



# PROGRAMMABLE TEMPERATURE AND HUMIDITY CHAMBER

WHTH-408L-0-880

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Payment: This product is available in our stock, T/T 100% before shipment or by Trade Assurance.

## Product Feature:

Test system design advanced and reasonable, standard manufacturing process, beautiful and nice.

The main function of chamber components are world famous configurations (high gold content), technology principle are advanced and reliable, noise and energy saving can be the best control - its performance can replace similar foreign products.

Good supporting parts and assembly matching, the main functional components are imported parts with the international advanced level, improved product's safety and reliability to ensure users for a long time, high-frequency requirements.

Apparatus having good operability, maintenance, good temperature stability and durability, good safety performance, do not pollute the environment and endanger human health.

## Technical Agreement

This product is based on user requirements, reference GB2423 [1] .02 high-temperature test methods, GB2423 [1] .01 low temperature test methods, GB2423 [1] .03 Damp heat test method, GB2423 [1] .04 Damp heat test method change appropriate technical manufacturing conditions. It mainly provide temperature and humidity changes in the environment for aerospace, aviation, petroleum, chemical, military, automotive (motorcycle), shipbuilding, electronics, communications, and other scientific research and production units, ect and for users on the machine (or parts), electrical appliances, apparatus, equipments, materials, etc. to implementate temperature and humidity tests to assess the sample's suitability or review the test of behavior. Which is an essential and important test means during the whole process for new product development, prototype testing, product qualification.

## Restrictions:

Flammable, explosive, volatile substance's sample testing or storage;

Test samples or storage of corrosive substances;

Testing or stockpiling of biological specimens;

Strong electromagnetic radiation source sample's test or storage;

Testing or storage of radioactive material sample;

Test samples or store strong toxic substances;

Volume, size and weight

Nominal volume: 408L

Within the box size: W(600)mm × H(850)mm × D(800)mm

Dimensions: 1120mm(W)×1710mm(H)×1290mm(D)

Weight: (400) kg

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**Performance:**

Test environmental conditions: An ambient temperature of + 5 ~ + 28°C, relative humidity ≤85%, under conditions of no sample within the test chamber;

Test Methods: GB/T 5170.2-2008 Temperature Test Equipment  
GB/T 5170.5-2008 Humidity Test Equipment

Temperature range: 0°C+150°C

Control accuracy: Temperature: ±0.2 °C  
Humidity: ±2.5%

(The difference between the controller setpoint and actual value of the controller)

Temperature fluctuation: ≤0.5°C (Temperature fluctuation is half the difference between the center of the highest measured temperature and the minimum temperature)

Temperature error: ≤±1°C (The average temperature of the studio temperature controller displays the value to minus the average temperature measured of the center)

Temperature uniformity: ≤2.0 °C (Temperature uniformity is each difference in the measured maximum and minimum temperatures of the test of arithmetic mean)

Warm-up time: 3°C /min (Nonlinear load)

Cooling time: 0.75~1.2°C /min (Nonlinear load)

Humidity range: (20~98) %RH (Referring to FIG range of temperature and humidity can be controlled without active humidity, heat load)  
±2.5%RH



Relative humidity error (Only damp-heat) A Sound Level ≤70dB(A)

(At ambient temperature 25°C and measured in the room of echo less interior noise;

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Working noise: Using A-weighted, average of eight test points; Each test point level from the noise source 1 m, the height from the ground 1 meter.)

Meet the test:

GJB150.4-1986 Low temperature test method Ab

GJB150.3-1986 High temperature test method Bb

GB/T2423.3-2006(IEC60068-2-78:2007)Constant damp heat test method Cab

GB/T2423.4-2008(IEC60068-2-30:2005) Alternating hot and humid test method Db

GJB150.9-1986 Humidity Tes (Picture1, Picture2)

Per cubic meter load of not more than 35kg / m<sup>3</sup> steel thermal capacity, test when no active wet heat, heat load

## Structure

The insulation structure:

1. Outer material: high-quality stainless steel plate Shamian
2. The inner wall material: high-quality stainless steel mirror
3. Case insulation materials: rigid polyurethane foam + glass fiber

The air conditioning passage: 1. Multi-wing centrifugal circulating fan, increase resistance of high temperature to strengthen the axis of the rotating blades and made by aluminum alloy to achieve forced convection.  
2. FLOW THROW Air supply; horizontal proliferation vertical heat exchange arc cycle.  
3. Adjustable side vents and nursing classes blown air returns.

