



东莞市环仪仪器科技有限公司  
HUANYI INSTRUMENTS CO.,LTD

## **HYQW-8B 8m<sup>3</sup> Air Purifier Test Chamber**

### **Operating Manual**

Survival by quality,  
Development with integrity,  
Efficiency by management.

# Content

I 、 Implementation standards .....	1
II 、 Standards compliant .....	1
III、 Main components of the machine .....	1
IV、 Machine structure .....	2
V 、 Main technical parameters .....	2
VI、 Materials and accessories .....	3
VII、 Equipment environment description: .....	4
VIII、 Precautions .....	5
IX、 Machine maintenance instructions .....	5
X 、 Control section description .....	6
Main interface .....	7
Graph .....	8
Certification .....	9
Warranty card.....	10

## **I . Implementation standards**

This machine is produced in strict accordance with the SPS-KACA002-132:2018 standard requirements.

## **II 、 Reference standards**

GB/18801-2015 air purifier

GB/18803-2002 indoor air quality standards

GB50243-2002 Construction acceptance specifications for ventilation and air conditioning projects

GB7251-1997 Low-voltage complete switchgear and control equipment

## **III、 The main components of the machine**

1. Machine parts

2. Air purification and temperature and humidity control system

3. Air sampling system

4. Pollution source generating device

5. Air duct part

6. PLC touch screen touch part

## IV、Machine Structure



## V、Main technical parameters

- 1、 Internal dimensions: 2000 \*2000\*2000mm(L×W×H)±1m<sup>3</sup> deviation
- 2、 External dimension: 2080×2780\*2200mm(L×W×H)
- 3、 Door: 900×1900mm(W×H)
- 4、 Operating temperature range: 23℃~±3℃
- 5、 Operating humidity range: 50%RH±10%
- 6、 Gas tightness: The number of air changes is not greater than 0.05h<sup>-1</sup>
- 7、 Background concentration control system parameters: formaldehyde content  
≤10μg/m<sup>3</sup> (ambient air background concentration:  
formaldehyde ≤0.1mg/m<sup>3</sup>)
- 8、 Power supply: 220V 50Hz three-phase five-wire system 8KW
- 9、 Test room entry and exit method: walk-in
- 10、 Ground load-bearing ≥500Kg/m<sup>2</sup>

## **VI、 Materials and accessories**

- 1、 Inner wall: 10mm thick float glass
- 2、 Frame: Use aluminum alloy square tube as bracket
- 3、 Sealing material: silicone rubber strip and glass sealant
- 4、 Top plate: Use silicone rubber strips and glass sealant
- 5、 Floor: An aluminum alloy square tube is used as the bracket. After leveling, it is veneered with glass and 2.0mm thick 304 stainless steel plate to ensure that the floor will not deform after long-term use.
- 6、 Door: 900×1900mm (W×H) single opening, fully sealed, open both indoors and outdoors
- 7、 Circulation fan: diameter 1400mm, three-blade metal blades
- 8、 Return and exhaust air inlets: 304 stainless steel, with high-efficiency exhaust filtration
- 9、 Fan: low noise variable frequency fan
- 10 、 Pipe: DN100 SUS304 stainless steel 1mm wall thickness pipe, use shock-absorbing flange at the connection
- 11 、 Pipe: DN100 SUS304 stainless steel 1mm wall thickness pipe, use shock-absorbing flange at the connection
- 12、 Injection hole and sampling hole: 7 304 stainless steel sampling holes, with a diameter of not less than 10mm, located on the left and right walls of the main entrance; with ball valve control and hose
- 13、 Trolley: Welded with SUS304 stainless steel and used to place samples.

## **VII、Equipment environment description**

### **1. Trial operation inspection**

1).Confirmation of power supply and grounding cable: whether the power cable is properly connected according to the specifications and reliably grounded;

2).Prepare air source: 4-6KG, insert the trachea into the air inlet of the equipment.

2).Are the formaldehyde sensor, benzene sensor, and dust particle counter connected in place?

3).Confirmation of water supply:

a.Fill the water tank two-thirds full with pure water.

b.Whether the drain switch is tightly closed;

c. Whether the water used in the humidification water tray is clean (the humidification water tray should be drained regularly, usually at least twice a month. When cleaning, please turn on the drainage switch at the back of the machine to completely drain the water inside the humidifier).

