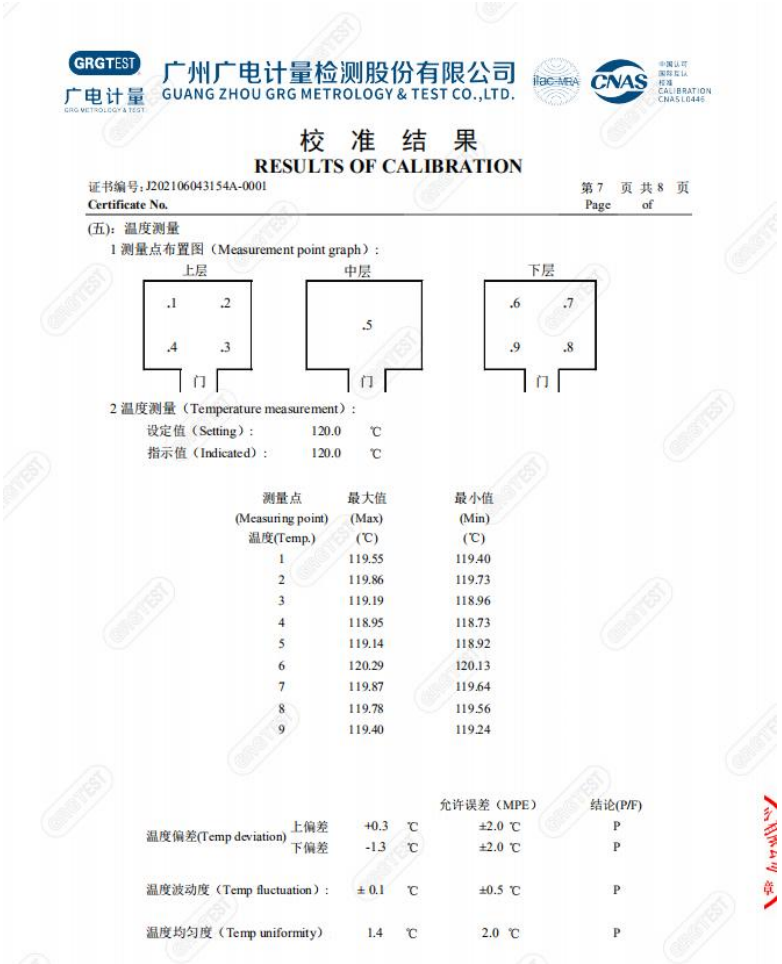
(Stamp)

总部地址(Headquarters Add): 广东省广州市黄埔大道西平云路163号 No.163,Pingyun Rd, West of HuangPu Ave.Guangzhou.Guangdong .China

实验室地址(Add.of the Lab): 广东省广州市黄埔大道西平云路163号 No.163,Pingyun Rd,West of HuangPu Ave.Guangzhou,Guangdong,China

联系电话(Tel.):400-602-0999 邮政编码(Postcode):510656

扫一扫验真伪



GRGTEST 广电计量 广州广电计量检测股份有限公司 GUANG ZHOU GRG METROLOGY & TEST CO.,LTD.

校 准 结 果
RESULTS OF CALIBRATION

证书编号: J202106043154A-0001 第 7 页 共 8 页
Certificate No. Page of

(五): 温度测量

1 测量点布置图 (Measurement point graph):

