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Thermal Shock Test Chamber(Three Zone)

Technical Specifications

(The pictures are for reference only, the actual product shall prevail)

1 Product name, model and usage restrictions	
1.1. Product Name	Thermal Shock Test Chamber
1.2. Product Model	CZ-C3-80B-W
1.3. This product is prohibited	Testing or storage of samples of flammable, explosive, or volatile substances Testing or storage of samples of corrosive substances Testing or storage of pest specimens Testing or storage of samples with strong electromagnetic radiation sources Testing or storage of samples of radioactive material Testing or storage of samples of highly toxic substances Testing or storage of samples that may produce the above substances or objects during the test or storage process
2 Volume, dimensions and weight	
2.1 Nominal volume	80L
2.2 Inner box size (mm)	500×400×400 W×H×D
2.3 Dimensional space (mm)	about 1500 × 1780× 1750 W×H×D (The dimensions are estimated, the final dimensions The layout diagram agreed upon by both parties shall prevail)
2.4 weight	about1400kg
2.5 Working noise	≤75 dB (A), the noise value is at the front of the device 1m, height 1.2 mThe data measured at (in free space)
3 Performance Indicators	
3.1 High Temperature Chamber	Preheating temperature upper limit: 200℃ Temperature rise time: room temperature → 200℃ approx.40min Note: The heating time is the performance when the high temperature chamber is operating alone.
3.2 Low temperature room	Precooling temperature lower limit: -70℃ Temperature drop time: room temperature → -70℃ approx.60min Note: The cooling time is the performance when the low temperature room is operating alone.
3.3 Test room (sample area)	(1) Test method: Pneumatic damper switching 2Temperature zone or3 Temperature zone; (2) Temperature shock range: high temperature +60℃~+150℃, Low temperature -55℃~0℃; (3) Temperature fluctuation:±0.5℃ (no-load steady state); (4) Temperature deviation:±2.0℃ (no-load steady state); (5) Temperature uniformity:≤2.0℃ (no-load steady state).

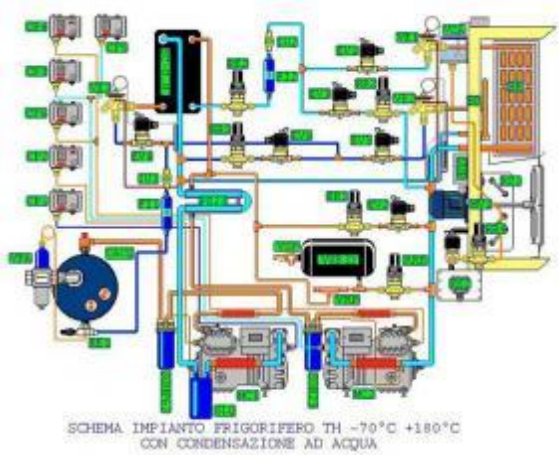
3.4 Temperature recovery performance	(1) Temperature recovery time: ≤5min; (2) Restoration conditions: High temperature exposure: +150℃ 30min Ambient temperature exposure: ambient temperature 5min Low temperature exposure: -55℃ 30min Sample weight: 3kg Aluminum Ingot Sensor location: on the upwind side of the specimen.
3.5 Satisfaction test method	GB/T 5170.2-2008 Temperature test equipment GB/T 2423.1-2001 Test A: Low temperature test method GB/T 2423.2-2001 Test B: High temperature test method GB/T 2423.22-2002 Test N: Temperature change test method GJB/150.3-1986 High temperature test GJB/150.4-1986 Low temperature test GJB/150.5-1986 Temperature shock test
4 Equipment structure	
4.1 Structural method	The equipment is designed as an integral structure, with the test chamber at the top and the high temperature at the bottom. The upper back is the low temperature room, the lower back is the refrigeration unit mechanical room, and the right side of the equipment It is an electrical control box. The mobile casters and positioning feet are installed at the bottom of the equipment to facilitate the movement of the equipment. The high temperature room, low temperature room, normal temperature room and test room are connected by air door. Through, so as to achieve the purpose of rapid temperature change
4.2 Insulation structure	(1) Outer wall material: high-quality anti-corrosion cold-rolled plate, thickness ≥1.2mm, surface electrostatic powder baking Paint, the color is Zhongzhi standard color RAL7035 white; (2) Inner wall material: stainless steel plate SUS304, thickness ≥1.0mm; (3) Box and door insulation materials: rigid polyurethane foam + glass fiber.
4.3 Air conditioning duct	(1) High temperature chamber: fan, heater, damper, temperature sensor; (2) Low temperature room: fan, heater, evaporator, cold storage device, damper, temperature sensor device.

