

□ **Temperature & Humidity Test Chamber**



TH-100

 **TEMPERATURE**  
-20°C ~ +150°C

 **HUMIDITY**  
20%~98%RH

- |   |  |  |   |  |  |
|---|--|--|---|--|--|
| <br>Automobile | <br>Material  | <br>Electronics | <br>Aerospace      | <br>PV panels | <br>Navigation |
| <br>Commodity  | <br>Paintings | <br>Battery     | <br>Pharmaceutical | <br>Military  | <br>Cable      |



# Temperature & Humidity Test Chamber

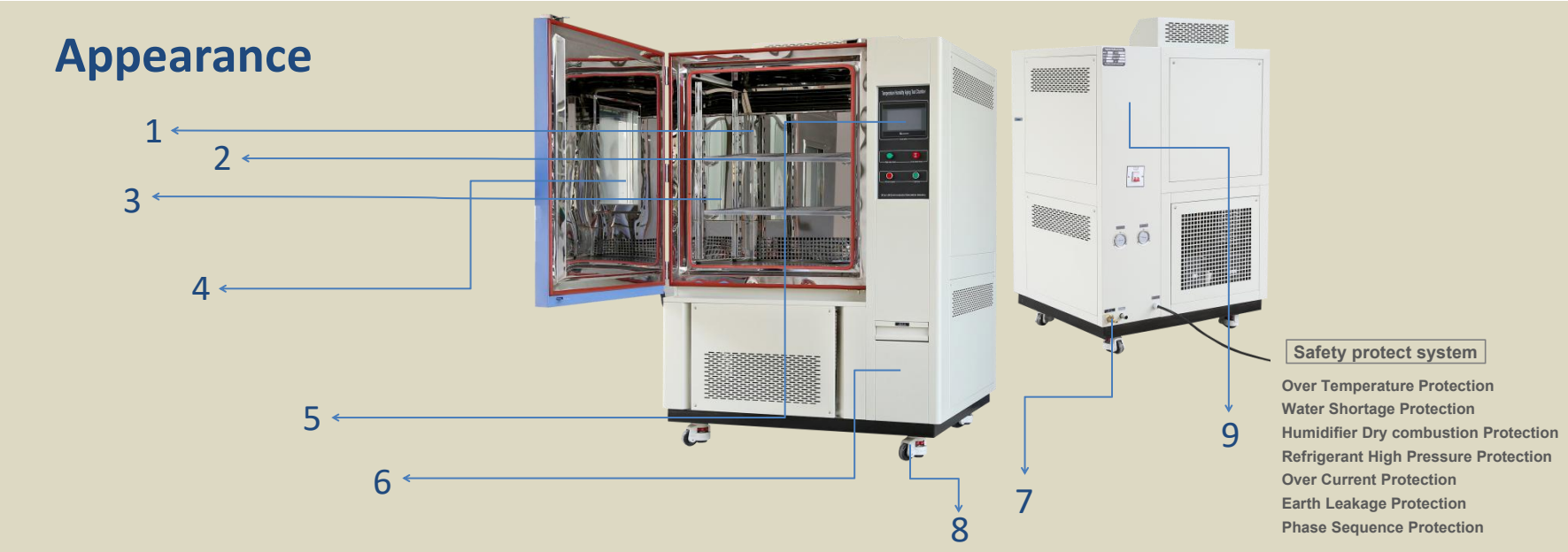
## 【Technical Parameter】

| Model                     |                         | TH-100   | TH-225   | TH-500                                      | TH-800         | TH-1000        |
|---------------------------|-------------------------|--|--|---|----------------|----------------|
| Internal Dimension (mm)   |                         | 400*500*500  | 500*600*750  | 700*800*900                                 | 800*1000*1000  | 1000*1000*1000 |
| Overall Dimension (mm)    |                         | 860*1050*1620  | 960*1150*1860  | 1180*1350*2010                              | 1280*1550*2110 | 1500*1550*2110 |
| Interior Volume           |                         | 100L   | 225L   | 500L  | 800L           | 1000L          |
| Heat load                 |                         | 1000W  |  |   |                |                |
| Parameter                 | Temperature Range       | A : -20℃ ～ +150℃<br>B : -40℃ ～ +150℃<br>C: -70℃ ～ +150℃  |  |   |                |                |
|                           | Temperature Fluctuation | ± 0.5℃   |  |   |                |                |
|                           | Temperature Deviation   | ± 2.0℃   |  |   |                |                |
|                           | Humidity Range          | 20% ～ 98% RH   |  |   |                |                |
|                           | Humidity Deviation      | ± 2.5% RH  |  |   |                |                |
|                           | Cooling Rate            | 1℃ / min   |  |   |                |                |
|                           | Heating Rate            | 3℃ / min   |  |   |                |                |
|                           | Structure               | Cooling  | Cooling system   | Mechanical compression refrigeration system |                |                |
| Refrigerating unit        |                         |  | French TECUMSEH compressor   |   |                |                |
| Refrigerant               |                         |  | R404A, R23   |   |                |                |
| Heating Element           |                         | Nichrome heater  |  |   |                |                |
| Controller                |                         | Programmable color LCD touch screen controller   |  |   |                |                |
|                           |                         | Ethernet connection, PC Link   |  |   |                |                |
| Humidity                  |                         | Water supply system  | Automatic water supply   |   |                |                |
|                           |                         | Water supply system  | Water purification system  |   |                |                |
|                           |                         | Humidifier   | External isolation, stainless steel surface evaporation humidifier |   |                |                |
|                           |                         | Dehumidification   | Evaporator   |   |                |                |
