

SINCE 1889



Rotary Evaporator

Model

RE300/600/800

Instruction Manual

- Second Edition -

This document is the exclusive instruction manual to the RE300/600/800 model rotary evaporator main unit.

Please use this document together with the instruction manual of the VR300/600/800 model vacuum controller as for the operating instructions of device.

- Thank you for purchasing "Rotary Evaporator, RE Series" of Yamato Scientific Co., Ltd.
- To use this unit properly, read this "Instruction Manual" thoroughly before using this unit. Keep this instruction manual around this unit for referring at anytime.



WARNING!:

Carefully read and thoroughly understand the important warning items described in this manual before using this unit.

Yamato Scientific Co. LTD.

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Contents in the Package

Check the content of package before setting up the device.

Please contact our selling office or sales office if any components or parts are missing.

RE300			
No.	Name	QTY	Notes
	RE300 main body	1 set	
	Power cord	1	
	Instruction manual	1	
	Warranty card	1	

RE600			
No.	Name	QTY	Notes
	RE600 main body	1 set	
	Power cord	1	
	Instruction manual	1	
	Warranty card	1	
	VR600 model vacuum controller	1 set	Refer to the instruction manual for vacuum controller model VR300/600/800.

RE800			
No.	Name	QTY	Notes
	RE800 main body	1 set	
	Power cord	1	
	Instruction manual	1	
	Warranty card	1	
	VR800 model vacuum controller	1 set	Refer to the instruction manual for vacuum controller model VR300/600/800.

Explanation

MEANING OF ILLUSTRATED SYMBOLS

Illustrated Symbols

Various symbols are used in this safety manual in order to use the unit without danger of injury and damage of the unit. A list of problems caused by ignoring the warnings and improper handling is divided as shown below. Be sure that you understand the warnings and cautions in this manual before operating the unit.

 **WARNING!** If the warning is ignored, there is the danger of a problem that may cause a serious accident or even fatality.

 **CAUTION!** If the caution is ignored, there is the danger of a problem that may cause injury/damage to property or the unit itself.

Meaning of Symbols



This symbol indicates items that urge the warning (including the caution). A detailed warning message is shown adjacent to the symbol.



This symbol indicates items that are strictly prohibited. A detailed message is shown adjacent to the symbol with specific actions not to perform.



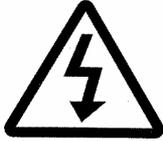
This symbol indicates items that should be always performed. A detailed message with instructions is shown adjacent to the symbol.

Table of Illustrated Symbols

Warning



Warning,
generally



Warning,
high voltage



Warning,
high temperature



Warning,
drive train



Warning,
explosive

Caution



Caution,
generally



Caution,
electrical shock



Caution,
scald



Caution,
no road heating



Caution,
not to drench



Caution,
water only



Caution,
deadly poison

Prohibit



Prohibit,
generally



Prohibit,
inflammable



Prohibit,
to disassemble



Prohibit,
to touch

Compulsion



Compulsion,
generally



Compulsion,
connect to the
grounding
terminal



Compulsion,
install on a flat
surface



Compulsion,
disconnect the
power plug



Compulsion,
periodical
inspection

Cautions in Using with Safety

Fundamental Matters of "WARNING!" and "CAUTION!"

WARNING!

Do not use this unit in an area where there is flammable or explosive gas

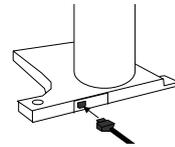
Never use this unit in an area where there is flammable or explosive gas. This unit is not explosion-proof. An arc may be generated when the power switch is turned on or off, and fire/explosion may result. (Refer to page 31 "List of Dangerous Substances".)

Always ground this unit

Always ground this unit on the power equipment side in order to avoid electrical shock due to a power surge.

Plug the power cord securely

Plug the power cord securely into the main unit. If not, overheat or fire disaster may result in.



If a problem occurs

If smoke or strange odor should come out of this unit for some reason, turn off the circuit breaker right away, and then disconnect the power plug. Immediately contact a service technician for inspection. If this procedure is not followed, fire or electrical shock may result. Never perform repair work yourself, since it is dangerous and not recommended.

Do not use the power cord if it is bundled or tangled

Do not use the power cord if it is bundled or tangled. If it is used in this manner, it can overheat and fire may be caused.

Do not process, bend, wring, or stretch the power cord forcibly

Do not process, bend, wring, or stretch the power cord forcibly. Fire or electrical shock may result.

Perform periodic check

Check the device frequently. Do not leave the dust and dirt on the wiring terminals and electrical components. A fire disaster may result in.

Substances that can not be used

Never use explosive substances, flammable substances and substances that include explosive or flammable ingredients in this unit. Explosion or fire may occur. (Refer to page 31 "List of Dangerous Substances".)