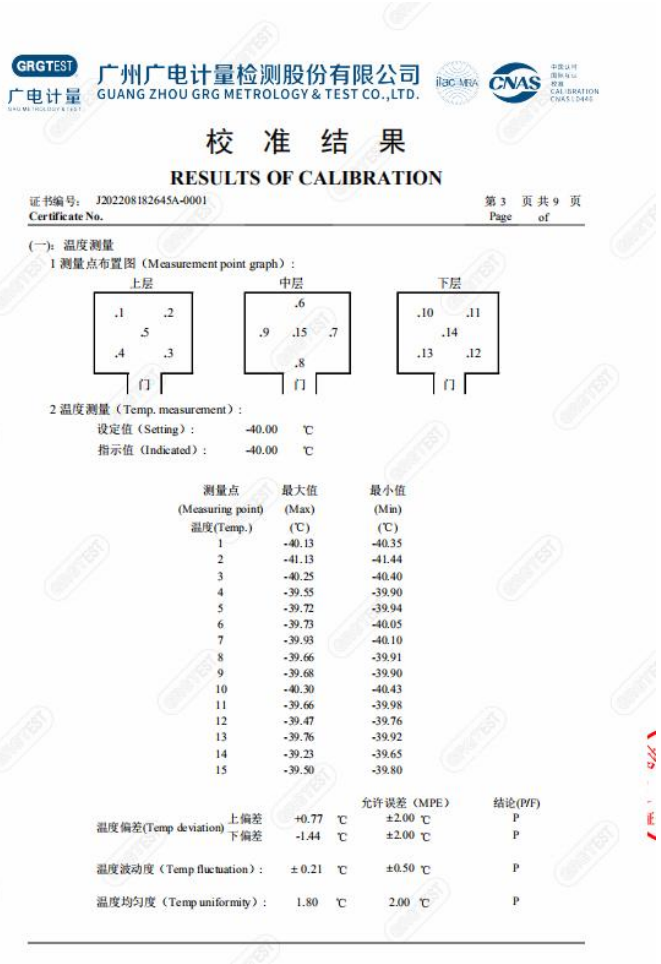
2 温度测量 (Temperature measurement):

设定值 (Setting): 120.0 ℃

指示值 (Indicated): 120.0 ℃

测量点 (Measuring point) 温度(Temp.)	最大值 (Max) (℃)	最小值 (Min) (℃)
1	119.55	119.40
2	119.86	119.73
3	119.19	118.96
4	118.95	118.73
5	119.14	118.92
6	120.29	120.13
7	119.87	119.64
8	119.78	119.56
9	119.40	119.24

			允许误差 (MPE)		结论(P/F)
温度偏差(Temp deviation)	上偏差	+0.3 ℃	±2.0 ℃		P
	下偏差	-1.3 ℃	±2.0 ℃		P
温度波动度 (Temp fluctuation):		± 0.1 ℃	±0.5 ℃		P
温度均匀度 (Temp uniformity)		1.4 ℃	2.0 ℃		P



GRGTEST 广电计量 广州广电计量检测股份有限公司 GUANG ZHOU GRG METROLOGY & TEST CO.,LTD.

校 准 结 果
RESULTS OF CALIBRATION

证书编号: J202208182645A-0001 第 3 页 共 9 页
Certificate No. Page of

(一): 温度测量

1 测量点布置图 (Measurement point graph):

2 温度测量 (Temp. measurement):