4.4 Door	(1) The high temperature area, low temperature area and test room have separate doors, all of which are single doors; (2) Equipped with explosion-proof handle; (3) Double-layer high-tension silicone rubber seal has good resistance to high temperature aging and low temperature hardening.
4.5 Test sample rack	SUS304# stainless steel is punched and bent into a mesh shape, which is easy to use and the spacing between sample racks can be adjusted. Adjustable, standard configuration: two pieces, load-bearing (evenly distributed): 10KG/layer
4.6 Drive device	Damper drive device and test area door lock device (pneumatic drive) Cylinder: 2 each for low temperature/normal temperature/high temperature exposure
4.7 Test hole	1 *Φ50mm test hole, located on the left side of the box, with corresponding thermal insulation accessories And special sealing plug
4.8 Control Panel	LCD touch programmable controller, hanging basket initial position switch High temperature chamber over -temperature, low temperature chamber over-temperature, emergency stop, defrost indicator light
5 Air conditioning system	
5.1 Heat transfer method	Air circulation forced convection heat transfer
5.2 Air circulation device	High temperature exposure: centrifugal fan, long shaft external motor drive Low temperature exposure: centrifugal fan, long shaft external motor drive Normal temperature exposure: centrifugal fan, long shaft external motor drive
5.3 Air heating method	(1) High temperature chamber: nickel-chromium alloy electric heating wire heater; (2) Low temperature chamber: nickel-chromium alloy electric heating wire heater; (3) Heater control method:Contactless equicycle pulse width modulation, SSR (Solid State Relay device).
5.4 Air cooling method	Direct evaporator cooling
6 Electrical control system	
6.1 Controller	7 inches 800X480 dot matrix TFT color touch screen 

6.2 Screen display function	(1) Chinese/English language switch display, true color touch input; (2) Direct display of the set (SV) and actual (PV) values of each chamber temperature; (3) It can display the execution program number, current segment function, remaining time and number of cycles. Turn time display; (4) Program editing and graphic curve display; (5) Automatic defrost reminder; (6) Graphic curves can be displayed in real time during program execution, and segments can be skipped and functions can be maintained; (7) Faults are automatically indicated, and corresponding solutions are provided.
6.3 Program Capacity	(1) Available number of programs: Maximum number of groups > 100 groups, programs can be linked together; (2) Time setting: each period > 500 hours; (3) Repeatable commands: Each command can be executed up to ＞ 10,000 times.
6.4 Communication Interface	(1) USB interface: external storage of measurement data and programs; (2) One RJ-45 Ethernet interface; (3) One RS-485 interface.
6.5 Interface Converter	RS-232 interface: RS-485/RS-232 interface converter (Optional)
6.6 UDisk storage card	1G-32G USB flash drive can be inserted to download historical curves, historical data, control system parameters, and hot Plug and unplug function
6.7 Setting method	Human-computer dialogue mode, using touch input and control
6.8 Operation Mode	Program cycle mode: High temperature first → low temperature Low temperature first → high temperature High temperature first → normal temperature mode + low temperature Low temperature first → normal temperature mode + high temperature
6.9 Setting range	Adjust according to the temperature operating range of the equipment (upper limit +5℃, Lower limit -5℃)
6.10 Display resolution	Temperature: 0.1℃; Humidity: time: 1min;