Do not disassemble or modify this unit

Do not disassemble or modify this unit. Fire or electrical shock or failure may be caused.

CAUTION!

During a thunder storm

During a thunderstorm, turn off the power key immediately, then turn off the circuit breaker and the main power. If this procedure is not followed, fire or electrical shock may be caused.

When electric power failure occurs...

The device stops operation when electric power failure occurs. In this case, turn off the breaker for safety.

Requirements for Installation

WARNING!

1. Always ground this unit



- Be sure to connect the ground wire to the earth conductor or earth terminal to prevent accidents caused by an electric shock.



- Do not connect the earth wire to gas or water pipes. If not, fire disaster may be caused.

- Do not connect the earth wire to the ground for telephone wire or lightning conductor. If not, fire disaster or electric shock may be caused.

- Please consult your local electrical contractor for power connecting work.

2. Choose a proper place for installation

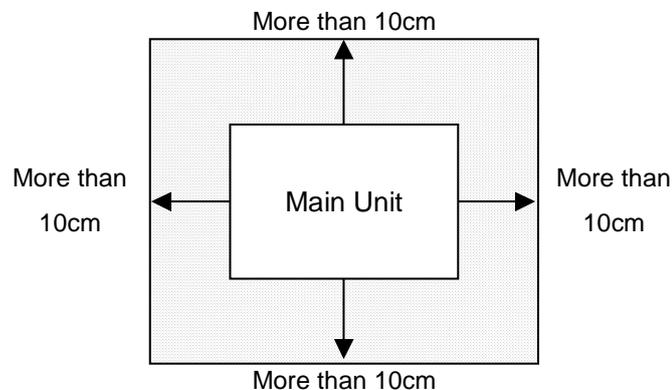


- Do not install this unit in a place where:

- ◆ Rough or dirty surface.
- ◆ Flammable gas or corrosive gas is generated.
- ◆ Ambient temperature above 35°C.
- ◆ Ambient temperature fluctuates violently.
- ◆ There is direct sunlight.
- ◆ There is excessive humidity and dust.
- ◆ There is a constant vibration.
- ◆ Without a ventilation system.



- Make sure that no flammable substances are placed around the devices. Keep space as shown, at least, in the figure below. We recommend the installation inside the ventilation system such as a draft chamber.

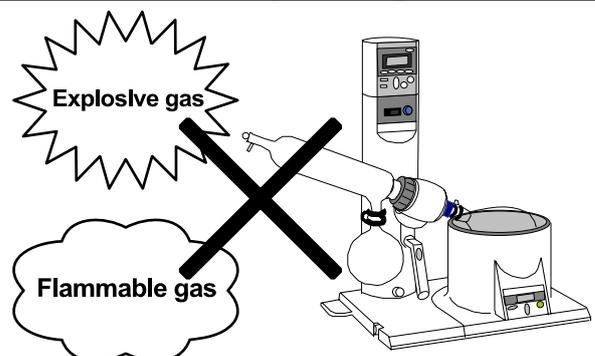


3. Do not use this unit in an area where there is flammable or explosive gas



- Never use this unit in an area where there is flammable or explosive gas. This unit is not explosion-proof. An arc may be generated when the power switch is turned ON or OFF, and fire/explosion may result.

- To know about flammable or explosive gas, refer to page 31 "List of Dangerous Substances".

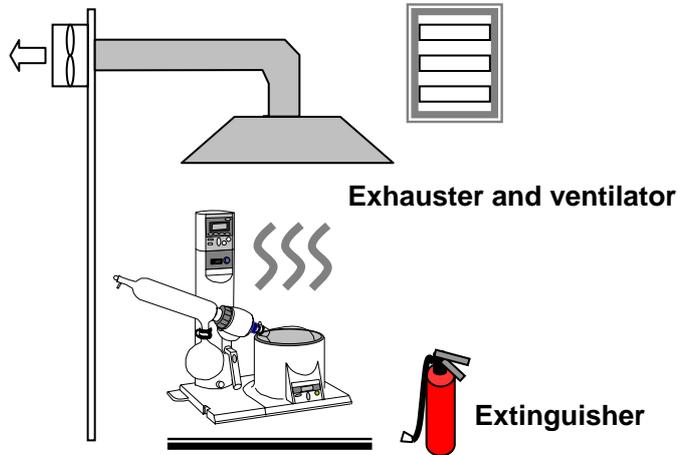


Requirements for Installation

4. Install exhauster and ventilator



- Be sure to install an exhauster, ventilator and extinguisher around the device.
The oily smoke of silicone oil generated by heating is flammable and may cause fire disaster. Silicone oil also may generate harmful gas when it reaches a high temperature.



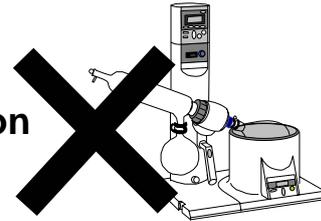
CAUTION!