| Sensor                    |                         | Temperature Sensor   | PTR Platinum Resistance PT100Ω/MV A-class, accuracy 0.001℃         |   |                |                |
|                           |                         | Humidity Sensor  | Dry and wet bulb sensor  |   |                |                |
| Build-in Water Tank(mm)   |                         | 270*300*400  |  |   | 270*300*450    |                |
| View Window Size(mm)      |                         | 250*280  |  |   | 300*330        | 330*370        |
| Air Circulation           |                         | Centrifugal wind fan   |  |   |                |                |
| Safety Device             |                         | Humidifier dry-combustion protection; over-temperature protection; over-current protection;<br>Refrigerant high-pressure protection; Water shortage protection; Earth leakage protection |  |   |                |                |
| Material                  | Exterior Material       | Steel Plate with protective coating  |  |   |                |                |
|                           | Interior Material       | SUS304 stainless steel   |  |   |                |                |
|                           | Thermal Insulation      | Polyurethane foam and insulation cotton  |  |   |                |                |
|                           | Observation Window      | Interior lighting, double-layer thermo stability silicone rubber sealing   |  |   |                |                |
| Standard Configuration    |                         | 1 Cable hole (Φ 50,) with plug; 2 shelves  |  |   |                |                |
| Power Supply              |                         | 220V 50Hz / 380V 50Hz  |  |   |                |                |
| Maximum Noise             |                         | 65 dBA   |  |   |                |                |
| Environmental Conditional |                         | 5℃～+35℃    ≤85% RH   |  |   |                |                |

- ▣ Low temperature can cool down to -86℃.
- ▣ The Refrigerant can be replaced by R449A/R508B
- ▣ The heat load can absorb 1000W in -20℃.

- ▣ Standard & customized

\* pay attention to the environmental condition during installing



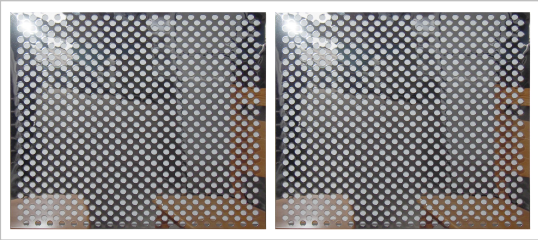
1.Workroom

The internal material is 304 stainless steel, mirror surface, rust-proof to high and low temperature and moisture corrosion;  
Nice ruggedness and long life.



2.Sample Shelf

SUS304 stainless steel punching sample shelf 2pcs;  
Standard load of 50KGS for each layer of sample shelf;  
The height of the shelf is adjustable and can be removed directly to facilitate the various sizes of test samples.  
Conductive to the air circulation.



4.Viewing Window

Double layer insulating glass 8cm thick, made of tempered glass.  
The conductive film is located on the interior glass to prevent window frosting, built-in LED light for the work room lighting ;can clearly observe samples.  
The light control button is located below the controller.



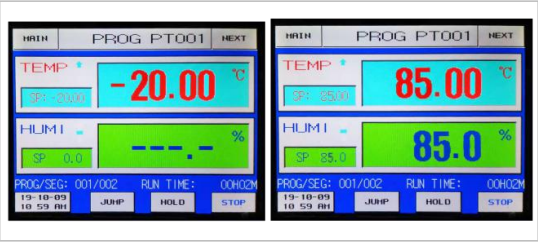
7.Automatic Water Inlet

Automatic control of the water intake of equipment, the customer can be directly connected to the laboratory faucet, so as to achieve automated testing;  
Automatic inlet diameter 1/2 inch (13.5MM);  
High and low water level alarm, water shortage lights and sound.  
Standard 2 meter drain, longer.