The chamber standard configuration: 1. Observation window: Transparent electric-heat film hollow glass 1 (Located on the door)  
2. Lead hole:  $\phi$  50mm 1 (Located on the left side of the box)  
3.Preparation of indoor lighting on door(Efficient energy-saving long life lamps)  
4. Mobile casters: 4 PCS  
5. Fixed foot cups: 4 PCS (Height adjustable) standard configuration  
6. Sample holder: 2 layers of stainless steel sample holder, 8 hooks, Load (uniform): 25kg/layer (Samples inside the box does not exceed the cumulative total carrying: 100kg  
7. Test Gauze: 1 package (5 PCS)  
8.PC communication software CD,U disk interface, RS23 communication interface, Misuse hardware locker LOCK, a communication cable.

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Door: Single open hinged door (Face to the box, left hinge, the right grip), Face to the box, left hinge, the right grip, window/door frame anti-condensation electric device.

Control panel: The controller display,U disk interface, RS232 computer communication interface, Misuse hard ware locker LOCK, switch, emergency stop switch, status indicator and audible alarm device.

Mechanical room: Refrigeration units, water tray, drainage holes  
Condenser fan, condenser inlet, water-supply tank

Distribution control cabinet: IO board, machine tool transformers, ballast, intermediate relay, time telay, solid state relay, AC contactor, thermal relay, fuse, Less reverse phase relay, air switch

Heaters: 1.Nickel-chromium alloy heating wire heater  
2. Heater Control: Non-contact and other periodic pulse-width-modulated, SSR (solid state relay)  
3.Heater power: 3.5KW

Humidifier (Heat & damp only):  
1.External removable boiler humidification method  
2.Stainless steel armor humidifier  
3.Humidifier Control: Non-contact and other periodic pulse-width-modulated, SSR, (solid state relay)  
4.Water level control device, humidifier anti-dry device,The precipitate was collected by means, level viewing window;  
5.Humidifier power:2.5KW

Waterway (Heat damp only):  
1.Water supply tank 30L, containing low water level indication, removable cleaning  
2. Efficient electromagnetic extrusion pumps, it can be continuous operation 5000H  
3.RO Membrane + activated carbon water filters, removable for cleaning  
4.High and low double-level electronic level switch to prevent malfunction  
5.Water shortage dry air burning overtemperature protection+ ultra-low water level protection+Water overtime, ensure safe operation of equipment  
6.Backwater PP Cotton filters, Reduce equipment water consumption, filter backwater's impurity.

Cord hole and drainage hole: Located on the back of the box

## Cooling System

Way of working: 0°C ~ -40°C models using one grade compression, -40°C ~ -70°C cascade refrigeration using binary mode.

Refrigeration Compressors: Closed low noise compressor rotor

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Evaporator: External fins threaded tube heat exchanger (doubles dehumidifier)

Condenser: Air-cooled: threaded outer finned tube heat exchanger

Throttling device: Capillary + expansion valve

Plate heat exchanger [Cascade refrigeration system using]: : Stainless steel brazed plate heat exchanger

Chiller control mode:

1. Control system automatically adjusts the best energy-saving refrigerator running condition according to the test conditions.
2. Evaporator cooling capacity solenoid valve is switched by the control system drive.
3. Back to the gas compressor cooling circuit.

Refrigerant: R404a/R23 (Ozone depletion index were 0, R23 for the cascade refrigeration system using)

Electrical Control System

Controller Model: SAMWONTECH TEMI 880

Monitor: TEMI 880: 5.7 Inch, 640 x 480 dot matrix, TFT Color LCD display

Run mode: Program mode, setpoint mode

Setting Mode: TEMI 880 English menu (free choice), the touch panel input

Program capacity: TEMI 880 (TFT Touch)

1. Procedure: Maximum 100 groups;
2. Number of segments: the largest 10000 sections;
3. Numbers of circulation: Maximum infinite loop;

Settings: Temperature: Depending on the temperature operating range of the device to adjust.

Resolution: Temperature: 0.1% ; Time: 1min; Humidity: 0.1% RH (temperature and humidity test equipment)

Enter: PT100 Platinum thermal resistance

Communication function: U disk interface, RS-232 interfaces, misuse hardware lock LOCK, computer communication software.

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Control method:

1. Anti-windup PID
2. BTC Balanced temperature control mode +DCC Intelligent refrigeration control +DEC Intelligent electrical control (temperature test equipment).
3. BTHC Balanced thermostat humidity control +DCC Intelligent refrigeration control +DEC Intelligent electrical control (temperature and humidity test equipment)

Curve recording function: Having RAM with battery protection, set values can be stored equipment, samples and sampling time period; The maximum recording time of 180 days (when the sampling period is when 60S).