### **2. Operating procedures**

1. First turn on the non-fuse switch (NFB) of the main power supply. Please check whether the power supply voltage is normal before turning on the power supply.

2. Press the power switch.

3. This machine is equipped with a window observation light. If you want to check the situation inside the box, please press the observation light switch, and the light inside the box will light up immediately.

4. Set the required execution procedures so that the setting work can be carried out smoothly.

5. Check the running status and screen from time to time.

6. If a fault occurs, the display screen of the machine will immediately display the cause of the fault. After the fault condition is eliminated, please press any key on the screen to enter the setting screen, and then restart the testing machine. If you do not know the cause of the fault, you can Directly enter the main page "Fault Query" to check the cause of the fault.

## **VIII、Precautions**

### **1. Add humidification water:**

After connecting the soft hose tap water to the pure water machine, turn on the socket switch at the back of the chassis; after the machine's power switch is turned on, the water replenishment system will automatically replenish water. When the pure water machine hose is not connected, turn off the pure water machine power control switch to avoid damaging the motor when the pure water machine runs without load.

When the humidification water is lower than a certain lower limit water level, power will be automatically supplied to the pure water machine, and the water replenishment motor and water replenishment solenoid valve will be turned on to replenish the water storage tank. When the water level reaches a certain upper limit water level, the water replenishment power supply will be automatically disconnected.

2. The filter element needs to be replaced every three months to ensure the filtration effect.

3. When the machine is running, the test chamber door is not allowed to be opened at any time. The internal conditions can be viewed through the observation window.

4. After the sampling is completed, if the next test needs to be carried out, the air in the test chamber needs to be completely replaced. First, we need to open the hatch and turn on the bottom fan to allow it to be fully replaced.

## **IX、Machine maintenance instructions**

### **Inspection and maintenance**

1. Inspect and maintain the humidifier. The water stored in the humidifier should be replaced at least once every two months to ensure clean water quality.

2. The condenser is located outdoors. There may be a lot of dust due to environmental factors. Dust and debris on the outer surface of the condenser should be removed regularly. Regular monthly maintenance should be performed, and the air inlet of the condenser should be checked at any time to see if it is clean. Cleaning methods include using a vacuum cleaner or broom to suck out the dust attached to the condenser heat sink aluminum fins, or using high-pressure air to spray away the dust.

3. Install a central air conditioner outside the experimental chamber to ensure that the temperature in the experimental chamber is between  $RT+5\sim 30^{\circ}$ .

4. Cleaning and maintenance.

4.1 Clean all horizontal surfaces daily.

4.2 After 5 days of use, mop the floor with a wet mop

4.3 After 20 days of use, the inner wall of the warehouse needs to be cleaned;

4.4 If necessary, after 5 days of use or spraying an antistatic dose, ensure that the sensor is well grounded and data is recorded.

5. When the machine is not in use, be sure to turn off the power and water source.

## **X、Control section description**

### **1. Overview**

This touch screen control system uses a hardware platform composed of a dual-core CPU PLC control system and a seven-inch touch screen, and cooperates with Taiwan's control system to form this automatic environmental experimental test. The environmental experiment chamber control system cooperates with the PLC control system to dynamically display the working conditions of the monitored objects in real time. The system is easy to operate and learn, with a novel interface; the system functions are easy to expand.

### **2. Brief description of touch screen screen**

The touch screen interface mainly consists of the constant temperature system in the chamber, the mixing and circulating air system, the exhaust system, the forward and backward system of the small trolley, and the fault display system. As well as equipment status display, alarm list query function, curve graph, etc.



## Main interface

### 1.Startup screen

When the device is powered on, the touch screen will enter this screen, which contains the name of our company and the operation keys to enter the system. Click "Enter Operation" to enter the next interface.



## Steps:

1. Open the test chamber and place the sample on the chamber table; adjust the sample to the rated state of the test, check that the operation is normal, and close the test chamber door.
2. Arrange the sampling points well, avoid the air inlet and outlet, the distance from the wall is greater than 0.5m, and the height relative to the ground of the test chamber is 0.5m~1.5m. Each sampling point is equipped with a sampling head and connected to the sampler outside the chamber.
3. Turn on the air filtration device in the chamber to purify the air in the chamber. Use particles with a particle size above 0.3um and a particle background concentration of less than 1000 particles/L. At the same time, set the required temperature and humidity values in the chamber. When the set values are reached, turn on the

constant temperature, start up;

4. Reduce the background concentration of particulate matter to an appropriate level, turn off the filter and humidity device, and turn on the stirring fan and circulation fan.