5.Controller

PID programmable color touch screen controller, network connection computer.  
Can edit 120 programs 20 segments.  
LIB also can preset program into the controller based on user testing requirements.  
The set system language is English for standard.



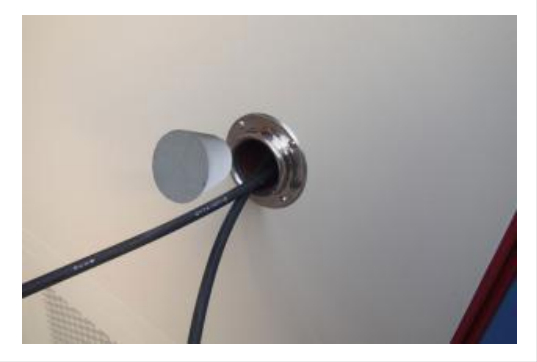
8.Castor

Install 4 castors for ease moving, and with brakes function.  
Caster height adjustable.



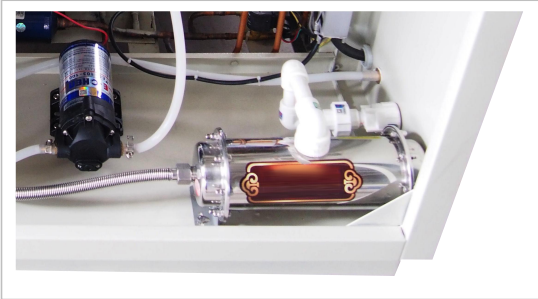
3.Cable Hole

A standard test hole, located at the left side of the work room, is provided with a sleeve inside to prevent moisture from entering the insulation layer. Equipped with flange.  
The standard inner hole diameter is 50mm.  
Soft silicone plug seal; Metal enclosure closed, beautiful designed.



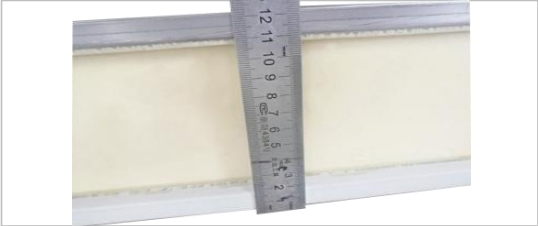
6.Water Re-circulation

Water purifier: mainly purification from water source to water tank.  
The filter element is suggested to be replaced once a year.  
Water re-circulation system that reduced water use and a series of water pipes.



9.Insulation

10cm thick polyurethane foam and insulation cotton;  
Better insulation performance, degradation resistance, environmental protection, noise reduction.

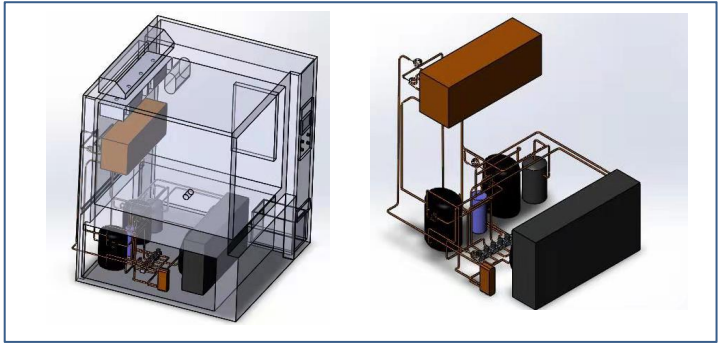


10.External Materials

A3 steel plate with galvanized coating;  
Electrostatic treatment; High and low temperature corrosion resistance; High hardness, anti - impact  
Very high safety factor;  
Color can be customized.



Core Function



Cooling System

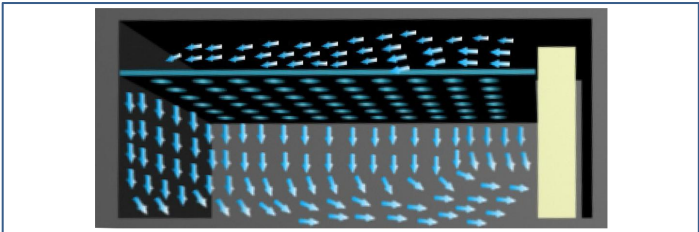
After the liquid refrigerant absorbs the heat of the cooled object in the evaporator, it is vaporized into low-temperature and low-pressure steam, sucked by the compressor, compressed into high-pressure high-temperature steam, discharged into the condenser, and radiated to the cooling medium in the condenser, condensed into a high-pressure liquid, throttling through a throttle valve into a low-pressure low-temperature refrigerant, and again entering the evaporator to absorb heat and vaporize, to achieve the purpose of cycle refrigeration.