设定值 (Setting): -40.00 ℃

指示值 (Indicated): -40.00 ℃

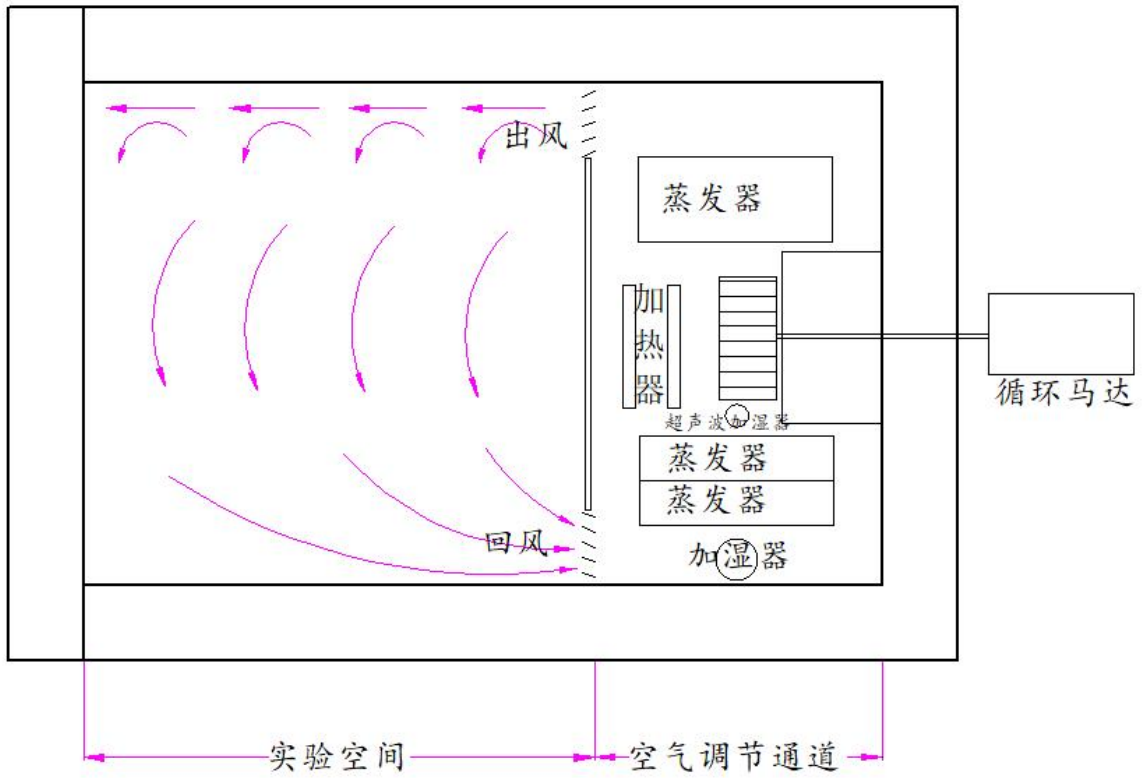
测量点 (Measuring point) 温度(Temp.)	最大值 (Max) (℃)	最小值 (Min) (℃)
1	-40.13	-40.35
2	-41.13	-41.44
3	-40.25	-40.40
4	-39.55	-39.90
5	-39.72	-39.94
6	-39.73	-40.05
7	-39.93	-40.10
8	-39.66	-39.91
9	-39.68	-39.90
10	-40.30	-40.43
11	-39.66	-39.98
12	-39.47	-39.76
13	-39.76	-39.92
14	-39.23	-39.65
15	-39.50	-39.80

			允许误差 (MPE)		结论(P/F)
温度偏差(Temp deviation)	上偏差	+0.77 ℃	±2.00 ℃		P
	下偏差	-1.44 ℃	±2.00 ℃		P
温度波动度 (Temp fluctuation):		± 0.21 ℃	±0.50 ℃		P
温度均匀度 (Temp uniformity):		1.80 ℃	2.00 ℃		P

02
Part

Features

2.1 working principle



Working principle (patented technology):

