SANWOOD三木

we determined to be a global brand of environmental chamber industry

- Manufacturing environmental test chambers with 20 years experience
- Independently developed controller
- Energy saving 40%
- Approved CE/ISO certification

Two box thermal shock test chamber Technical Data

(Whole Picture of the product)

Reliant EMC LLC
3311 Lewis Ave
Signal Hill, CA 90755
Tel.:(408)9165750

E-Mail: contact@reliantemc.com
Web:www.reliantemc.com

The reason to choose SANWOOD Equipment

Technical features

☆、The 7 inches color touch screen display is easy to operate with 250 days historical data storage function

☆、Reservation switch machine function, ending the planning and setting, power outages automatically save data and so on.

☆、Real-time experimental curve analysis with RS232, USB data storage connection

☆、The product automatically return to the normal temperature to avoid frost dew protection mechanism when the test end

☆、Adopt servo cooling medium flow control technology to achieve energy saving more than 30%.

☆、A circular experiment can effectively achieve automatic defrost.

☆、The energy saving time and energy saving can be reduced by using pure aluminum fin evaporator.

1、 Refrigeration advantages:

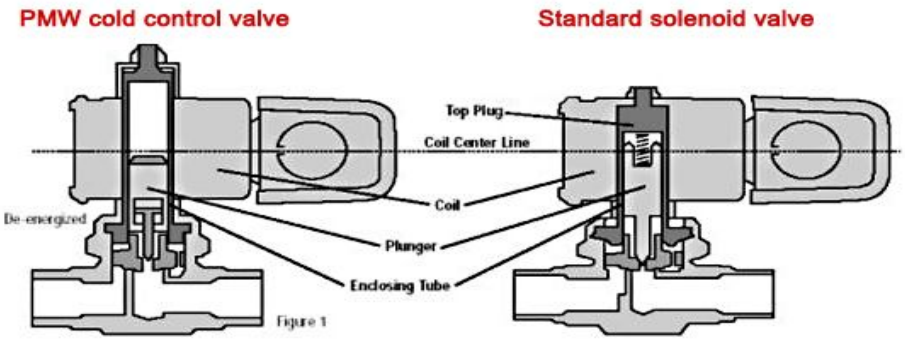
2、 Traditional equipment low temperature control method:

Ø Constant operation of refrigeration compressor+Heating PID control Refrigeration and heating temperature offset achieve dynamic balance, waste a lot of energy.

Realization of low temperature energy saving operation with new PWM cold control technology

Low temperature working state, the heater does not participate in the work, through the PWM technology to control the refrigerant flow and flow direction, the cooling pipe, cold bypass pipe, heat bypass pipe three to flow regulation, to achieve automatic constant temperature of the studio. This method can reduce the energy consumption by 40%.

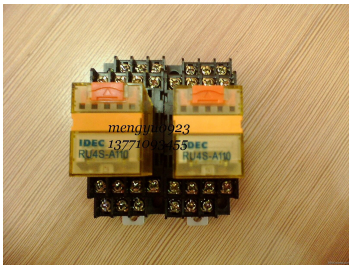
The technology based on the United States Sporlan company customized model PWM control valve:



Core Spare Parts：

German Schneider Contactor

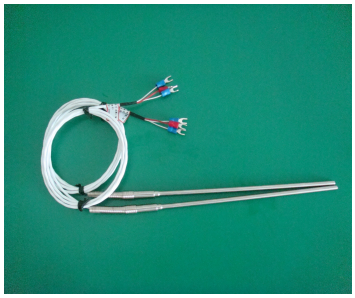
German Schneider Thermal Relay



Izumi Japanese Rely

high and low voltage protection switch

Yangming solid state relay



songqi Temperature sensor

Dongyuan Circulating Motor

Sporlan refrigeration solenoid valve

Taiwan Jianli stainless steel wind wheel

Taiwan FeiYang Heating Tube

Taiwan Zhongli evaporator

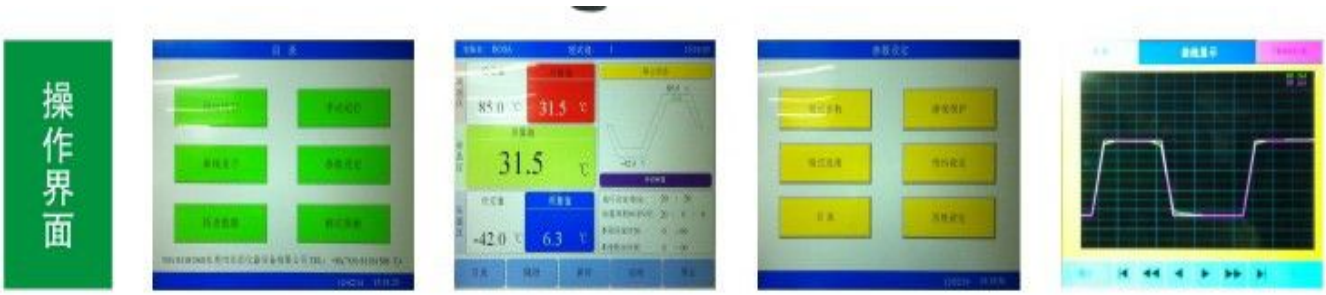
Mobile castors

Automatic adjustable electronic expansion valve

oil separator

German bitzer compressor

7.0 inches self-developed controller



Main spare parts list：

NO	Material name	Origin / brand	Model	Quantity	life-span
1	Temperature and humidity controller	TaiWanSanWood	SH-5600	1	15 years
2	AC contactor	German Schneider	LC1-D25	4	15 years
3	Thermal Relay	German Schneider	LRD-08KN	2	10 years
4	Intermediate Relay	Izumi Japanese	RU4S-A220	5	10 years
5	Time Relay	Taiwan AnLiang	AH3-3	1	8 years
6	Over Temperature Protection	South Korea RAINBOW	TS-320S	2	10 years
7	Solid State Relay	Taiwan Yangming	SSR-40DA	6	8 years
8	Temperature and Humidity Sensor	Taiwan Songqi	PT100	2	15 years
9	Lamp	LED	12V\18W	2	15years
10	Leakage switch	South Korea LG	DP-40A	1	15years
11	Signal Indicator	Taiwan Tiande	AD16-22D/S31	1	10 years
12	Flash buzzer	Taiwan Tiande	AD16-22SM	1	10 years
13	Switching Power Supply	Taiwan Mingwei	NES-100-24	2	10 years
14	No fuse switch	German Schneider	LC-1P20A	2	10 years
15	Button Switch	Taiwan Tiande	AD-22D/S31	2	15 years
16	Circulating Motor	Taiwan Dongyuan	DL-220V90W	1	10 years
17	Circulating Wind Wheel	Taiwan Jianli	7CL	1	10 years
18	Heating Tube	Taiwan Feiyang	Customized	2	10 years
19	Pump Motor	New Western Hills joint venture	DP-125	1	15 years
20	Liquid Temperature Controller	RAINBOW South Korea RAINBOW	RA-10KG	1	15 years
21	compressor	German bitzer compressor	**4VES-10**	2	15 years
22	Condenser	Taiwan Zhongli	ZL-2P	2	10 years
23	Evaporator	Taiwan Zhongli	ZL-2P	2	15 years
24	Condenser fan	Germany EBM	4E-350-Z	1	10 years
25	Drying filter	Danfoss	083S	2	15 years
26	Expansion valve	Danfoss	TS-2S	2	15 years
27	Solenoid valve	Danfoss	DA-083	3	15 years
28	Refrigerant	AmericanLianxing	R404A/R23	2	15 years
29	Refrigeration oil	BritishBingxiong	RL32H	2	15 years
30	Oil separator	America ALCO	S-4004	1	15 years
31	Vacuum Heating Glass	Taiwan DSD	Customized	1	15 years
32	Cooling Fan	Taiwan Jianzhun	EB-120	1	10 years
33	Lock	America Shangkun	SK1-200	1	15 years
34	Casters	Taiwan Zhide	Customized	4	15 years
35	Horizontal Wheel	Taiwan Zhide	Customized	4	15 years

Main technical parameters:

Product Name Reference product model	Two box thermal shock test chamber SM-150-2P-A
1. Test method	The sample can be moved.the temperature of cold sink and heat sink can be individually controlled and can be switched with basket .
2. Sample limit	Test equipment prohibited: Test or storage of samples with easy-burning,easy-explosion and volatile Test or storage of samples with corrosion Test or storage of Biological specimen Test or storage of a sample of a strong electromagnetic emission source Test or storage of Radioactive material Test or storage of Highly toxic substances Test or storage of samples which will produce Highly toxic substances when testing and storage
3.Volume,Size and weight	
2.1. Standard volume	About 150L
2.2. Interior size	W500mm × H600mm × D500mm
2.3. Exterior size	About W1600mm × 1950mm × 1630mm
2.4. Weight	About 800kg
3. Performance index	
3.1. Test environment	3.2. Ambient temperature +23℃、RH≤85% When the test chamber has no sample, no heat load and no optional parts (except for the case).
3.3. Test method	GB/T 5170.2-2008 temperature test device
3.4. High temperature box	(1) Temperature range ：+60℃～+200℃ (2) Heating rate ：≥14℃/min(Energy storage rate)
3.5. Low temperature box	(1) Temperature range：-70℃～+70℃ (2) Heating rate：≥6.3℃/min(Energy storage rate) (3) Cooling rate：≥2.0℃/min(Energy storage rate)
3.6 The test area (elevator)	(1) High temperature exposure temperature range：+60℃～+200℃ (2) Low temperature exposure temperature range：-70℃～+70℃ (3) Temperature fluctuation of central point of test area： 1.0℃ (If according to GB/T5170.2-1996，it shows±0.5℃) (4) Temperature deviation：±2.0℃（≤+150℃h） ±3.0℃（＞+150℃h）
3.6. Temperature recovery performance	(1) Temperature recovery time：≤5min

	(2) The switch time of basket：≤5 sec (3) Recovery conditions： High temperature exposure: +85℃ 30min Low temperature exposure: -40℃ 30min Sample weight: 5 kg(Plastic package IC（uniform），separately packed in 3 baskets) ●position of sensor surface of samples ●cooling water temperature +25℃ ●electric power specified voltage Description: in the pre adjustment stage, improve the temperature of the high temperature box / lower the temperature of the box can improve the temperature change rate
3.7. Noise	≤63dB（A），The noise value is the data which is tested in the distance of 1M, height, 1.6m, from the device (in the free space).
3.8. Test method	GB/T 2423.1-2008 Low temperature test method Test Ab GB/T 2423.2-2008 high temperature test method Test Bb GB/T 2423.22-2012 temperature impact test Test Na GJB 150.3A-2009 high temperature test GJB 150.4A-2009 low temperature test GJB 150.05A-2009 temperature impact test （Load see 5.6，No active thermal load）
4. Structure features	
4.1. Thermal insulation structure	(1) Interior material：Double galvanized steel plate, surface spray treatment, gray white (2) Interior material：stainless steel SUS304 (3) heat preservation material：Rigid polyurethane foam + glass fiber
4.2. Door（high temp area）	Hinged door, door hinge in the left side of the box (facing the box front), with a door lock, gray The door is equipped with an electrothermal Hollow glass observation window(W355×H355mm）for anti frosting and anti condensation（Automatic adjustment） The door is equipped with electrothermal device with anti frosting and anti condensation（Automatic adjustment）
4.3. The test area（basket）	Material：stainless steel SUS304 Bearing：The sample holder and the test space base plate is 50 kg
4.4. Driving device	Motor and ball screw driven basket to move up and down, indicator lights shows the hanging position and moving direction
4.5. Sample basket	Made in stainless steel，Maximum load is 5 kg, the mesh width is 8 mm, the distance in baskets for additional sample holder is 20 mm , the maximum number of sample frame

	is 5.
4.6. Observation window	A Hollow glass observation window(W355×H355mm），is located in the door of high temperature box
4.7. Lamps	Halogen lamp 24 50W V/, located in high temperature box
4.8. Air conditioning channel	Position：in the rear of interior box Composition: the runoff fan, heater, (low temperature box: evaporator, drainage device)
4.9. Lead hole	Stainless steel，Diameter 80 mm, located on the top surface of the box body, 1
4.10. The caster	6pcs，for holding the test box
4.11. Heater	Stainless steel sheathed heater Heater control mode: no contact, etc. the periodic pulse width, SSR (solid state relay)
5. Cooling system	
5.1. Cooling mode	Two compressors compound refrigeration method
5.2. Condensation mode	Water cooling (equipped with cooling water flow automatic adjustment device)
5.3. Compressors	Imported mechanical compressor
5.4. Refrigerant	High temp machine：R404A（Ozone depletion index was 0） Low temp machine：R23（Ozone depletion index was 0）
5.5. Evaporator	Finned tube heat exchanger
5.6. Condenser / cooler	Stainless steel heat exchanger
5.7. Condensing evaporator	Stainless steel heat exchanger
5.8. Throttling device	Thermal expansion valve
5.9. Control mode of refrigerating machine	Control system automatically adjust the operating conditions of the refrigeration machine according to the test conditions
5.10. 0ther	Compressor return air cooling circuit Condensing pressure regulating valve Circulating cooling water filter
6. Electrical control system	
6.1. Color touch screen	7 inch color touch screen, fixed on the door for operation monitoring and recording. The digital display settings and the actual value, the temperature is shown by ℃.