- Ancillary functions:
1. Fault alarm and causes the processing prompts
  2. Power protection
  3. Upper and lower limits temperature protection
  4. Calendar timer function (Automatic start and automatic stop running)
  5. Self-diagnostic function.

Software Environment (User provided): IBM PC Compatibles, above P II CPU, 128M or more memory, with RS-232 communication interface.

Temperature and humidity measurements: Temperature: PT100 Platinum thermal resistance  
Humidity: Psychrometer method (heat only)

### Heat supply system (Only damp-heat)

Water supply: Pump hoist

Water supply device location: Drawer front tank

Tank volume: 50L (Portable)

Water quality requirements: Resistivity  $\geq 26000 \Omega \cdot \text{cm}$  ( $\geq$  Water quality)

### Security devices

- Cooling System:
1. Compressor overheating protection
  2. Compressor overcurrent protection
  3. Compressor overpressure protection
  4. Condenser fan overheating protection

- Humidification system (Heat Damp only):
1. Plus heat pipe dry protection
  2. Abnormal water level protection
  3. Water-out protection

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Test Chamber: 1.Adjustable over-temperature protection  
2.Air conditioning passage limit over-temperature protection  
3.Fan motor overheating protection

Other: 1.General power phase sequence and phase loss protection (three-phase power supply available)  
2.Overload and short circuit protection  
3.Cabinet door repeatedly cause cooling system fault alarm protection

## Other configurations

Power Cables: AC 220V Power supply: Three-core (Single-phase two-wire + protective earth) Cable 1 PCS (about 4 meters long)

Main power switch: NFB Breaker

## Transport

The test chamber is a monolith, the overall transport

Size: Maximum transport dimensions (without packaging): "See Dimensions 3.3"

Weight: Maximum shipping weight (without packaging): "See 3.4 weight"

## Conditions of Use

To ensure that the following conditions by the user

### Installation site

- 1.Ground level, well-ventilated;
- 2.Around the equipment without a strong vibration;
- 3.No strong electromagnetic fields affect surrounding equipment;
- 4.Around equipment non-flammable, explosive, corrosive substances and dust
- 5.Surrounding equipment has appropriate space for use and maintenance, as shown below:

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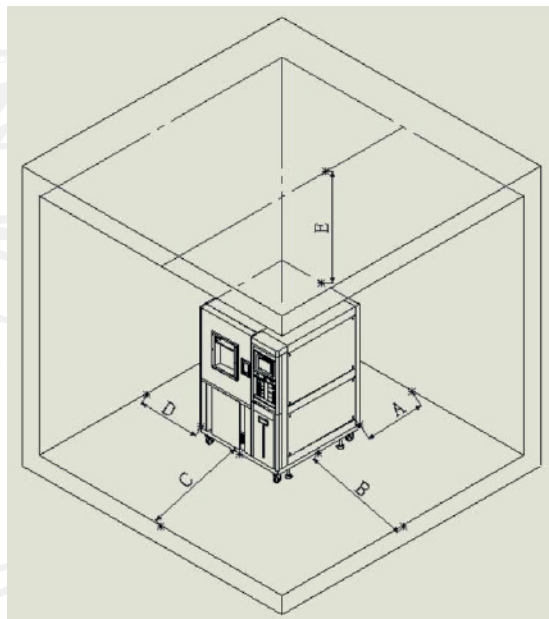
A: ≥10cm

B: ≥30cm

C: ≥60cm

D: ≥30cm

E: ≥40cm



Environmental conditions: 1. Temperature: 5°C ~ 35°C  
2. Relative humidity: ≤85%  
3. Pressure: 86kPa ~ 106kPa

Water (Only damp-heat with pure water equipment): Flow ≥200kg/h, Pressure 0.1MPa ~ 0.25MPa

Water comply with GB 5749-1985 drinking water health standards

NOTE: In pure water equipment DN15 nipple

Power Supply conditions: AC (220±20)V (50±0.5) Hz

Maximum current: (28) A

Maximum power consumption: (6) KW

(At ambient temperature + 25 , no sample, one hour after stable operating conditions obtained the test data.)

Others: Open door of the test chamber during the test will cause tank temperature and humidity fluctuations; During the test if open the door with several times or if the door open for a long time or test sample loses moisture may cause freezing and refrigeration system heat exchanger does not work properly.