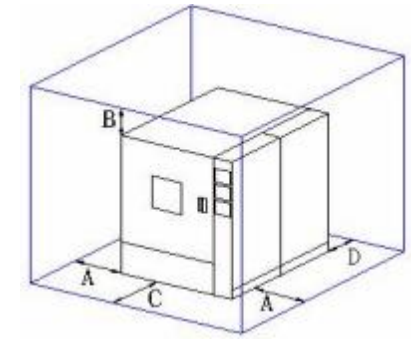
6.9 Setting range	Adjust according to the temperature operating range of the equipment (upper limit +5℃，Lower limit -5℃)
6.10 Display resolution	Temperature: 0.1℃； Humidity: time: 1min;
6.11 Power off memory function	Power failure recovery mode can be set as: hot start/cold start/stop
6.12 Scheduled startup function	The start time can be set at will, and the machine will automatically run when the time is up after turning on the power.
6.13 Temperature Sensor	T-type thermocouple
6.14 Curve recording function	It has a battery-protected RAM that can save the device's set value, sampling value, and sampling time; the curve recording cycle can be set from 1 to 300 seconds, and the maximum memory time can store 90 days of continuous historical curves and historical data (when the sampling time is 1 minute). When there is no continuous use, the data can be saved for more than 10 years.
6.15 Software Usage Environment	Simplified Chinese Windows XP or Simplified Chinese Windows 7/WIN8/WIN10 Operation system
6.16 Network connection	It can be connected to Ethernet through professional software, and remote control and remote coordination can be performed through the network It can also collect test data through the network and control multiple machines at the same time.
6.17 Additional functions	Stop after defrosting, hold function, interrupt function, automatic parameter correction function, over-temperature function Heavy protection function, air door not open protection, etc.

7 Refrigeration control system

7.1 Refrigeration method	In order to ensure the cooling rate and minimum temperature requirements of the test room, this test room adopts a Binary compound refrigeration system, the compound system includes a high temperature refrigeration cycle and a In the low temperature stage refrigeration cycle, heat exchange is achieved through the evaporative condenser.  SCHEMA IMPIANTO FRIGORIFERO TH -70°C +180°C CON CONDENSAZIONE AD ACQUA

7.2 Refrigeration compressor	Imported brand mechanical compressor
7.3 Cooling method	Water-cooled
7.4 Energy-saving design	The cold balance control mode can steplessly adjust the cooling output, and cooperate with independent cold end and hot end PID continuous adjustment to avoid energy waste caused by the hedging of cooling capacity and heating capacity. thus reducing the actual energy consumption
7.5 Evaporator	Fin-tube heat exchanger
7.6 Condenser Evaporator	High temperature copper brazing plate heat exchanger, with Small surface area, small energy loss, and high heat transfer efficiency High rate 
7.7 Throttling device	Thermal expansion valve/capillary tube
7.8 refrigerant	R404a/R23
8 Safety protection system	
8.1 Refrigeration System	Compressor overheating, overload, overpressure, overtemperature protection, circulating cooling water supply underpressure
8.2 Test Chamber	Extreme over-temperature, automatic pressure balance protection, bottom water accumulation protection, compressed air under-pressure
8.3 Heating system	Heating tube extreme over-temperature, heating tube short-circuit protection
8.4 power supply	Main power phase sequence and phase loss protection Leakage protection, total power overload, short circuit protection; control line overload or short circuit protection
8.5 Circulation fan	Fan overload, fan short circuit, fan reverse protection

9 Space requirements: transportation, installation dimensions and placement environment requirements	
9.1 Position channel	The test chamber can pass the test according to its dimensions, but attention should be paid to the corners, door dimensions, and elevator dimensions. Other special links
9.2 Floor Location	For installation sites in upper floors or vacant underground spaces, site ground load-bearing requirements ≥ 600kg/m2