In this way, the refrigerant completes a refrigeration cycle through four basic processes of evaporation, compression, condensation, and throttling in the system.



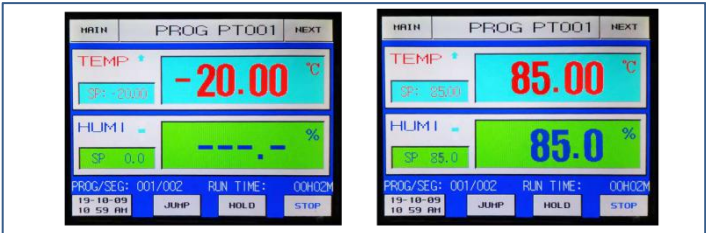
Humidity System

When the current humidity is less than the set point humidity, the equipment is automatically humidified. The humidification of is automatically heated by the humidification tank. When the water is heated, steam is generated, and then the steam is injected into the working room to increase the test humidity.



Air Circulation

The centrifugal fan is installed at the rear of the chamber body, and the air is uniformly distributed through the air outlet. Air circulation adopts air outlet at top and air return at bottom, and the wind speed and pressure are in compliance with the test standard, and the temperature is stabilized at the moment of switching. The high-quality centrifugal fan is used to strongly supply air circulation, making the temperature distribution in the test area uniform.



Controller System

The PID controller as the main control unit to command, operate, detect and redistribute the various components of the equipment to achieve maximum effective use.

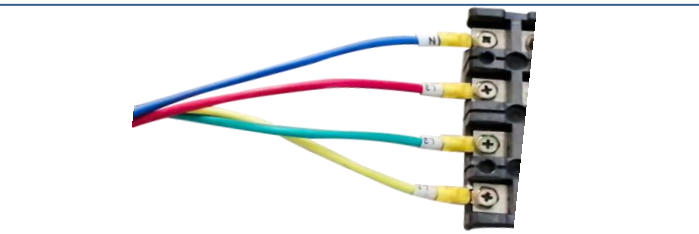
The temperature control adopts P.I.D. S.S.R. system synchronous coordinated control, which can improve the stability and life of the control components and interface.

Screen display function: LCD display, which can display test conditions (including temperature section, cycle number, running time and remaining time, etc.).



Temperature and Humidity Sensor

PT-100 Class A sensor, real-time accurate detection and display of temperature changes at 0.001 degrees.  
A wet gauze and a real-time temperature, converted by temperature difference, showing real-time relative humidity.



Wiring System

Voltage 380V 50Hz 3 phase.  
L1, L2, L3, PE, N, grounding protection.  
Standard 2m long cable,

Over Temperature Protection  
Water Shortage Protection

Over Current Protection  
Earth Leakage Protection  
Phase Sequence Protection

Humidifier Dry Combustion Protection  
Refrigerant High Pressure Protection

Protection System

|  |   |
|--|---|
| Sample Shelf                               | <ul style="list-style-type: none"><li>■ Quantity can be increased</li><li>■ Special sample shelf can be customized</li></ul>  |
| Cable Wire                                 | <ul style="list-style-type: none"><li>■ 2.5m</li><li>■ 3m</li></ul>   |
| Test Hole                                  | <ul style="list-style-type: none"><li>■ Diameter 100mm</li><li>■ Diameter 125mm</li><li>■ Shape and size can be customized</li></ul>  |
| Demineralized Water Device                 |   |
| Capacitive Temperature And Humidity Sensor | <ul style="list-style-type: none"><li>■ VAISALA</li><li>■ ROTRONIC</li></ul>  |
| Observation Window                         | <ul style="list-style-type: none"><li>■ Size can be customized</li><li>■ Inner glass door</li><li>■ Hand-in ports</li></ul>   |
| Reverse Osmosis Unit                       |   |
| Controller                                 | <ul style="list-style-type: none"><li>■ WiFi connection</li><li>■ Mobile APP control</li><li>■ Multi-language controller interface: Russian, French, Polish, Romanian, German</li></ul> |

