

OPERATING/MAINTENANCE MANUAL



(The picture is just for reference)

Product: Temperature humidity chamber
P/N: YTH-408-40-1P

Please operate as to the following user manual

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1. Specifications:

1. Temp. range: -40 °C ~ + 150 °C.
2. Humidity range: 20 %RH ~ 98 %RH.
3. Temp. uniformity: ± 1.5 °C .(empty chamber, 30 minutes after stabilization)
4. Humidity uniformity: 2.5% RH (empty chamber, 30 minutes after stabilization)
5. Temp.& humidity accuracy: ± 0.3 °C, ± 0.5 %RH
6. Temp.& humidity resolution: ± 0.01 °C, 0.1 %RH
7. Heat up speed: About 3 °C/min from room ambient to +150 °C
8. Cool down speed: About 2 °C/min from room ambient to -40 °C
9. Exterior chamber size: 1100(W)×1750(H)×1250(D)mm

Inner chamber size: 600(W)×850(H)×800(D)mm

*Remark: The volume of the samples should not exceed 2/3 of the inner chamber space.

10. Power: AC 3 ϕ 380 V 50 HZ MAX 50 A

2. Configurations

A. Frame materials:

1. SUS#304 stainless steel for inner chamber.
2. Galvanized steel with powder coated for exterior chamber.
3. PUF for insulation

B. Heating & Refrigeration system:

1. Refrigeration system:

☒ R404 refrigerant; ☒ R23 refrigerant.

2. Condenser: ☒ Air cooling ☐ Water cooling

3. Refrigerant expansion: ☒ Capillary copper tube ☐ Expansion valve

4. Evaporator: ☒ Wind circle ☐ No wind

C. Heating system:

Heater: 380 V 2 KW*2

D. Humidifying system:

Humidifier: 380 V 2 KW*2

E. Temperature humidity controller:

1. ☒ Programmable controller

*Please check the controller manual

☐ Non-programmable controller

2. Temp.& humidity sensor:PT100 thermal resistor(dry bulb/wet bulb)

F. Wind & water drain system:

1. Wind circle system: 1set

a. Fan motor: 1 ϕ 220 V 90W \times 2PCS

2. Water drain tube OD:10mm

G. Protection system:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Over-temperature protection | <input checked="" type="checkbox"/> Water shortage switch |
| <input checked="" type="checkbox"/> Over-currency protection | <input checked="" type="checkbox"/> Non-fuse switch |
| <input checked="" type="checkbox"/> Compressor overload protection | <input checked="" type="checkbox"/> Control loop protection |
| <input type="checkbox"/> Phase protection | <input type="checkbox"/> High pressure protection |
| <input type="checkbox"/> Water shortage protection of water tank | <input type="checkbox"/> Oil pressure protection |

3.Standard accessories:

- ☒ Cable port.
- ☒ Light.
- ☒ Glass window.
- ☒ Stainless steel loading shelves 2 SETS.

4.Installation environment:

Please consider the temperature and maintenance convenience for installation place

1. Keep at least 60cm space from wall or other machines.
 2. The installation floor must be horizontal
 3. Environment:10℃ \sim 30℃,70 \pm 10 % RH.
 4. Keep the chamber away from heat, inflammable and explosive materials.
 5. No direct sunlight, good air circulation.
 6. Don't put the chamber in dirty air
 7. The electrical wire and water tube should be as short as possible.
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5. Power supply:

Power: ☐ AC 220V 1 ϕ 3-WIRE 50/60HZ MAX 30A

☐ AC 220V 3 ϕ 4-WIRE 50/60HZ MAX 30A

☒ AC 380V 3 ϕ 5-WIRE 50/60HZ MAX 30A

*Notice: voltage tolerance: $\pm 5\%$; Frequency: $\pm 1\%$ 。

6. Installation tips:

A: Electrical parts:

Don't connect more than one chamber with one power outlet.

1. Power supply requirements:

	1 ϕ 220V 50HZ		1 ϕ 220V 60HZ		1 ϕ 220V 50HZ
	3 ϕ 220V 50HZ		3 ϕ 220V 60HZ		1 ϕ 380V 50HZ
✓	3 ϕ 380V 50HZ		3 ϕ 415V 50HZ		

2. The ground wire work must be done as to the Electrical devices standard. The ground resistance must be under 50Ω , the OD of the ground wire is:

✓	2.5mm ²		3.5mm ²
	5.5mm ²		8mm ²

3. Don't connect the ground wire with the water pipe, it's not safe and effective way.

4. Don't connect the ground wire with the oil or gas pipe.

7. Notices before operation:

1. Confirm the power supply and ground wire.

Are the power supply and ground wire ok?

2. Water drain pipe

— Is it connected ok?

8. Notices in operation:

1. The chamber has a cable port for connecting samples with power supply.

2. Can watch the samples through the view window.

3. Don't open the door if the inside chamber temperature is under 0°C.
4. Please set 25°C and run 30 minutes after low temp test.
5. Constant clearance for the condenser.
6. Don't open the door during operation. Otherwise, below results may happen:
 - Hot air ramps out.....
 - The door inside is hot.....
 - Hot air may lead to false fire alert.
7. The ground wire must be connected ok.
8. Don't reopen the refrigeration switch in 3 minutes after close the switch.
9. The sample can't use the chamber power.
10. Constantly check the circuit breaker and over-temp protection unit.
11. Don't test explosive, inflammable or corrosives materials.
12. Read this manual before operation.
13. Put the gauze in the right place and use purified water for correct humidity data.

9.Constant maintenance:

A. The fan clearance of the condenser

Use suction machine to clear the fan (One time per 6 month).

B. Keep the inner chamber clear

Failures and answers

10.Q&A list:

Failures	Cause	
Compressor not work	(1).Poor contact of plug and socket (2).Socket fuse broke (3).Voltage too low (4).The temp adjuster position points to break (5).Overload relay breaks (6).Motor breaks	·Check the socket ·Check the socket fuse ·Check the voltage ·Check the status of the temp adjuster ·Check the overload relay ·Check the motor
Compressor can work but can't do low temperature	(1).The air circulation around the condenser is bad, or the condenser is near hot resources (2).The point position of the temp adjuster is wrong (3).Door seal not good	·Check the condenser environment ·Check the status of the temp adjuster ·Close the door tightly
Noise	(1).Components installation not in good position (2).The floor is not level (3).The copper tubes vibrate	·Check inside components ·Change place ·Check the floor ·Check the tube
Heat system failures	(1).Over-temperature switch open (2).Heater broke (3).The temp set by the temp adjuster is too low	·Check the circuit ·Change heater ·Reset the temp adjuster