Put a standard cigarette into the smoke generator, connect the cigarette smoke to the injection port through the connecting air pipe, turn on the smoke generator, and inject the generated smoke into the chamber; the smoke is drawn into the air vortex formed by the fan stirring, reaching a certain after the amount is reached, turn off the valve at the injection port and stir with the stirring fan for another 10 minutes. After the particles are evenly mixed, turn off the stirring fan; the circulation fan remains on.

5. After turning off the stirring fan, start measuring the initial concentration of particles.

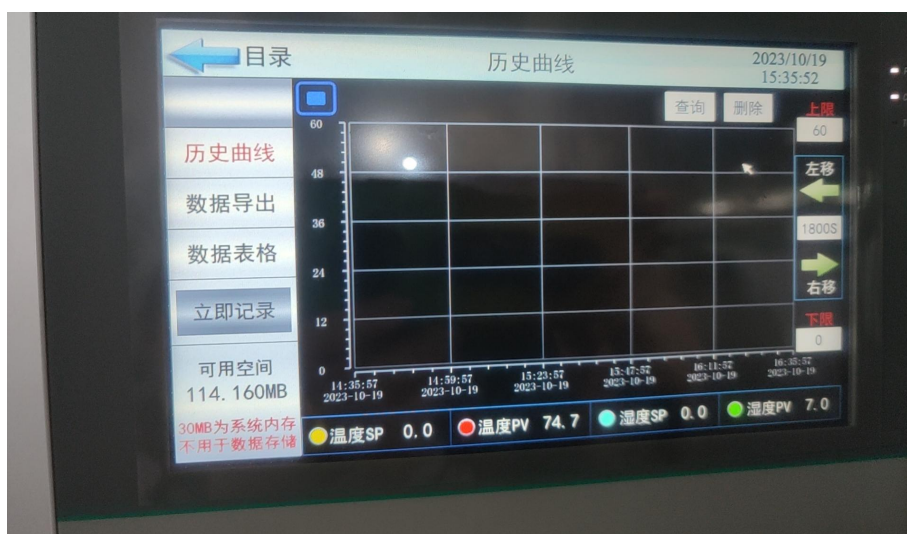
6. After the sample has been working for a certain period of time, turn off the sample power and conduct air sampling analysis through the sample;

7. Turn on the "Air vent switch" button to replace the air in the chamber.

8. After the test is completed, click the "Constant Temperature and Stop" to turn off the thermostat system;

9. The operation is completed.

**Curve Graph Actual temperature and humidity may be observed over time via a curve.**



## Certificate of Inspection

Product name: 8m<sup>3</sup> Air Purifier Test Chamber

Product model: HYQW-8B

Factory No.: 231016-1

release date: October 16, 2023

Inspection result: Qualified

Inspector: Fu Deng

Audit: Deng Hongyan

Welcome to use our company's products, our company will bring convenience to your work with excellent quality and efficient service. Your satisfaction is our greatest wish!

Dongguan Huanyi Instrument Technology Co., Ltd.

## Warranty card

Product name: 8m<sup>3</sup> Air Purifier Test Chamber

Model: HYQW-8B

Factory No.: 231016-1

### Instructions for use:

1. This card is properly kept by the user as a warranty certificate and will not be reissued if lost.
2. Warranty period:  
  
From October 16<sup>th</sup>, 2023  
  
to October 16<sup>th</sup>, 2024
3. Damaged due to improper use or storage by the user, dismantling without the manufacturer's consent, or without a warranty card, the products and numbers filled in the warranty card that do not match or are altered are not included in the warranty, but can be repaired for a fee.
4. Those without the seal of the issuing unit on the warranty card are not included in the warranty.

Issuing unit: Dongguan Huanyi Instrument Technology Co., Ltd



**Maintenance Record Sheet**

Date	Maintenance content	Handled by

**东莞市环仪仪器科技有限公司**  
**HUANYI INSTRUMENTS CO.,LTD**

**Tel: +86-0769-83482055 83127258**

**Fax: +86-0769-83482056 # 816**

**Web: <http://www.huanyi-group.com>**

**E-mail: [dq@huanyi-group.com](mailto:dq@huanyi-group.com)**

**Add: Building 2, No. 3, Longkeng Xingye Road, Dongkeng Town,  
Dongguan City**