5. Do not modify



- Modification of this unit is strictly prohibited. This could cause a failure.

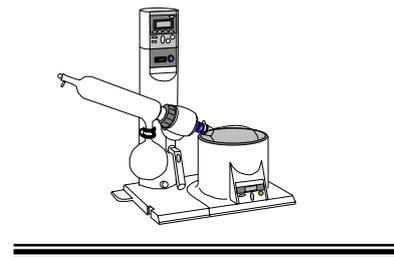
Modification



6. Installation on horizontal surface



- Place this unit as flat a place as possible. If the four rubber feet are not in uniform contact with the floor surface, noise or vibration may result. Additionally, the unit may cause a problem or malfunction.



7. Choose a correct power distribution board or receptacle



- Choose a correct power distribution board or receptacle that meets the unit's rated electric capacity.

Electric capacity: RE300/RE600/RE800: 1.5A at AC100V to AC240V

Electric capacity for RE main unit (except water bath or oil bath) and vacuum controller. The water bath or oil bath uses the other power source. The electric capacity of 12.5A and 6.5A are required for the BM500/BO400 and BM510/BO410 models respectively.

NOTE)

The device adopts the free power system for AC100V to AC240V. The RE main unit includes the switching power source, the secondary power source of which is driven with DC24V. Do not connect the lines that share the power source, or do not place the appliances that generate noise around the device. A malfunction may occur on the device.

Requirements for Installation

8. Before/after installing



- It may cause injury to a person if this unit falls down or moves by the earthquake and the impact. etc..To prevent, take measures that the unit cannot fall down, and not install to busy place.
- Be sure to install an exhauster, ventilator and extinguisher around the device.

9. Handling of power code



- Do not entangle the power cord. This will cause overheating and possibly a fire.
- Do not bend or twist the power cord, or apply excessive tension to it. This may cause a fire and electrical shock.
- Do not lay the power cord under a desk or chair, and do not allow it to be pinched in order to prevent it from being damaged and to avoid a fire or electrical shock.
- Keep the power cord away from any heating equipment such as a room heater. The cord's insulation may melt and cause a fire or electrical shock.



- If the power cord becomes damaged (wiring exposed, breakage, etc.), immediately turn off the power at the rear of this unit and shut off the main supply power. Then contact your nearest dealer for replacement of the power cord. Leaving it may cause a fire or electrical shock.
- Connect the power plug to the receptacle which is supplied appropriate power and voltage.

10. Precautions for use of sample including solvent



- Note the followings when using the sample which includes solvent.
 - ❖ A Teflon seal, which is sold separately, is recommended for the seal on the rotary joint.
 - ❖ A Teflon diaphragm model vacuum pump is recommended.
 - ❖ A Teflon solenoid valve, which is sold separately, is recommended for the vacuum controller.
 - ❖ The SUS316 pressure sensor, which is sold separately, is recommended for the vacuum controller.



VR type Teflon solenoid valve



Teflon seal



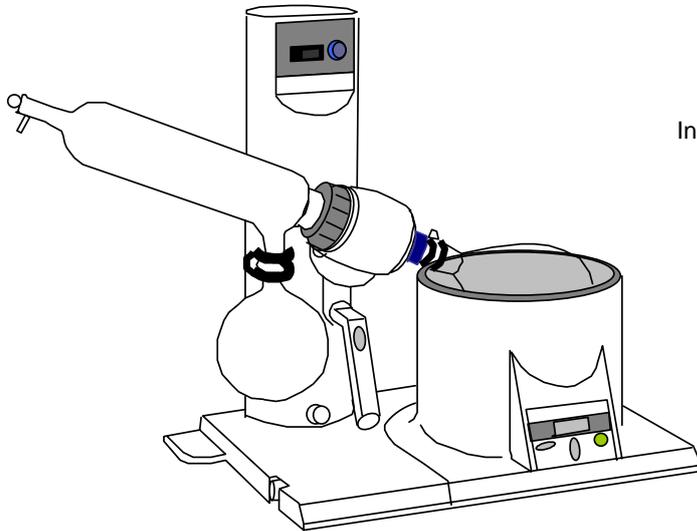
VR type pressure sensor for solvent



Teflon diaphragm model vacuum pump
(PG200 model)

