Content

1 General

1.1 Introduction

Thanks for purchasing e-lab's "WTRE-05"、"WTRE-10"、"WTRE-20"、"WTRE-50" rotary evaporator. This user manual stated the installation, using, maintaining and servicing of "REV-series rotary evaporator ". Before using this instrument, please ensure that you have read and understood this manual completely.

1.2 Safety

This chapter describes the installation, safety rules of "REV-series rotary evaporator". Users must familiar with the related warning signs, strictly abide by the operation procedures to ensure the security of the equipment and personal and avoid the occurrence of accident.

1.2.1 User's Qualification

The instrument must be operated by the person who has the practical operating experiences and can grasp of the detailed requirements in this manual. Otherwise, it must be used under the guidance of the person who has the related technology skills.

1.2.2 Proper Use

This instrument is designed and manufactured for the use of laboratory work.

It can be used for the following experiments：

a) Evaporation;

b) Distillation;

c) Separation of chemical;

d) Using the rotating bottle to dry the powder

e) Crystallization.

This instrument must be used with water bath to do the experiment.

1.2.3 Improper Use

The purposes which not mentioned above are improper use. The operations that not according to the related stipulation in this manual are regarded as improper use. Any damage caused by improper use is responsible by the users themselves.

Operating under the following conditions is prohibited:

a) Explosive gas environment or explosive dust environment;

b) The places which the power supply is not in conformity with the requirements;

c) Deal with hard and brittle materials (such as rock and soil samples, etc.), this might damage the rotary bottle;

d) Sample volume in the rotary bottle in excess of the prescribed limit.

1.2.4 Warning Sign

	**Warning** ● In general, a triangle warning sign shows that if users did not operate the instrument according to the instructions, it may cause personal injury, even life-threaten.
	**Warning** ● Note high temperature.
	**Note** ● Please wear protective equipment, otherwise may cause personal injury.

All warning signs must be noted excessively.

1.2.5 Hazards Related to the Instrument

Please pay attention to the following safety tips:

	**Warning** ● The surface of parts may be in high temperature during operation, especially the surface of the water bath. In order to avoid scald, do not touch it with your body directly.
	**Warning** ● If use broken glass parts, it may cause implosion. ● Beware of the damaged or broken glass parts. ● It may at risk of static electricity when adding the solvent or dry powder into feeding tube.
	**Warning** ● Please make the instrument system grounding reliably. ● If vapor accumulation is in the instrument shell, it may cause explosion.

1.2.6 Other Hazards

	● The sample added into the instrument or some solvents near it may form peroxides, high concentration of flammable solvents, etc. ● Beware of the explosion risk when handling hazardous materials or samples of unknown composition. ● Keep well ventilation inside the instrument and its surrounding.

1.2.7 Safety Measures

	● Please wear personal protective equipment when operating this instrument, such as protective glasses, protective clothing and gloves.

1.3 Instrument Synopsis

REV-series of large rotary evaporators can be used in biological, pharmaceutical, chemical, food and other fields, for evaporation, distillation, separation and crystallization chemicals and other products or experiment. The use of high-capacity rotary bottle was placed in a water bath, while rotating the heating, the solution was evaporated and efficient. Supporting systems and can be composed of multi-purpose water circulation pumps, circulating cooler, etc., to meet the production or testing requirements.

It has the following advantages:

- Using Teflon (PTFE) and fluorine rubber double rotary sealing patented technology to ensure a degree of vacuum indicators.
- High precision temperature control system.
- Collect samples continuously.
- Feed valve using PTFE materials, corrosion-resistant, non-polluting.
- Common type and explosion-proof two products, choose according to the experimental environment.

1.4 Instrument Configuration

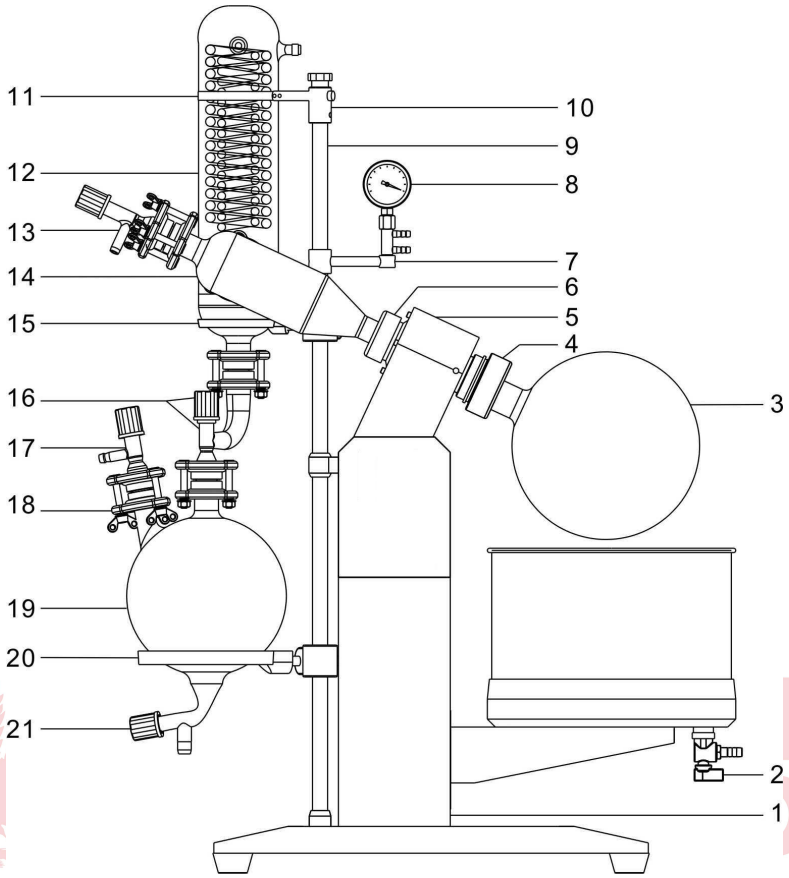


Figure1.4.1 WTRE-05 machine configuration diagram

1. Main engine+ water bath kettle
2. Liquid discharge valve
3. Rotary bottle 5L
4. Rotary bottle locknut
5. Rotating mechanism
6. 3-way bottle locknut
7. Vacuum gauge holder
8. Vacuum gauge
9. Stand pole
10. Condenser clamp holder
11. Condenser clamp
12. Condenser
13. 40# Feeding valve
14. 3-way bottle
15. Condenser tray
16. Condenser connector
17. Bleed valve
18. Connection flange
19. Receiving bottle
20. Receiving bottle tray
21. 15# valve