6.2. Settings / display	Setting mode：Multi language menu (optional, English and other 9 Chinese characters), touch screen input Display device：7 inch 640X480 dot matrix, TFT color LCD display
6.3. Temperature control	(1) Control object： The test area (basket) exposure temperature High temperature box pre-heating temperature Low temperature box pre-cooling temperature (2) Temperature setting range： High temp box +60℃～+220℃ High temp box -80℃～+70℃ (3) Display resolution： temperature 0.1℃ time 0.1min (4) Input： Platinum resistance measuring sensor Pt 100 (5) Control mode：PID control mode
6.4. Operating mode	(1) Controller provides the following working mode： A. single test mode B. Temperature impact test mode a) - Routine work mode b) - Time optimal operation mode c) - Energy saving mode C. single test mode High temperature or low temperature box box can be used as a temperature test box alone D. Temperature impact test mode Routine work mode By setting the preset temperature value, the method of the pre heating high temperature box or the cooling box, so that the sample can be adapted to the test temperature more quickly. As long as the basket began to move, the test space recovery test temperature control. Time optimal operation mode This model further optimizes the cycle time, in addition to the pre heating temperature box or the cooling box, the temperature area with an additional deviation from the value of control, until the actual test

	area temperature to reach a user defined tolerance zone. Once the temperature is in the tolerance zone, the temperature is set to control the temperature. The test procedure is defined at this point in time to start time. Energy saving mode The no-load temperature test area in the long-term residence stage can be set to save energy mode, and the temperature of the area is close to the ambient temperature. So at this stage, the energy consumption will be avoided. User defined preset temperature start recovery time for no load test area.
6.5. Interface	(1) The digital I / O channels: through a potential free contact, four digital outputs for switching user equipment, the maximum load for 24 V-DC; 0.5A (2) USB interface ： The external storage of measurement data and program (3) The Ethernet interface: 100/ 10mbps network interfaces or user computer network connection (4) Status display: dual color lamp indicator for the status display
7. Safety protection device	
7.1. Safety device	When you open the test box door, mechanical and electronic device locking basket. Movable basket with protection device and an over temperature limiter in high temperature box and a low temperature box which prevents test samples being embedded between the sample basket and test chamber wall
7.2. Test samples protection	High temperature box and low temperature box can independently adjust the minimum temperature and the maximum temperature of temperature limiter and a certain temperature. Protect test samples being affected by high or low temperature due to the nacelle conversion. Test case close and display fault signal Can adjust the lowest temperature / maximum temperature of software temperature limiter and can seperately adjust a certain temperature value.
7.3. Test samples on-off protection	Specially used for thermal radiation test sample of the safety switch, connected to the zero potential conversion contactor, the maximum load 0.5A, 24V.
7.4. Test samples protection	Can adjust the lowest temperature / maximum temperature of the software temperature limiter, can be adjusted temperature value.
8. Standard configuration	
8.1. Observation window	Visual area 355 x,355 mm, located in high temperature box：1
8.2. Cable hole	80mm diameter hole, at the top of the box： 1
8.3. rubber cover of Cable hole	2
8.4. Sample holder	Lightweight stainless steel metal basket (mesh width 8mm)，1 pcs，included 2 shelf