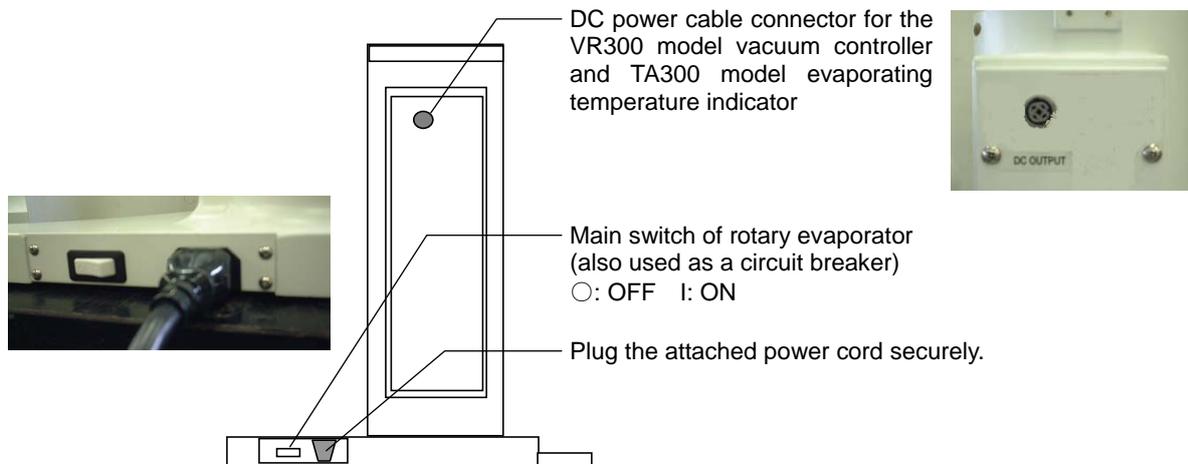
RE300 model installation

Unpack the main unit of RE300 and install it on the level area.
Refer to the instruction manual of VR300 model vacuum controller (sold separately) if connected.



Installation example: RE300AW

Connection on back surface area



Connect the vacuum hose and cooling hose to the condenser.

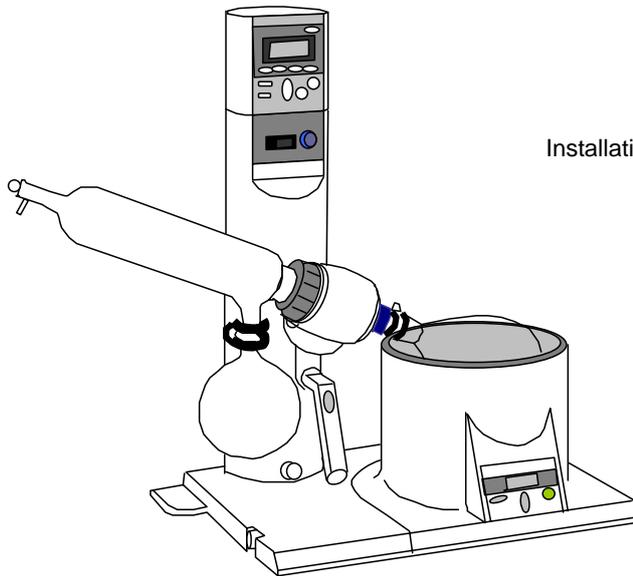
Use the vacuum hose and cooling hose with inner diameter of 6mm and 9mm respectively.
Connect the hose to the vacuum pump and cooling water circulation system so they should not be pulled when the lift on the main unit moves upwards.
Refer to 2.3) mentioned below for the piping method of hose.

RE600/800 model installation

Unpack the main unit of RE300 and install it on the level area.

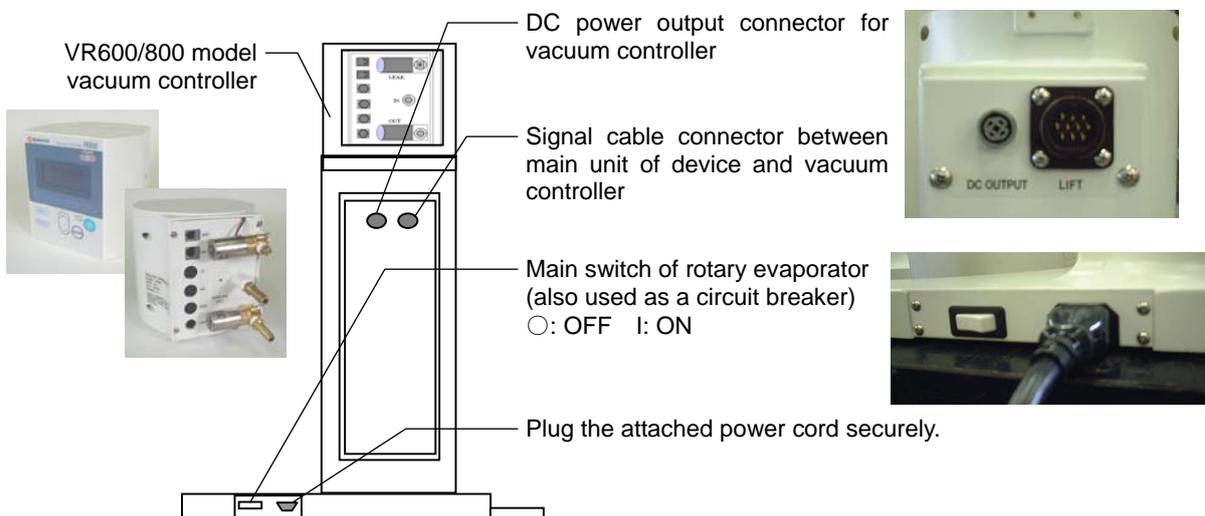
Refer to the instruction manual of vacuum controller for the installation of VR600/800 model vacuum controller.