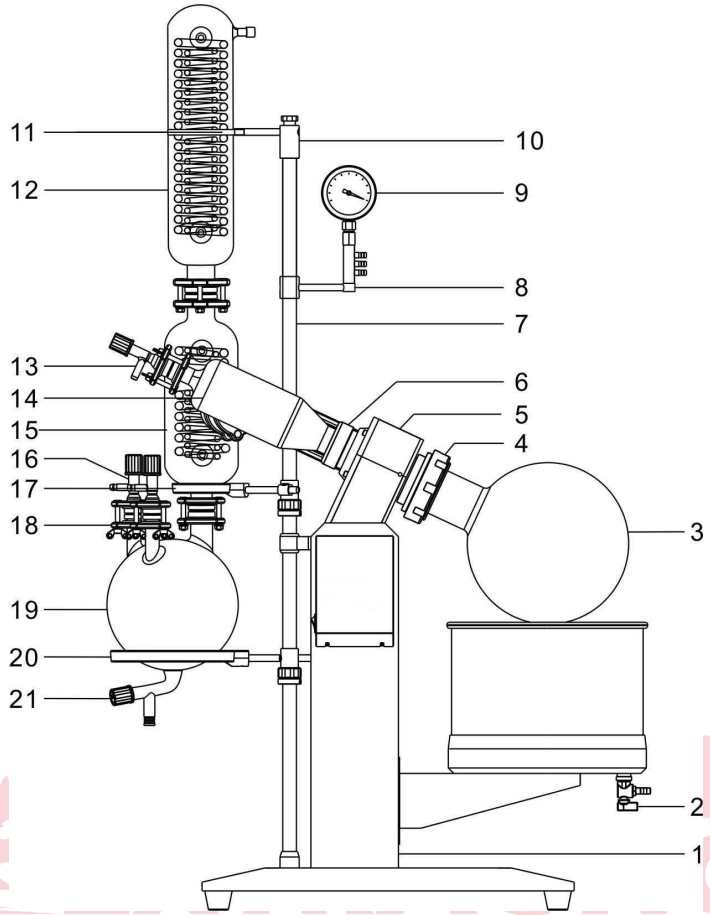


Figure1.4.2 WTRE-10 machine configuration diagram

1. Main engine+ water bath
2. Liquid discharge valve
3. Rotary bottle 10L
4. Rotary bottle locknut
5. Rotating mechanism
6. 3-way bottle locknut
7. Vacuum gauge holder
8. Vacuum gauge
9. Stand pole
10. Condenser clamp holder
11. Condenser clamp
12. Main condenser
13. 40# Feeding valve
14. 3-way bottle
15. Auxiliary condenser
16. Bleed valve
17. Condenser tray
18. Connection flange
19. Receiving bottle
20. Receiving bottle tray
21. 15# valve

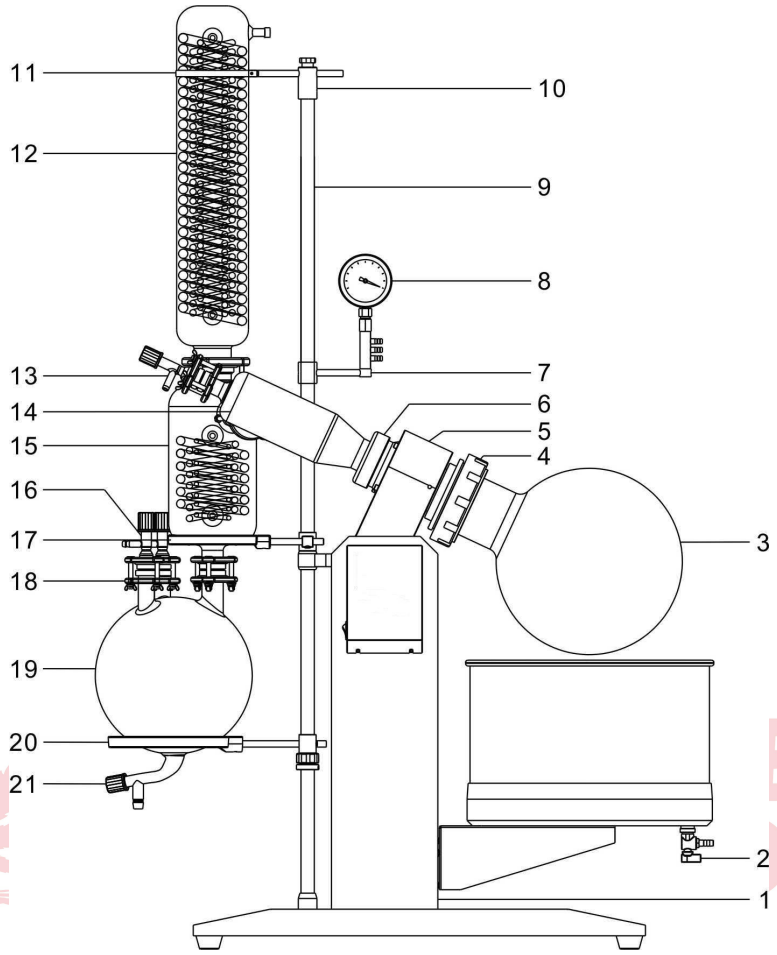


Figure1.4.3 WTRE-20 machine configuration diagram

1. Main engine+ water bath
2. Liquid discharge valve
3. Rotary bottle 20L
4. Rotary bottle locknut
5. Rotating mechanism
6. 3-way bottle locknut
7. Vacuum gauge holder
8. Vacuum gauge
9. Stand pole
10. Condenser clamp holder
11. Condenser clamp
12. Main condenser
13. 40# Feeding valve
14. 3-way bottle
15. Auxiliary condenser
16. Bleed valve
17. Condenser Tray
18. Connection flange
19. Receiving bottle
20. Receiving bottle tray
21. 15# valve