9.3 Area and surrounding related dimensions		
	Maintenance space around the equipment, press: A:≥80cm B:≥60cm C: ≥ 170cm D: ≥ 110cm	
	The ground is flat, well ventilated, and free of flammable, explosive, corrosive gases and dust	
9.4 Other usage environment requirements	Ambient temperature Degree Requirements	5～25℃ ensures the best performance, 25～35℃ can operate normally (for air-cooled test chamber)
	Humidity requirements	≤85%RH
	Air pressure requirements	86KPa～106KPa
	Electromagnetic environment	There is no strong electromagnetic radiation source nearby
	Site drainage	It is best to have a drainage floor drain next to the test box
9.5 Requirements for storage environment	The equipment environment temperature should be maintained 0℃~+45℃ When the ambient temperature is lower than When the temperature is 0℃ (the equipment is stopped for a long time), the water remaining in the equipment should be drained. Drain clean to prevent water in the pipe from freezing and damaging the pipe.	
10 Conditions of use (the user shall guarantee the following conditions)		
10.1 Cooling circulating water (cooling Taco as an optional extra purchase)	Water temperature: +5℃~+30℃	
	Flow rate: 6 ≥ tons/hour	
	Water pipe joint: 1 pair of DN40 (1.5 inch) external thread joints are provided on the refrigeration unit	
	Water pressure: 0.3MPa～0.45MPa	

	The design and construction of the cooling water piping system should ensure that the cooling water inlet Pressure0.3 MPa ~ 0.45 MPa , the pressure drop from the refrigerator outlet to the cooling water tower is not greater than 0.05MPa

10.2 Air source (air compressor Available as an accessory)	Pressure: 0.5MPa～0.7MPa
	flow:≥0.1m³/min
	Air source interface: quick-insert pneumatic tube straight through
	Air source interface specifications:ϕ8mm
10.3 Power supply conditions	power supply: (1)AC380V/50HzThree-phase four-wire + protective ground wire; (2) Allowable voltage fluctuation range: AC (380 ± 38) V; (3) Allowable frequency fluctuation range :(50±0.5) Hz; (4) The grounding resistance of the protective ground wire is less than4Ω; TN-SPower supply orTTPower supply method; (5) The user is required to configure an air or power switch of corresponding capacity for the equipment at the installation site. And this switch must be used independently for this device.
	Installed power: 32KW
	Maximum current: 58A

12 Factory-provided equipment and information			
No.	Name	QTY	Remark
1	Equipment factory packing list	1 piece	Standard
2	Equipment electrical schematics	1 piece	Standard
3	Equipment Instructions	1 piece	Standard
4	Equipment Certificate	1 piece	Standard
5	Equipment warranty card	1 piece	Standard
6	Equipment factory inspection report	1 piece	Standard
7	Controller Monitoring Software CD	1 piece	Standard
8	Test sample rack tray	2 pieces	Standard
9	Test sample rack support rails	4 strip	Standard
13 Main spare parts list			
No.	Name	Brand	Remark
1	Compressor	Tecumseh/ Copeland/ Hitachi/ BITZER	France USA Japan Germany

2	Plate Heat Exchanger	Halei/Yuanzhuo	China
3	Condenser	Zhongzhi	China
4	Evaporator	Zhongzhi	China
5	Controller	Zhongzhi	China
6	Oil separator	Emerson	USA
7	Filter drier	Emerson	USA
8	Refrigerant	DuPont	USA
9	Leakage circuit breaker	Schneider/ Mitsubishi	France Japan
10	Solenoid valve	Saginomiya/ Sporlan	Japan USA
11	Thermal Expansion Valve	Danfoss	Denmark
12	Pressure switch	Saginomiya/ Emerson	Japan USA
13	Relay	Omron	Japan
14	AC contactor	Schneider/ Siemens	France Germany
15	Breaker	Schneider / Siemens	France Germany
16	Solid State	Carlo Gavazzi/ Yangming	Switzerland/ Taiwan,China
Remark: Due to reasons such as supply cycle, it is possible that the other materials of the above-mentioned components, except the compressor and controller , will be replaced with accessories of the same brand.			

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15 Equipment structure layout diagram