Connect the VR600 model vacuum controller and VR800 model vacuum controller to the RE600 model and RE800 model respectively.



Installation example: RE800AW

Connection on back surface area



Use the vacuum hose and cooling hose with inner diameter of 6mm and 9mm respectively.

Connect the hose to the vacuum pump and cooling water circulation system so they should not be pulled when the lift on the main unit moves upward

Connecting method and assembling procedures of glass unit

1) Glass set on condenser

Connect the glass set to the rotor unit on the RE main unit.

A set

Photo: RE300AW



Glass set A:

The standard glass set, where the condenser is tilted to be set, suitable for distillation, concentration, and collection of samples.

B set

Photo: RE600BW



Glass set B:

The condenser is set vertically, suitable for distillation, concentration, and collection of samples regardless of their boiling point. The condenser unit and connecting pipe is integrated to realize the space-saving design. The connecting pipe is also equipped with a unique drip-proof mechanism.

C set

Photo: RE800CW

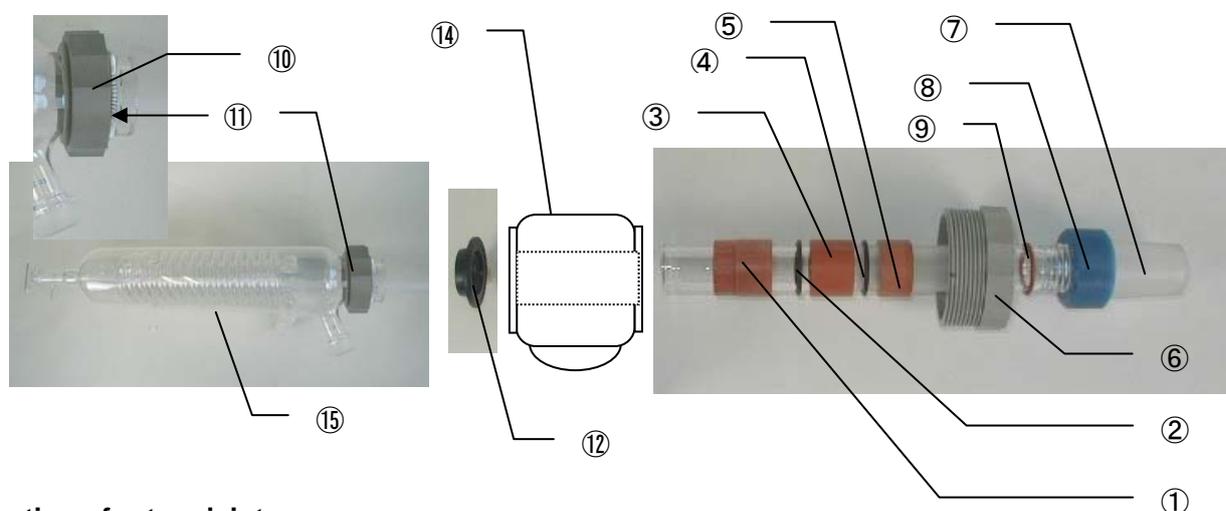


Glass set C:

The condenser is set vertically, suitable for distillation, concentration, and collection of samples which has a low boiling point, such as dry ice or ice. The condenser unit and connecting pipe is integrated to realize the space-saving design. The connecting pipe is also equipped with a unique drip-proof mechanism.

Connecting method and assembling procedures of glass unit

2) Connecting method and assembling procedures of glass unit



Fixation of rotary joint

No.	Part name	Description
①	Ring (large)	Insert a ring (large diameter) into the rotor portion ⑭ of RE main unit with the end with smaller diameter forward.
②	P22 Viton O-ring	Insert an O-ring.
③	Ring (middle)	Insert a ring (middle diameter).
④	P22 Viton O-ring	Insert an O-ring again.
⑤	Ring (small)	Insert a ring (small diameter).
⑥	Rotary joint retainer	Screw the resin retainer with a bearing into the rotor and tap down the ring.
⑦	Rotary joint	Prepare a rotary joint. Check no cracks or scratches exist on them.
⑧	Sample flask extractor	Insert a sample flask extractor made from resin into the large end of rotary joint.
⑨	P20 red silicone O-ring	Fix a red O-ring into the groove in front of screw portion. Insert the assembled rotary joint into the rotor and retain it with the rotary joint retainer ⑥.