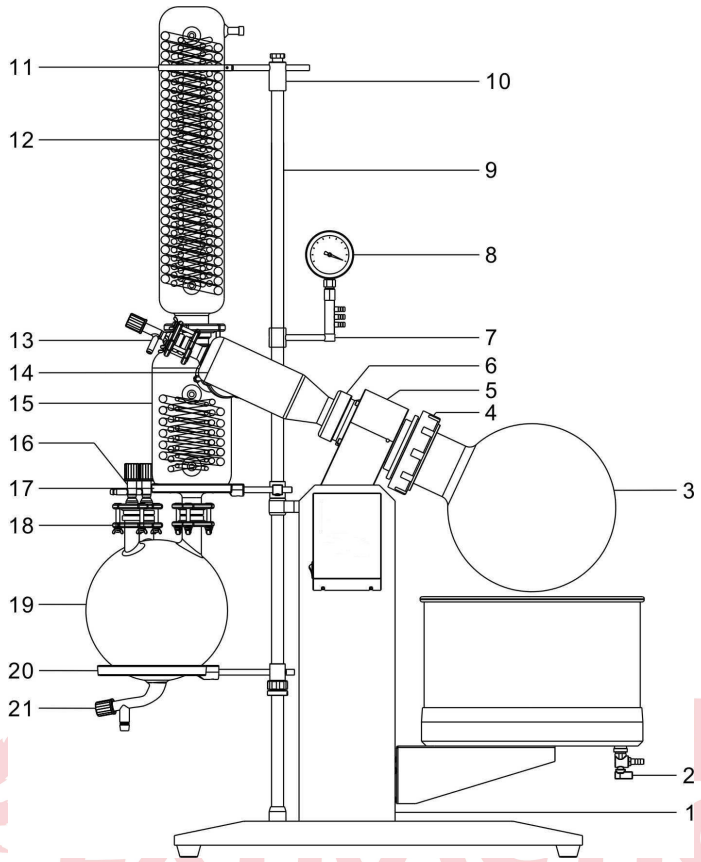


Figure1.4.4 WTRE-50 machine configuration diagram

1. Main engine+ water bath
2. Liquid discharge valve
3. Rotary bottle 50L
4. Rotary bottle locknut
5. Rotating mechanism
6. 3-way bottle locknut
7. Vacuum gauge holder
8. Vacuum gauge
9. Stand pole
10. Condenser clamp holder
11. Condenser clamp
12. Main condenser
13. 40# Feeding valve
14. 3-way bottle
15. Auxiliary condenser
16. Bleed valve
17. Condenser Tray
18. Connection flange
19. Receiving bottle
20. Receiving bottle tray
21. 15# valve

1.5 Instructions for panel

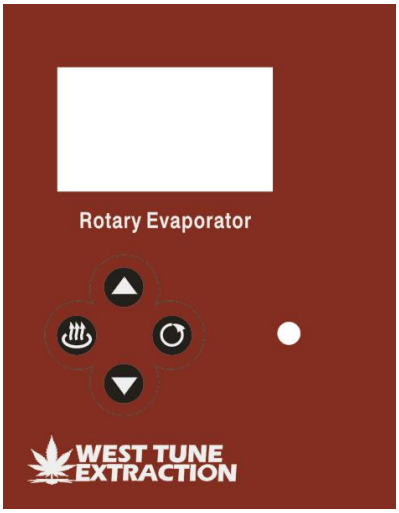


Figure1.5.1 WTRE-05 panel

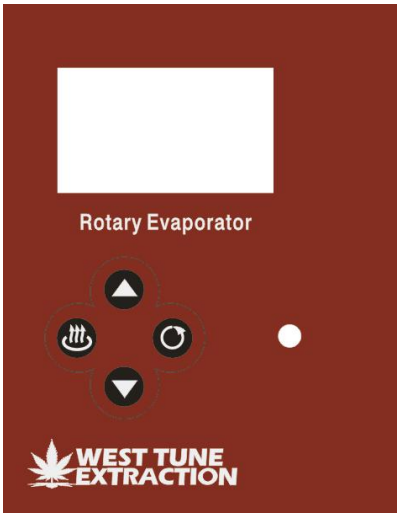


Figure1.5.2 WTRE-10、WTRE-20、WTRE-50 panel

1. LCD display
2. “” key: Press this key to start or shut down the rotation function;
3. “▲”key: Press this key, the bath intermittent rise, long press this key for more than 3s, the bath continuous rise;
4. “” key: Press this key to start or shut down the heating function;
5. “▼”key: Press this key, the bath intermittent decline, long press this key for more than 3s, the bath continuous decline;
6. Code switch: Press this button to set the temperature, velocity value; long press for more than 3s, until the upper display shows the character "Lc", the lower display shows"00", that is to enter the secondary control parameter setting state within the system.

   NOTE: The character "Lc" secondary control parameter set for the internal system protection and control characters.
7. Power switch

2 Unpacking and Installation

2.1 Unpacking

(1) After unpacking the case, please check whether the components are enough according to the packing list. If there's any lack of parts please contact us.

(2) Please clean the glass parts to maintain cleanliness before installation. Daub vacuum grease on both sides of the sealing ring to ensure the seal ability.