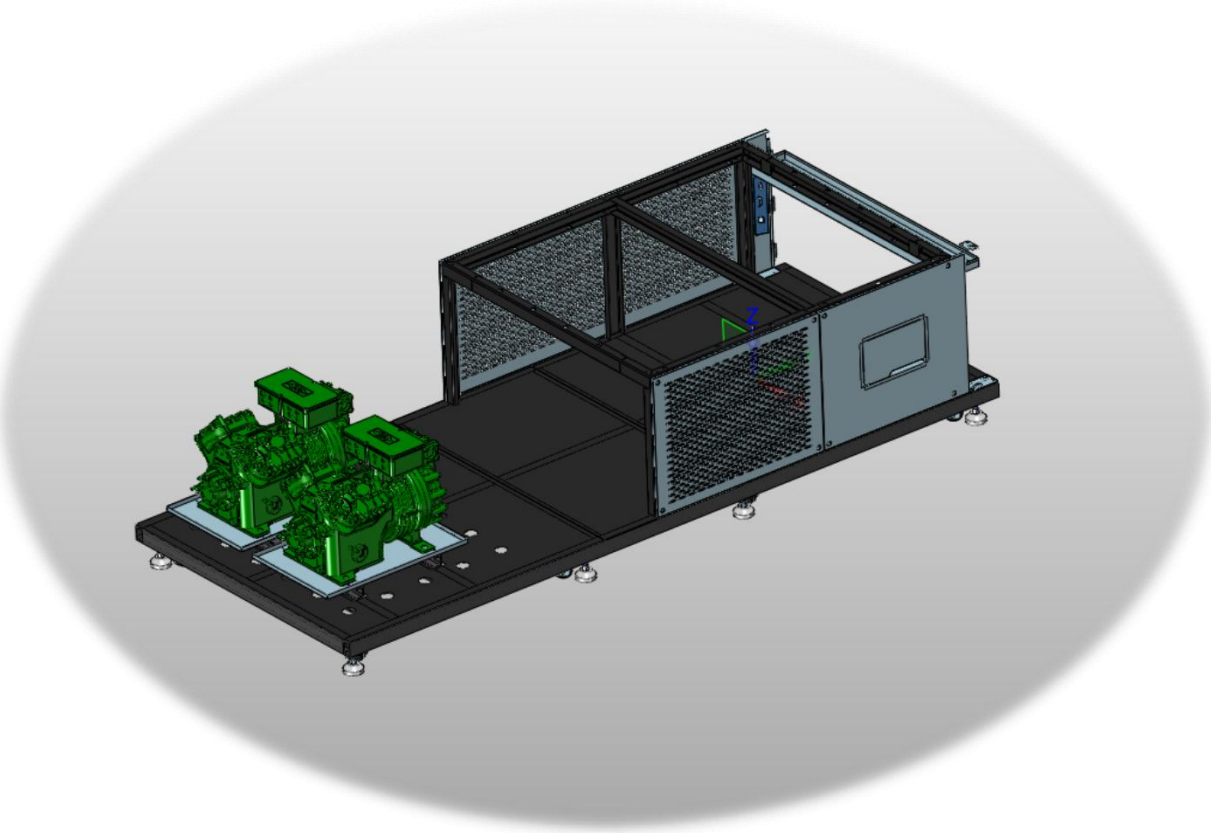
1.Adopt the method shown in the figure to transfer heat to ensure the temperature uniformity of the test space. The centrifugal fan placed at the rear of the air conditioning channel is the power source for air circulation. The air enters the channel from the bottom of the regulating channel, passes through the humidifier, standard evaporator and heater for heat exchange, is blown out by the centrifugal wind wheel, and then passes through the split air outlet evaporator and enters the inner box.

2.The air conditioning channel of the air circulation system is located on the rear side of the main box. It is composed of centrifugal fan, air conditioning channel bracket and cover plate. Humidity pipes for heaters and humidifiers and evaporators for refrigeration systems are located inside the conditioning channel

2.2 Structure feature

1.The electric cabinet is placed at the rear of the chamber, and test holes can be installed on the left and right sides of the cabinet (the specific size and quantity are optional)
2.Shelf structure, the default load-bearing capacity is 25Kg, and the upgrade adopts bridge-type reinforced structure with a load-bearing capacity of up to 75Kg

2.3 Structure feature



Base shockproof structure:

1、The base adopts channel steel as the skeleton and the cold-rolled plate is laid flat;

2、The compressor is in direct contact with the channel steel skeleton, and the bottom plate is punched with anti-vibration holes, which can effectively prevent the resonance phenomenon of the bottom plate and reduce noise generation

2.4 Structure feature

1. The back, top and sides of the refirgeration cabinet are equipped with cooling holes and the internal heat will be discharged through these cooling holes
2. The inside of the cover plate is pasted with sound-proof and noise-reducing flame-retardant and sound-absorbing cotton, which can effectively reduce the noise generated by the compressor

03

Part

Advancement of related technology

3.1 Advancement of related technology

Energy saving

The refrigeration system of related equipment (R404 and R23) adopts electronic expansion valve energy-saving control, and the temperature is stabilized by automatically adjusting the valve opening through software. The heater does not work during the stable process of low temperature (below 0° C), and the compressor consumes less with the cooling flow. The power is correspondingly reduced to achieve the purpose of energy saving. The energy-saving control effect of related equipment has passed the China CQC energy-saving product certification.