Set-up is available after assembling it with rotary joint and inserting into the rotor. (Refer to the photo.)

Fixation of condenser

No.	Part name	Description
⑩	Condenser mounting nut	Prepare a condensation tube ⑮ and put the condenser mounting nut (gray resin nut) through the mounting portion of rotor.
⑪	Coil ring	Put the coil ring through the condensation tube.
⑫	Fluorine rubber seal*	Apply a thin layer of silicone grease onto the mating surface with rotary joint on the fluorine rubber seal and fit it into the fitting area of condensation tube with the orientation shown in the figure. Insert the seal into the rotary joint together with the condensation tube and tighten it with the condenser mounting nut.
⑬	Sample induction cock	Insert the sample induction cock with Teflon tube. Apply a thin layer of silicone grease onto the joint surface as necessary.

Caution: Use the Teflon seal which is sold separately for ketone or ether solvent.

The Fluorine rubber seal normally attached will swell if ketone or ether solvent such as acetone, methyl ethyl ketone, methyl isobutyl ketone, ethyl ether, and MTBE is used. Use the Teflon seal which is sold separately.

Connecting method and assembling procedures of glass unit

Setup of a flask (round-bottom flask) for receiving sample and distillation flask (recovery flask).

Apply a thin layer of silicone grease onto the facing surface as necessary and fix them with the attached clamp.

Sample-receiving flask



Flask clamp (2)

Distillation flask



Flask clamp (1)

Setup of sample induction cock

Insert the sample induction cock with Teflon tube into the connecting pipe. Apply a thin layer of silicone grease onto the facing surface as necessary.

Sample induction cock (Teflon tube attached)



Connecting method and assembling procedures of glass unit

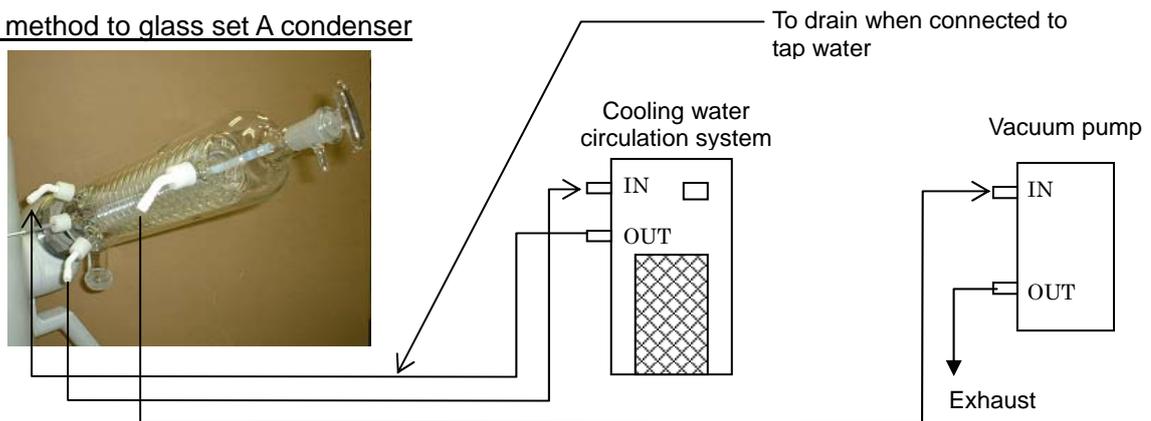
3) Piping method

Piping between condenser and peripheral device

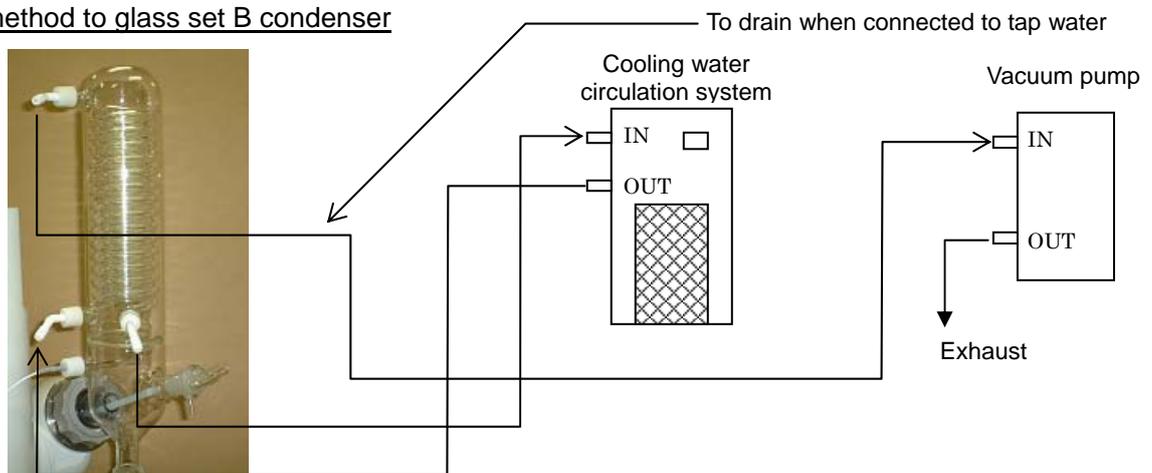
The rotary evaporator requires the vacuum equipment such as vacuum pump or aspirator, cooling water circulation system to cool the condenser, and tap water. Use the vacuum hose with the inner diameter of 6mm for vacuum route and heat insulation hose with the inner diameter of 9mm for cooling route. Securely fix the connection between respective hoses and resin nipple using a clamp.