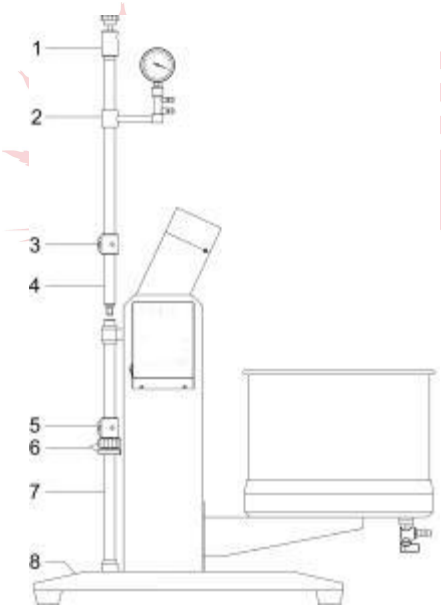
(3) Prepare the tools such as allen wrench or screwdrivers etc.

● Note: Glass device is fragile, please be careful when unpacking.

2.2 Components Installation

2.2.1 Stand pole installation

Put the upper stand pole(4) into the upper hole of the lower stand pole(7),rotate the upper stand pole clockwise to make them docking fixed.

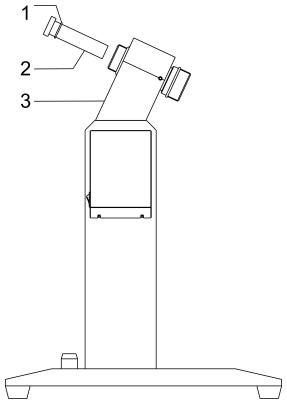


1. Condenser clamp holder
2. Vacuum gauge holder
3/5. Cross clamp
4. Upper stand pole
6. Adjusting screw nut
7. Lower stand pole
8. Engine base

Figure2.2.1 Stand pole installation diagram

2.2.2 Rotary axis installation

Put the O-ring(1) on the glass rotation axis(2),then insert the glass rotation axis with O-ring into the rotation mechanism(3) from the left side. Please make sure that the O-ring on the glass rotation axis adjoin the rotation mechanism shell.

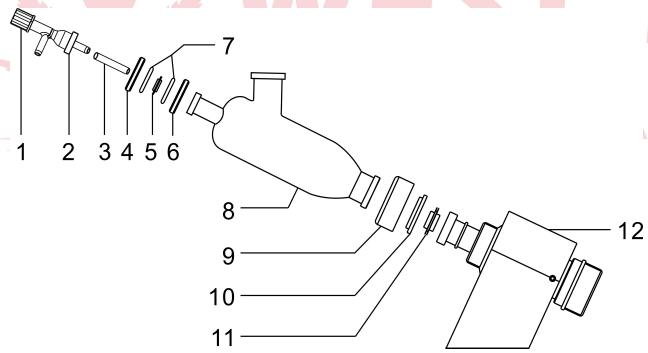


1. O-ring
2. Glass rotation axis
3. Rotation mechanism

Figure2.2.2 Glass rotation axis installation diagram

2.2.3 3-way bottle installation

Install the 3-way bottle locknut(9) to its sub terminal mouth, put the 3-way bottle nut retainer ring(10) on the bottom of 3-way bottle(8) neck, put the flange gasket(11) into the appropriate place in the 3-way bottle, then insert the 3-way bottle with flange gasket into the upper mouth of glass rotation axis, tighten the 3-way bottle locknut.



1. 15# Valve
2. 40# Feeding valve
3. F4 Feeding tube
4/6. 40# Connection flange
5. 40# Flange gasket
7. 40# Flange retainer ring
8. 3-way bottle
9. 3-waybottle locknut
10. 3-waybottle nut retainer ring
11. Flange gasket
12. Rotation mechanism

Figure2.2.3 3-way bottle installation diagram

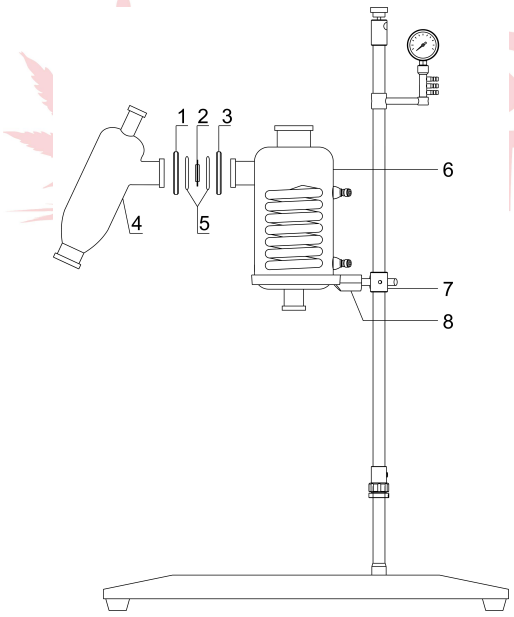
2.2.4 Auxiliary condenser and 3-way bottle installation

(1) WTRE-10、WTRE-20、WTRE-50 rotary evaporator's auxiliary condenser and 3-way bottle connection

Fix the tray(8) on the pole, put the auxiliary condenser(6)(WTRE-10,WTRE-20,WTRE-50 has auxiliary condenser) on the tray(8), adjust its height to make the auxiliary condenser side mouth and the 3-way bottle(4) to the same horizontal level. Tighten the screws tray(8) and cross clamp (7) again. Then install the connection flange(3) to the bottom of auxiliary condenser(6) mouth, put the flange retainer ring(5) on the auxiliary condenser mouth neck. Then put the flange gasket(2) into the 3-way bottle or auxiliary condenser mouth to align and fix it.

(2) WTRE-05 rotary evaporator and 3-way bottle connection

WTRE-05 rotary evaporator has no auxiliary condenser. Please refer to2.2.4 to connect the condenser and 3-way bottle.