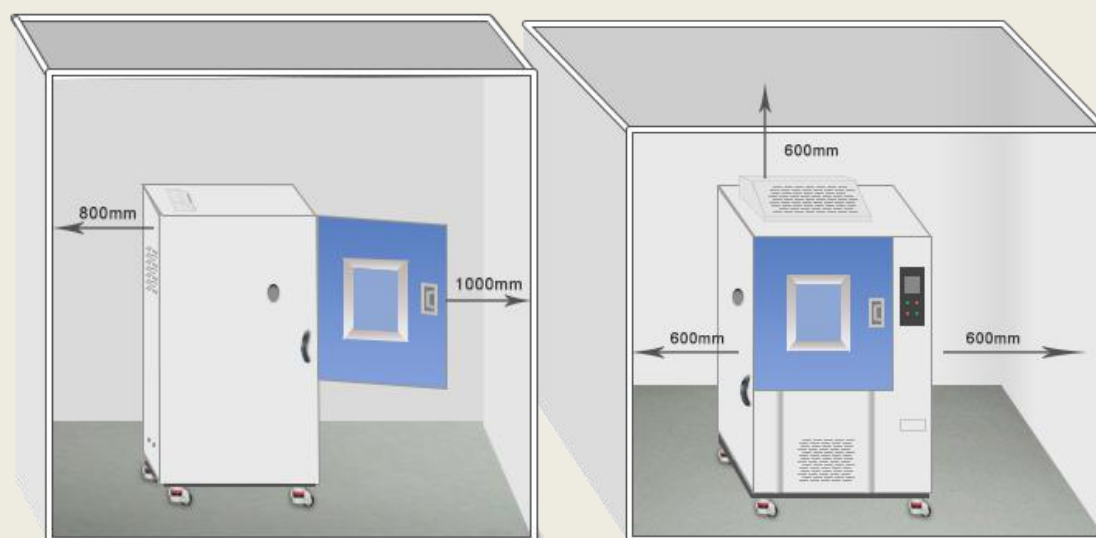
## Install Condition

### Environment Conditions

Temperature: +5°C ~ +35°C  
Relative humidity: ≤85%;  
Pressure: 86 KPa—106 KPa

### Space Conditions

Sufficient space for ventilation



**\*Safety Instruction:**

1. Prohibited to test explosive, inflammable and high corrosive substance
2. Chemical exposure to the equipment is prohibited
3. Equipment must be safety on the ground to avoid electrostatic induction

## Packaging



First, seal chamber with waterproof plastic film. Protect chamber from seawater corrosion.  
Second, buffer foam is placed in the four corners of the chamber. It is used for fixing equipment to prevent shaking and damaging chamber during transportation.



Plywood: standard wood export packaging. The wooden box is fixed by sheet metal to prevent damage during transportation.

Gross weight: 270kgs~  
Package size: 2100\*1900\*2500 mm

## Warranty Condition

Our company will repair the product, if the product, the material of the parts, the design and manufacturing of the products raised hardware problems caused by product itself rather than human error within three years warranty period since the date of dispatching by the customer.

Our company repairs the products, but will collect the basic costs of the spare parts after the warranty period, but service is free always.

## Shipping



**Material:** Export standard wooden box

\*Can be used for Sea, Air, Railway, Truck and multimodal transport.

## Warranty & Service

- 3 Years Warranty, Lifelong Follow-up Services

### Professional After-sales Team

If you have any questions during operation, we will supply solution to you with 24 hours.

## How to Service

1. At first, our test chambers are produced based on 20 years product lifetime.

Normally once test chambers have problems, we judge the problems, and send spare parts to our customers, and teach them how to change new parts on by email or video, all spare parts and shipping cost (by DHL, TNT, and FedEx) paid by LIB.

2. If the customer needs our engineer on-site service, they only need pay the ticket accommodation to our Engineers, service is for free.

3. If products still can't use after our engineers repair, we will produce a new test chamber (same as the old one) to our customers with no charge.



## PROVIDING TEST SOLUTION, PROVIDING TEST EQUIPMENT

Xi'an LIB Environmental Simulation Industry is a lead provider of environmental test chamber in China, with its own brand (LIB) design, production, sales and service since 2009. We continually update technology and develop new products for customer's needs.

Our main products included temperature and climate test chambers, corrosion chambers, weathering testers, IP dust and rain chambers, ozone test chamber, noxious gas SO<sub>2</sub> H<sub>2</sub>S chamber, walk-in chambers. We provide test chamber, we provide test solution. Standard and customized products to meet different customer needs.

By 2018, global market has spread to 53 countries to USA, Canada, Mexico, Brazil, Peru, Russia, German, UK, France, Finland, Netherlands, Poland, Switzerland, Thailand, Philippines, Singapore, Malaysia, Australian, South Africa etc. and the market continues to expand.

At present 7 Tier-one agents around the world provide LIB products, installation and maintenance service for customers. Make things simple and convenient.

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