3-1. Piping between RE300 and glass set condenser

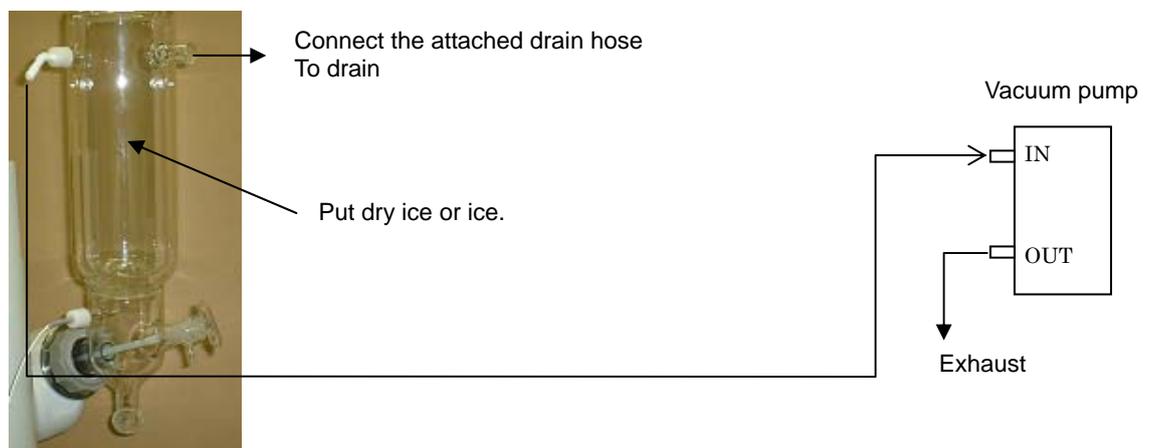
Piping method to glass set A condenser



Piping method to glass set B condenser



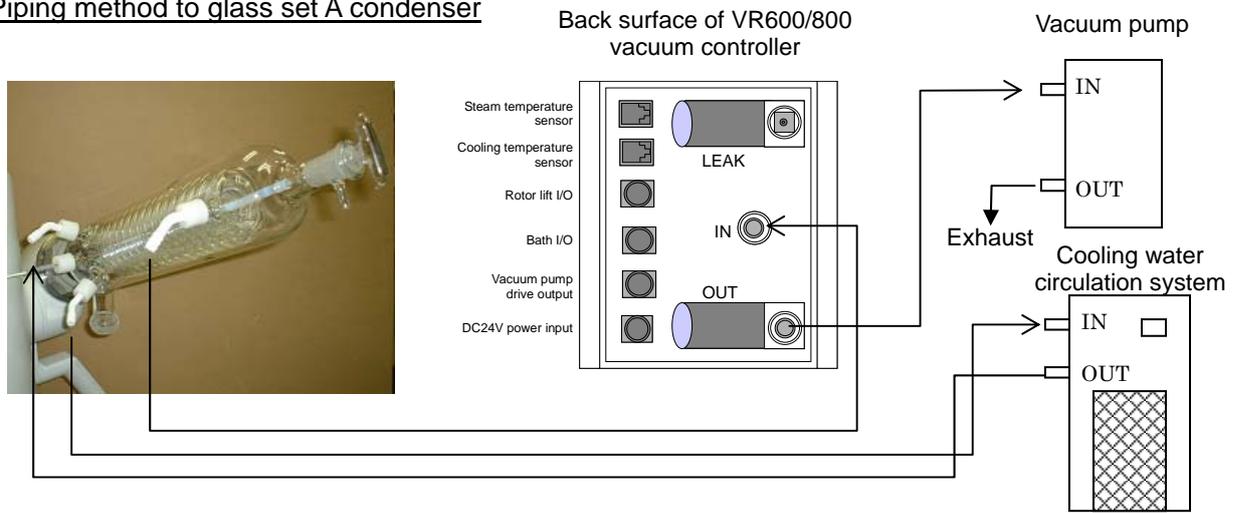
Piping method to glass set C condenser



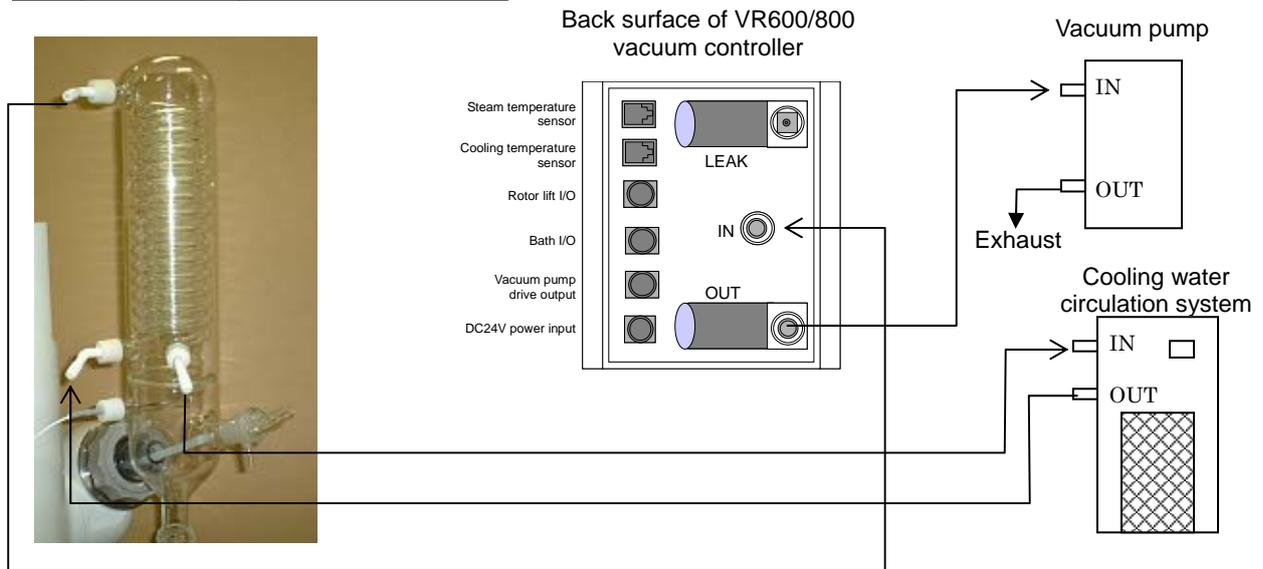
Connecting method and assembling procedures of glass unit

3-2. Piping between RE300 and glass set condenser