1/3. 60# Connection flange

2. 60# Flange gasket

4. 3-way bottle

5. 60# Flange retainer ring

6. Auxiliary condenser

7. Cross clamp

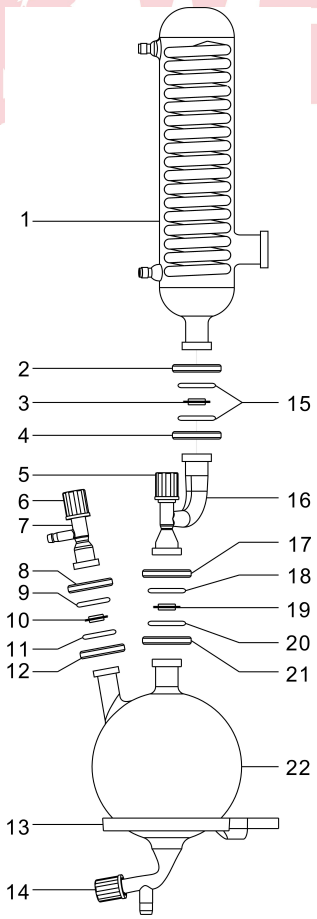
8. Tray

Figure2.2.4 WTRE-10、WTRE-20、WTRE-50 Auxiliary condenser and 3-way bottle installation diagram

2.2.5 Receiving bottle installation

(1) WTRE-05 rotary evaporator's receiving bottle installation

First put the receiving bottle(22) on the tray(13), rise it to the appropriate height, use the stand folder to fix the receiving bottle tray(13).Put the connection flange(21) to the bottom of receiving mouth, put the flange retainer ring(20) to the receiving bottle mouth neck, put a half of the flange gasket(19)into the receiving bottle, then put install the connection flange(17) and retainer ring(18) to the bottom mouth of the condenser connector(16) by the same method, then put a other half of the flange gasket(19) into the bottom mouth of condenser connector to align and fix it.Put the connection flange(2)(4) and flange retainer ring(15) to the bottom of condenser and upper mouth of condenser connector according to the same method mentioned above. Put the half of flange gasket(3) into the condenser connector. Rise the height of receiving bottle with condenser connector to make the another half of flange gasket(3) into the condenser mouth, tighten the stand folder to fix it. The condenser, condenser connector and receiving bottle's mouth must tight fit, the relative position is appropriate for fear of damage the glass parts.



1. Condenser

2/4/17/21. 40# Connection flange

3/19. 40# Flange gasket

5/6/14. 15# Valve

7. Bleed valve

8/12. 35# connection flange

9/11. 35# Flange retainer ring

10. 35# Flange gasket

13. Receiving bottle tray

15/18/20. 40# Flange retainer ring

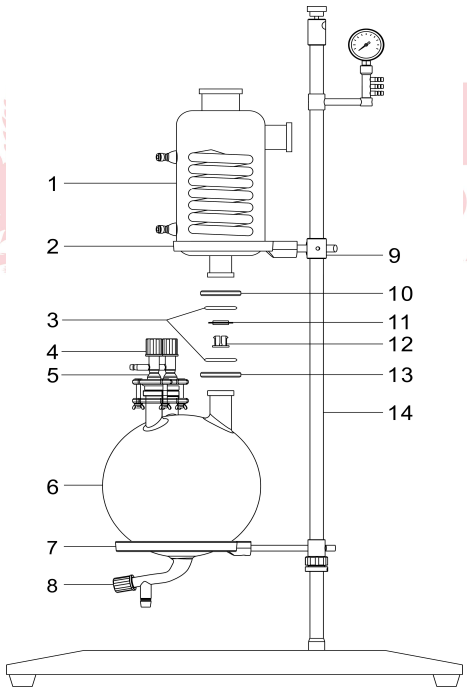
16. Condenser connector

22. Receiving bottle

Figure2.2.5.1 WTRE-05 Receiving bottle installation diagram

(2) WTRE-10、WTRE-20、WTRE-50 series rotary evaporators' receiving bottle installation

Put the receiving bottle(6) on the tray(7),rise it to the appropriate height then fixed it with cross clamp(9). Put the connection flange(13) to the bottom of the receiving bottle mouth, and put the flange retainer ring(3) on the mouth of receiving bottle. Put the automatic valve(12) into the middle hole of flange gasket(11) then put them together into the receiving bottle mouth.(Note: Do not put the automatic valve surface reversed, please put it towards receiving bottle.) Then interlink the connection flange(10) and flange retainer ring to the bottom mouth of auxiliary condenser. Readjust the height of receiving bottle tray, to install the other half of flange gasket with automatic valve to the bottom mouth of auxiliary condenser, tighten the stand folder to fix it.

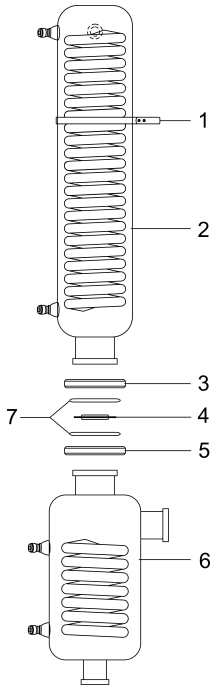


1. Auxiliary condenser
2. Condenser tray
3. 50# Flange retainer ring
4/8. 15# valve
5. Bleed valve
6. Receiving bottle
7. Receiving bottle tray
9. Cross clamp
10/13. 50# Connection flange
11. 50# Flange gasket
12. Automatic valve
14. Stand pole

Figure2.2.5.2 WTRE-10、WTRE-20、WTRE-50 Receiving bottle installation diagram

2.2.6 Main and auxiliary condenser installation

The connection of WTRE-10、WTRE-20、WTRE-50 series rotary evaporator's main and auxiliary condenser is consists of connection flange, flange retainer ring and flange gasket as shown in figure 2.2.6, please refer to 2.2.4 to install it.