中国节能产品认证

试验报告

Energy Conservation Certification Report

报告编号：20210103W00644X 第 4 页 共 5 页

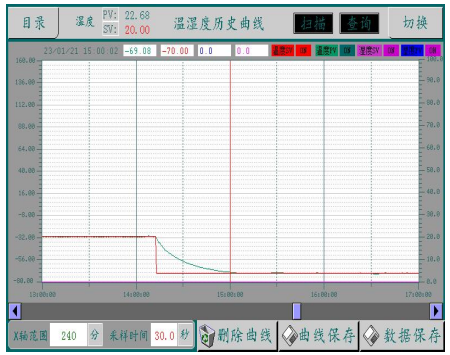
试验结果及判定

序号	检验项目	技术要求	型号	实测值
1	125℃耗电量（kW·h/h）	按照委托方技术要求进行检测。	NTH（AYH,ST）-420-（20～70）	0.785
2	25℃耗电量（kW·h/h）	按照委托方技术要求进行检测。	NTH（AYH,ST）-420-（20～70）	1.818
3	-25℃耗电量（kW·h/h）	按照委托方技术要求进行检测。	NTH（AYH,ST）-420-（20～70）	1.303

Energy saving test results and judgment

3.1 Advancement of related technology

Just set the temperature (humidity) conditions, the automatic control function can reach the set value with the maximum power before reaching the set value, and maintain the operation with the minimum power after reaching the set value.It can respond quickly to the opening and closing of the door and the change of heating load during the test to maintain a stable test environment



Running screen

3.1 Advancement of related technology

Main menu

Running screen

Program editor

Program editor

3.1 Advancement of related technology

Temperature:

The refrigeration system can control the output refrigeration capacity with high precision to achieve high performance and greatly save electricity consumption; in the stable normal temperature and low temperature range, the energy saving can reach more than 50% compared with the traditional mode

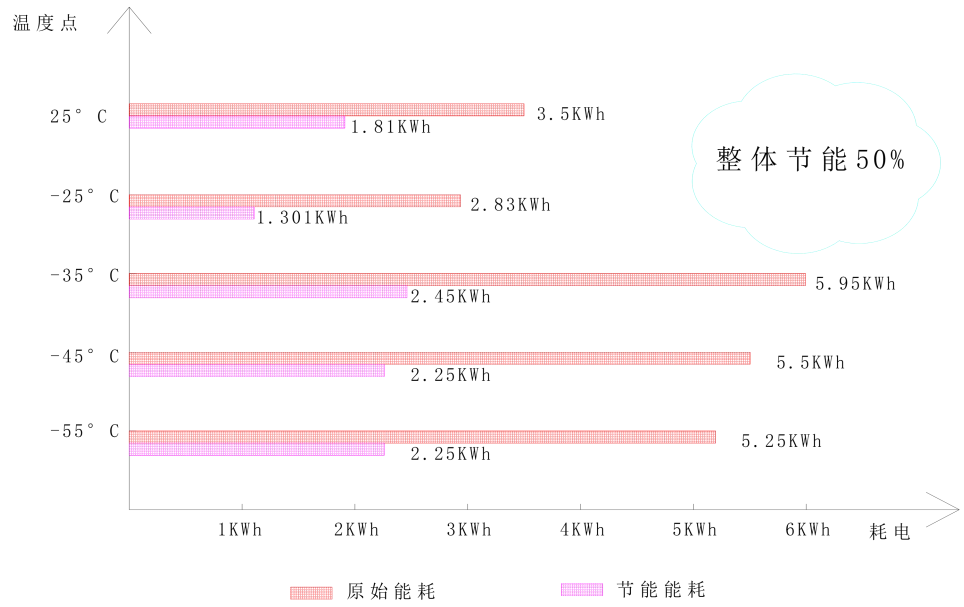
STH408-70 Comparison of Electricity Consumption of Cascade Refrigeration Units

Serial number	Temperature point	unit turned on	Old model power consumption	New model power consumption
1	25℃	R404A	3.5kWh	1.81kWh
2	-25℃	R404A	2.83kWh	1.303kWh
3	-35℃	R404A+R23	5.95kWh	2.45kWh
4	-45℃	R404A+R23	5.5kWh	2.25kWh
5	-55℃	R404A+R23	5.25kWh	2.25kWh

3.1 Advancement of related technology

Temperature:

The refrigeration system can control the output refrigeration capacity with high precision to achieve high performance and greatly save electricity consumption; in the stable normal temperature and low temperature range, the energy saving can reach more than 50% compared with the traditional mode