8.5. The air supply system	Long-term operation of large capacity air system ： 1set
8.6. Controller	10.2”Color touch controller：1pcs
8.7. Interface	USB and Ethernet interface: each 1
8.8. Double color lamp	Two color indicator for the status display：1
8.9. Power cable	Five wire (four core cable + protective ground wire) 3.5 meters long cable:1
8.10.	User informations (equipment installation and operation manual, controller operation manual, maintenance manual)：1 set
9. Transport	overwhole transport
9.1. Size	Maximum shipping size (excluding package)：4.4 “Transport dimensions”
9.2. Weight	Maximum shipping weight (excluding package)：4.5 “weight”
10. Use conditions	The following conditions are guaranteed by the user
10.1. Installation site	Ground level, well ventilated There is no strong vibration around the equipment There is no strong electromagnetic field around the equipment There is no flammable, explosive, corrosive substances and dust around the equipment. A floor drain near the equipment Ground bearing capacity: not less than 800kg/m2 Around the test box, there is no less than 600mm of the use and maintenance space To avoid the direct effects of sunlight and heat
10.2. Environmental condition	temperature： +10℃～+35℃ RH：≤75% Dew point temperature： ≤+20℃ Air pressure：86kPa～106kPa
10.3. Installation space heat dissipation	≤0.8kW
10.4. The discharge of Condensate water and clean water	φ12 mm Hose connection
10.5. Power supply condition Power supply	 3/N/PE AC 400V ±10% 50 Hz AC380V 50Hz Three phase four wire + protective ground Voltage allowed fluctuation range：AC（380±38）V Frequency allowed fluctuation range： （50±0.5）Hz

	Ground resistance is less than 4 Ω ; TN-S mode power supply or TT mode power supply Require the user to configure the corresponding air capacity or power switch on the site for the installation of the device, and this switch must be independent for the use of this device
Rated power	16kW
Rated current	65A
Air switch protection	100A
Power consumption	In accordance with the MIL 883 F, method 1010.8, grade B, 12 kg of test sample, to stay for 30 minutes, about 200 h kWh/24
10.6. Requirements for storage environment	When the equipment is not working, the temperature of the environment should be kept within 0 C ~ +45. When the ambient temperature is below 0, the water in the equipment should be kept clean to avoid the water in the pipe to go freezing and damage pipeline
11. Additional item	⑴Handling, installation site preparation ⑵Power supply construction ⑶Compressed air piping construction ⑷Condensate drainage construction (5) Drainage construction

Shipping & packing procedure

Enviromental chamber have passed all the inspection and ready for packing

Paper angle bead

Bubble bag

Fixed wooden case

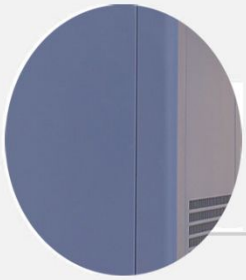
We packed it with fumigationand wooden case to protect the goods from any damage

SANWOOD三木

we determined to be a global brand of environmental chamber industry

- Manufacturing environmental test chambers with 20 years experience
- Independently developed controller
- Energy saving 40%
- Approved CE/ISO certification

Product details



1.Carton material

The outside of the box adopts advanced power paint or 1.5mm thick galvanized sheet heat r-esistant to cold stainless steel plate.

2.Control system

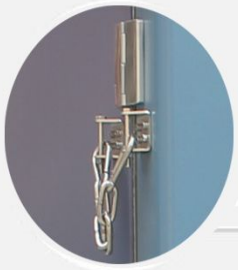
The control system is formed by a 7.0 inch color LCD screen.

3.Threading hole

Threading a plurality of holes the size specifications(Ø50, Ø100, Ø125, Ø150

4.In the cases of material

CNC cutting 1.5MM thick 304 stainless steel



5.Explosion-proof door lock

Explosion-proof door is to prevent the runtime high temperature shock

6.Supply Systems

With automatic external power supply system

Core strengths

PK

SANWOOD imported compressor energy saving, low noise

VS

Commercially available compressor power consumption

SANWOOD Self-developed 10.4 inches color touch operating system

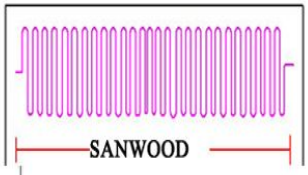
VS

Small commercial operating system screen

Equipment in an explosive atmosphere by explosion-proof switch off automatically

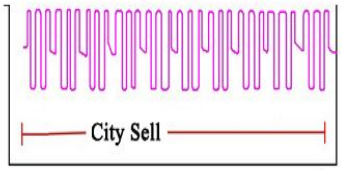
VS

Ordinary explosion-proof switch does not heat



SANWOOD defrosting system defrost time can achieve their goals

VS



Defrost 10 commercially available equipment will achieve the purpose