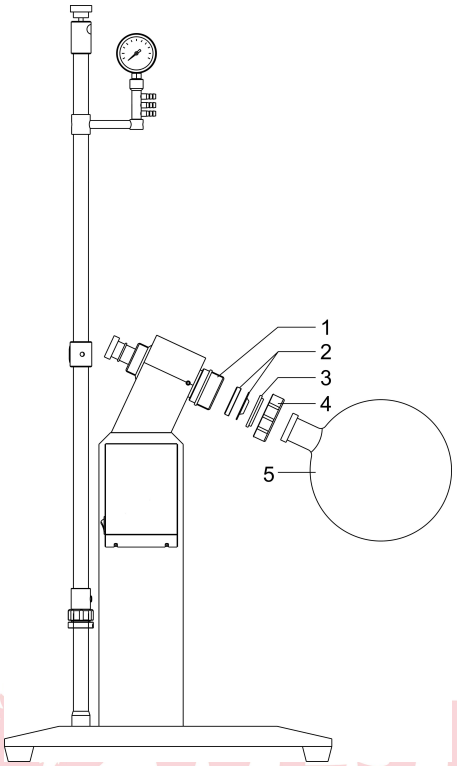
1. Condenser clamp
2. Main condenser
3/5. 80# Connection flange
4. 80# Flange gasket
6. Auxiliary condenser
7. 80# Flange retainer ring

Figure2.2.6 Main and Auxiliary condenser installation diagram

2.2.7 Glass rotary bottle installation

Install the PTFE sealer(2) to the right side of glass rotation axis(1),put the rotary bottle locknut to the bottom of rotary bottle neck, and put the rotary bottle nut retainer ring(3) on the rotary bottle neck.

Rotary bottle's orientation: Insert the allen wrench into the hole of rotation engine base(the left direction), adjust the location of rotation axis to its hole are align with the engine base hole, use the allen wrench to make the rotation axis location unchanged, install the rotary bottle with 3-way nut and retainer ring to the right side of glass rotation axis and tighten the rotary bottle locknut. Start to run the rotation axis and check its running condition to make it running smoothly.



1. Glass rotation axis
2. Teflon(PTFE) seal ring
3. Rotary bottle nut retainer ring
4. Rotary bottle locknut
5. Rotary bottle

Figure2.2.7 Glass rotary bottle installation diagram

2.2.8 Other components installation

(1) Bleed valve installation: The installation of bleed valve is the same as other connecting flange, please refer to 2.2.4.

(2) Vacuum gauge installation: Install the full set of vacuum gauge holder and vacuum gauge on the vacuum gauge holder, tighten the screw to fix it and adjust the holder to the appropriate height.

2.3 Pipeline connection

Please follow the instructions shown in Figure 2.3.1 and Figure 2.3.2, properly connected instrument system piping.

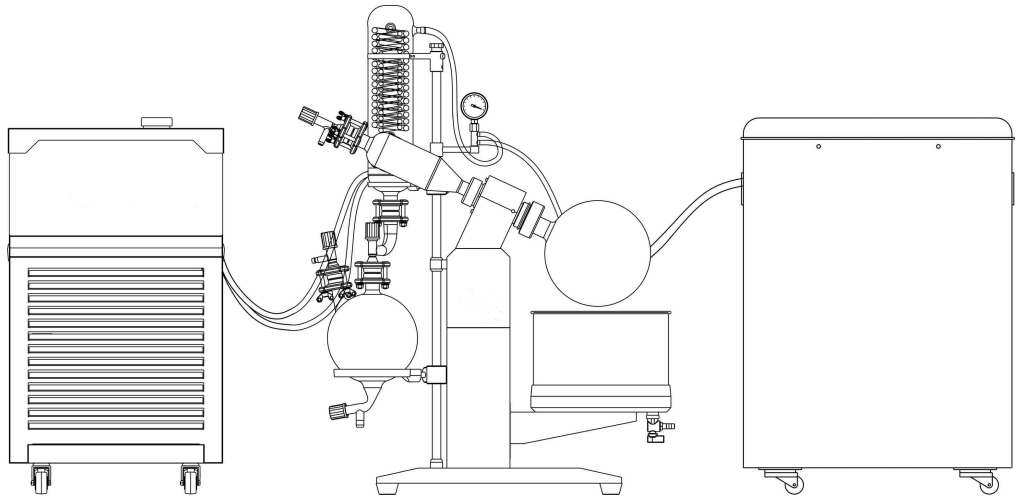


Figure2.3.1 WTRE-05 pipeline connection

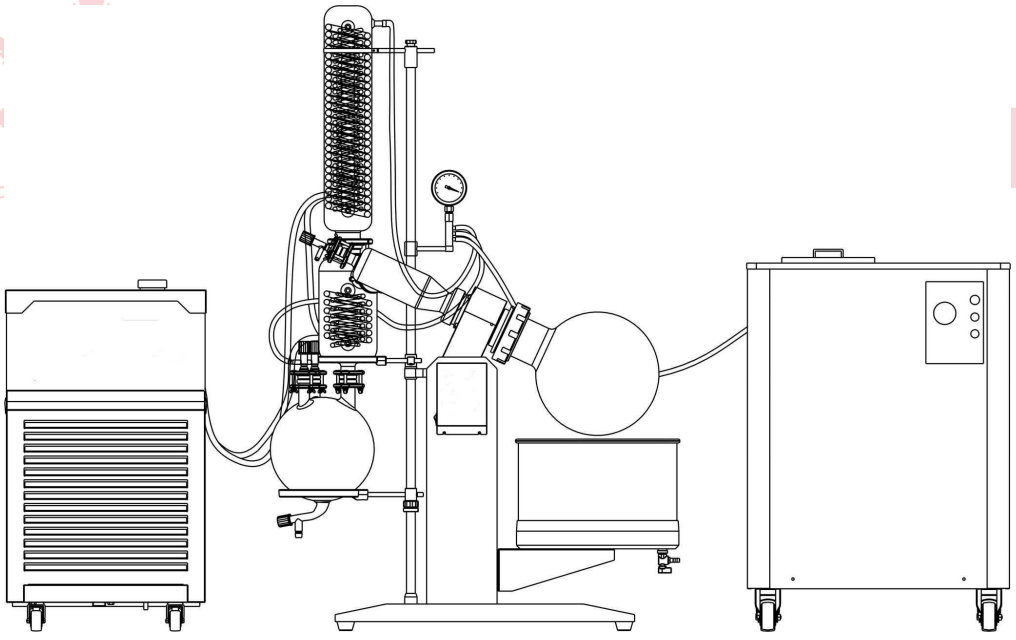


Figure2.3.2 WTRE-10, WTRE-20, WTRE-50 pipeline connection

Note : Instrument unused pipe connections required nut seal to prevent contamination.