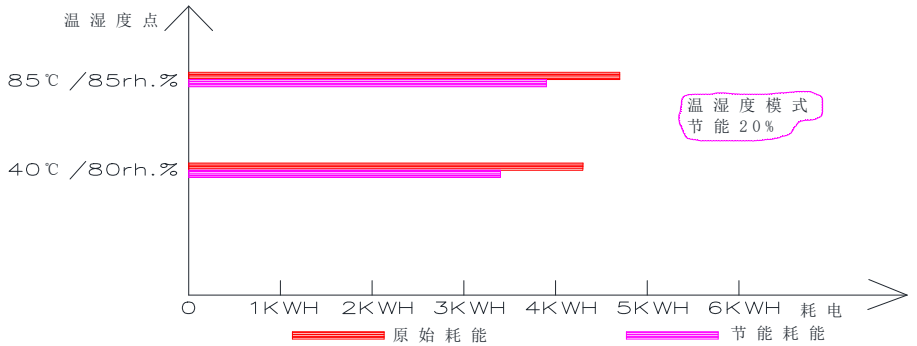
3.1 Advancement of related technology

Temperature and humidity:

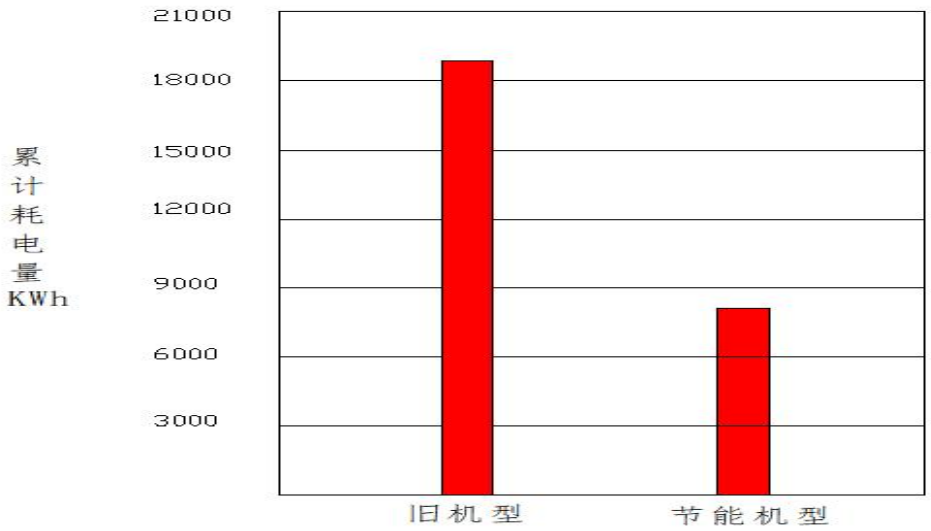
Adopt traditional control method at low humidity and high humidity extreme (Because the humidification output itself is small at the low humidity limit, and the heating tube output is small at the high humidity limit)

When the temperature and humidity are in other ranges, the evaporation pressure of the evaporator is adjusted according to the dew point corresponding to the set value to control the stability of the humidity, so that the output power of heating and humidification becomes smaller. The power becomes smaller accordingly to achieve the purpose of energy saving

	STH408-70 Comparison of Electricity Consumption			
Serial number	Temperature point	Humidity point	Old model power consumption	New model power consumption
1	85℃	85rh%	4.7kWh	3.9kWh
2	45℃	80rh%	4.3kWh	3.4kWh



3.1 Advancement of related technology



Device:ESTH408-70
Control temperature at -55℃ without load
Environment condition：25℃ 50%RH
Annual power consumption:
300 days*12*power consumption

04

Part

Customer case

4 Customer case

Product Quality Inspection Institute

4 Customer case

Auto Inspection Center

4 Customer case

Technology company

Simplewell昇微

Thanks for watching

Simplewell Technology Co., Ltd

Team

Cooperation

Persistence

Honor

Address：No.221, Shuixin Road, Dalang Town, Dongguan City

Tel：0769-88887909 Fax：0769-88885229

Website：www.simplewell.com.cn

Email：sales01@simplewell.com