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## The configuration list

No.	Name	Origin & Brand	Remark
1	Controller (R232 + UDisk storage interfaces)	Korea SAMWONTECH	TEMI 880
2	Electromagnetic switch	TAIWAN SHIHLIN or TAIWAN TAIAN	SP-11/16/18, CU-11/16/18
3	Thermal relay	TAIWAN SHIHLIN or TAIWAN TAIAN	380V\5.5-8.5A(8.5-12.5A)
4	Intermediate relay	Japan's Omron	MY2J或 MY2N-JS
5	Time Relay	Japan CKC	AH3-2
6	Less reverse phase relay (Three-phase power matching)	Carlo qavazzi	DPA51CM44
7	Overtemperature protection	Korea RAINBOW	TS-320S
8	SSR	Hawee or 台湾阳明	20A~40A
9	Temperature and humidity sensor	台湾松肩	PT100
10	Flashlight	Germany Osram or Philips	220V\13W
11	Signal lights	Shanghai TAYEE	LA12D
12	Flash buzzer	Shanghai TAYEE	LA42S
13	Machine tool control transformer	Taiwan 华达	250W
14	No fuse switch	TAIWAN SHIHLIN	380V/40A/60A/100A
15	Button switch	Japan CKC	240V 5A
16	Emergency stop switch	Japan CKC	240V 5A
17	Heater (heating and humidification)	Taiwan 隆星	3500W
18	Circulating fan	Yizheng	220V60W
19	Wind round	Taiwan 尚昱	6F
20	Pumps (constant temperature and humidity)	Hong Kong 华星或爱迪	500ML/MIN
21	Level Switch (constant temperature	Hong Kong 华千	300V

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	and humidity)		
22	Water installations (constant temperature and humidity)	Taiwan 威仕昂	30L
23	Anti-sweat line	TAIWAN GOOLMAX	24VDC50W
24	Multi-layer vacuum glass window	Boluo Qingqiang	custom made
25	High temperature line	JMJIN	Optional
26	Wire and Cable	JMJIN	Optional
27	Compressor	France Tecumseh	Standard
28	Condenser	Taiwan Kewely	Custom made
29	Condenser fan	Weiguang 德国顿力	220V350M
30	Dry filter	Denmark Danfoss	DCL032/053/083
31	Expansion valve	Denmark Danfoss	TS2
32	electromagnetic valve	Japan SANHUA CNINA	3/8或 5/8
33	Plate heat exchanger (cascade use)	Japan EATB	CB14-20HSR16
34	Evaporator	Taiwan 中力	Custom made
35	Refrigerant	USA 杜邦	R404A/R23
36	Frozen oil	UK 冰能	RL32H
37	Oil separator	Emerson (Former USA ALCO)	Large systems supporting 55824/55855
38	Gas-liquid separator	Taiwan LSF	3/8' 1/2'
39	High-voltage switch	Denmark Danfoss	Large systems supporting KP5
40	Low voltage switch	Japan SAGINOMIYA	Large systems supporting D606M
41	Oil Pressure Switch	Japan SAGINOMIYA	Large systems supporting C106S
42	Process valve	Taiwan LSF	1/4'
43	Shock hose	USA PACKLESS	Large systems supporting P5、 P8
44	Copper miscellaneous items	Taiwan 台湾雄德	Optional

## After-sales service and quality assurance

After-sale s Service: 1. Subject to the product notes, installation and application conditions, the product from the date of shipment, due to the quality of the product itself caused by the failure, one year free warranty and we responsible for lifetime maintenance services.

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2. If the product appears quality problems, after receive your repair telephone (or fax) our implementation will be a response within 15 minutes.
3. During the warranty period we will provide free maintenance for products with every six months; and we are responsible for maintenance lifetime.
4. We long-termly and freely provide users with product use, maintenance, consulting, technical consulting services; Out of the warranty period, we long-termly provide spare parts, (only charge accordingly by their cost)
5. In the shortest time possible for users to troubleshoot the device to ensure that users work smoothly.
6. We also provide maintenance, renovation, upgrading, and long-term maintenance services to other manufacturers' environmental test products (including foreign similar products).
7. In case of an emergency, you can call our 24 hours National Service Hot line: +86-400-631-0769.

#### Machine Accessories:

- 1.Product manual, the instrument User's Guide
- 2.Spacer frame 2, hooks 8, test hole plug of silica gel 1 set
- 3.CD 1 set
- 4.Gauze 1 package

Quality Assurance: 1.Quality assurance system: we strictly in accordance with the ISO9001 quality management system, ISO14001 environmental management system, the European CE product certification requirements.

2.Quality Screening: We have specialized instrumentation aging station, motor test stand, mechanical vibration table, environmental laboratory and other equipments and facilities for the plant components' high-temperature, low temperature, humidity, vibration test for strictly quality control; during the production process, we impose self-test for each step and mutually check, after the quality inspection department's qualified approval it can be flowing into the next process; by the intelligent temperature and humidity data logging devices (D64-2 type) to strictly factory inspection when products manufactured with a special high-precision test platinum resistance.

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