3 Technical specifications

Model	**WTRE-05**	**WTRE-10**	**WTRE-20**	**WTRE-50**
Rotary flask(L)	5	10	20	50
Rotary flask flange size	Φ50mm	Φ125mm	Φ125mm	Φ125mm
Receiving flask(L)	3	5	10	20
Receiving flask flange size	Φ50mm	Φ50mm	Φ50mm	Φ60mm
Rotary speed(rpm)	10~130rpm	10~130rpm	10~130rpm	10~110rpm
Lifting	Electric	Electric	Electric	Electric
Elevating stroke(mm)	0～150mm	0～160mm	0～190mm	0～230mm
Power supply	220V/60Hz	220V/60Hz	220V/60Hz	220V/60Hz
Bath heating power (kW)	2.2	4.8	6.3	8.3
Rotating motor	DC motor,power:40W	DC motor,power:250W	DC motor,power:250W	DC motor,power:250W
Ultimate vacuum	399.9Pa	399.9Pa	399.9Pa	399.9Pa
Condensing tube	Vertical double layer coiler	Vertical, mainly＋ auxiliary cooling condenser highly efficient circulating cold trap	Vertical, mainly＋ auxiliary cooling condenser highly efficient circulating cold trap	Vertical, mainly＋ auxiliary cooling condenser highly efficient circulating cold trap
Speed controling display	LCD	LCD	LCD	LCD
Bath controling display	/	/	/	/
Evaporating capability (L/h)	Water≥2L/h Alcohol≥4L/h	Water≥3.2L/h Alcohol≥6.5L/h	Water≥5L/h Alcohol≥11L/h	Water≥9L/h Alcohol≥19L/h
Overall Dimensions(L*W*Hmm)	900×450×1030	920x550x1700	1250x600x2100	1320×770×2340
Weight(kg)	35	65	90	125
Speed-regulation of main machine	variable frequency, stepless speed-regulation			

4 Operations

4.1 Charging method

The rotary evaporator is pumped into the state of negative pressure, with a hose to the feeding valve is connected with the sample, open the feeding valve, sample will be pumped directly into rotary bottle, feeding close after charging valve, adjusting rotary bottle height, which is placed in the water bath pot.

4.2 Preparing and setting parameters

(1) Add pure water into the water bath (submerged rotating bottle of 1/2, not overflow),

(2) Close the power switch, the temperature display shows “CC2P”, the speed display shows “S1.1”, all identifiers light; after 4 seconds entering the normal display.

(3) Temperature、speed setting

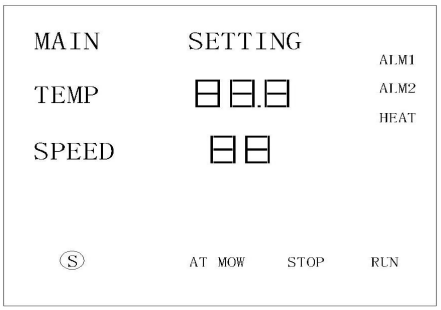


Figure 4.2.1

a) Press the “code switch” button, the temperature display flashing display temperature settings, and then press the “code switch” button, the speed display shows flashing speed setting, rotary the “code switch” can modify the settings (dextral increase , L decreases). After the completion of the required parameters, and then press “code switch” button, the setting is automatically saved, the controller exits the current state.

b) Press the “♨” key to start heating control, “Ⓢ” identifier lights, heating output, HEAT identifier lights, and then press the “♨” key, stop heating control, “Ⓢ”identifiers off.

c) Press the “↻” key to start the speed control, rotary bottle rotating, “②RUN” identifier lights, and then press the “↻” key to stop the speed control, rotary bottle stops rotating, “②STOP” identifier lights.

(4) Press the "▲" key, bath intermittent rises, press "▲" button for more than 3s, bath continuous rise.

(5) Press the "▼" key, bath intermittent decline, press "▼" button for more than 3s, bath continuous decline.

(6) System self-tuning

Press "♨" key to start heating control. In the non-state，press "code switch" button for 3 seconds，temperature window displays the password prompt "Lc"，speed window displays the password value. Rotate "code switch" button to modify the password to "58", then press "code switch" to enter into the self-tuning selection state, the temperature window displays the prompt "AT", the speed window displays value. Rotate "code switch", modify the parameters, if modify the value from "0" to "1", press "code switch" button, then enter the self-tuning, "AT NOW" identifier lights, self-tuning ends, "AT NOW" identifier extinguished; If modify the value from "1" to "0", press "code switch" button, then stop self-tuning.

When the temperature control effect is not ideal, the user can self-tuning.

- Note: System control parameters self-tuning temperature fluctuations phenomenon may exist, users please take it seriously before you enable auto-tuning function. When the system is self-tuning process occurs over-temperature alarm, "ALM1" indicator lights, heating protection relay to perform an action, automatically disconnect the heating circuit supply.

4.3 Turn on cycle cooler

Turn on cycle cooler.

4.4 Turn on vacuum pump

Turn on the vacuum pump.

4.5 Turn on heating unit

Press "♨" button on the rotary evaporator control panel to start heating control, then "Ⓢ" identifier lights; when heating output, "HEAT" identifier lights.

4.6 Normal operation

According to the above steps each unit is properly installed,set the control parameters of good rotary evaporator,after the power supply in accordance with the provisions of the order

opening the constituent units, rotary evaporator system starts operating normally.

4.7 Emptying

(1) For the WTRE-05, close the valve of the condenser connector(16) and open the bleed valve(17) on the receiving bottle(19) to release vacuum bottle recycling, and then open the 15# valve(21) to discharge the materials.

(2) For WTRE-10、WTRE-20、WTRE-50, open the bleed valve(16) on the receiving bottle(19) to release vacuum bottle recycling, and then open the 15# valve(21) to discharge the materials.

4.8 Halt

(1)Click "↻" button, rotating the bottle stall. Press "▼" key for more than 3s, so the bath down to the bottle left in a water bath.

(2) Loosen the tap feeding tube, lifting a vacuum within the system.

(3) Close the vacuum pump.

(4) Close the heating unit.

(5) Close the loop coolers.

(6) Remove the rotating bottle:

Use a Phillips screwdriver inserted into the rotation mechanism seat (left direction) of the hole, holding the rotating bottle position (no rotation), loosen the clamp nut with bottle-removal device and remove the rotary bottle.

Note: After the end of a period of time concentrating, continued to show a high-temperature water bath or rotary bottle, careful burns!

5 Maintenance and Management

5.1 Maintenance

For the normal operation of the instrument, long life, to ensure personal safety, please observe the following suggestions:

(1) When moving the instrument, avoid violent vibration, or to seek professional help;

(2) The material added into the rotary bottle must not exceed 65% of its volume;

(3) Always check the connecting pipes, they found their aging, when damaged, promptly with the original specification of the requirements for replacement.

5.2 Cleaning

(1) Before cleaning the unit, disconnect the power cord from the wall socket. Otherwise, it may cause and electric shock or fire hazard.

(2) To clean the unit, a neutral detergent and soft cloth is recommend.

(3) Do not use water, benzene, thinner or any alcohol for cleaning the product. It may cause discoloration, damage.

(4) Cleaning of rotary Bottle and glass condenser should be done according to the laboratory regulations.

(5) If hazardous materials leak in the instrument or into its internal surface, please adopt the appropriate methods for disinfection.

(6) Do not use the detergent or disinfectant which can do chemical reaction with the instrument parts or the materials within the instrument.

(7) If there's any doubt with the detergent or disinfectant and instrument parts and instrument material contained within the compatibility, please consult the manufacturer or there agent.

(8) Please disconnect the power supply when the water temperature is high in the water bath or rotary bottle. And clean it after the water cooled sufficiently.

(9) In order to avoid damage of components, please do not press the monitor and knob forcedly when cleaning them.

5.3 Troubleshooting

Table 5.3.1 Failure phenomenon and troubleshooting

Failure	Cause	Troubleshooting
Connect the power supply, LCD panel does not light.	Check the power line and find out whether it's through or misconnected.	Connect the power line.
	Failure of power switch.	Replace power switch.
	Failure of circuit board.	Stop using immediately and contact us.
Rotation allows identifier "RUN" lights, but rotating mechanism does not rotate.	Failure of motor.	
	Failure of circuit board(X2).	
Relay board X3 heating control loop has the output, but does not heat up	The solid state relays(KF1) fault.	Replace the solid state relays
	Heating element fault.	Replace heating element.
The temperature display shows "Er-1", ALM1 identifier lights.	Bath temperature sensor failure or improper wiring	Check sensor and wiring.
The temperature display shows "Er-2", ALM1 identifier lights.	Bath overtemperature protection sensor failure or improper wiring.	
The temperature display shows "Er-3", ALM1 identifier lights.	Bath overtemperature protection sensor exceeds the protection settings.	Restart the power switch.
The speed display shows "Er-1", ALM2 identifier lights.	Power module fault.	Remove the rotary bottle, no-load operation. The fault has not been lifted, discontinue use immediately and contact the company.
The speed display shows "Er-2", ALM2 identifier lights.	Motor stall.	
The speed display shows "Er-3", ALM2 identifier lights.	Holzer logic error.	
The speed display shows "Er-4", ALM2 identifier lights.	Power supply voltage is too low.	Check the power supply voltage value.
The speed display shows "Er-5", ALM2 identifier lights.	Power supply voltage is too high.	
The speed display shows "Er-6", ALM2 identifier lights.	Serial communication fault	Stop using immediately and contact us.
Abnormal noise.	Abrasion of seal ring.	Replace the seal ring.
	Abrasion of internal gear.	Stop using immediately and contact us.
	Lack of oil in drive part.	
	Failure of motor.	
Vacuum reduction.	Abrasion of glass rotary shaft.	Replace the glass rotary shaft.
	Abrasion of seal ring.	Replace the seal ring.
	Improper installation of seal ring .(Opposite direction)	Remount the seal ring.
	Aging of the seal ring of pressure-relief air tap.	Replace the air tap seal
	Aging of vacuum hose.	Replace the vacuum hose.
Lifting unit is not working.	Failure of circuit board(X3) or lifting motor.	Stop operating immediately and contact us.
	Abrasion or rusting of sliding bearing.	

6 Warranty Statements

(1) Our company can repair the product for free due to manufacturing quality within 12 months after the date of delivery on the premise of normal operation by users.

(2) Within the warranty period, one of the following circumstances will not enjoy free maintenance.

a) Can't show us the warranty card and purchase certificate.

b) Actual information does not accordance with the warranty card, filling or altered.

c) The fault and damage caused by improper use or install and using it not in accordance with the operating manual and sticky labeling requirements.

d) Improper safekeeping, the fault and damage caused by transportation, move, or the fault or damage caused by falling, bump.

e) The fault and damage caused by repair, adjust, transform the instrument without our company ‘s appointment and approvement.

f) Force majeure such as fire, earthquake, flood, wind, thunder and lightning, hazards, and other natural disasters as well as the instrument of abnormal power supply.

g) The consumption of consumables, wear, aging and its replacement.

(3) The instrument must be inspected and repaired by our company or agent, any technical changes won’t be allowed without our company’s written permission.