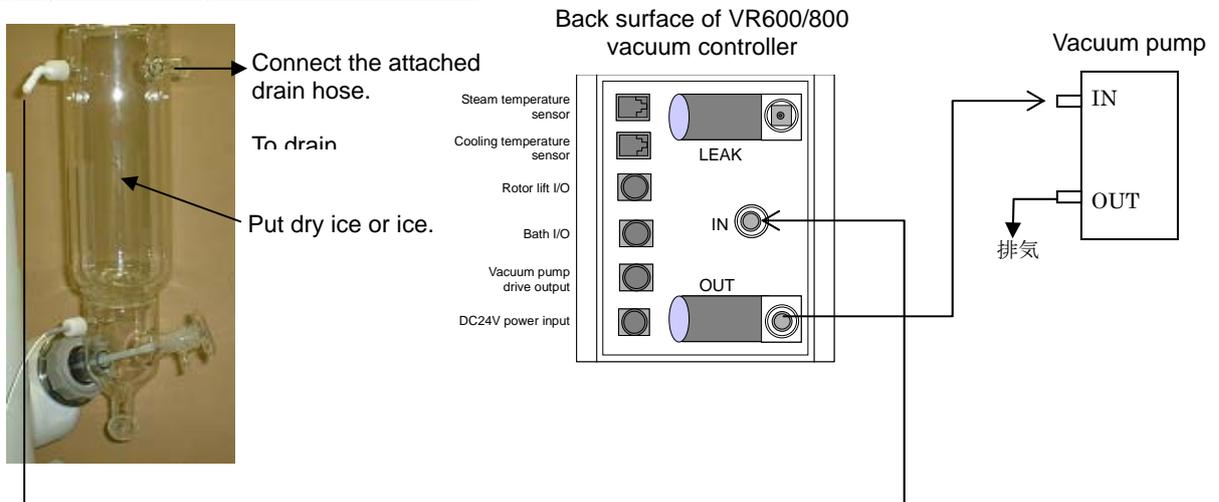
Piping method to glass set A condenser



Piping method to glass set B condenser



Piping method to glass set B condenser



Connecting method and assembling procedures of glass unit

4) Optional accessories and their connection method

Optional accessories for rotary evaporator include the VR300 model vacuum controller for RE300, TA300 model steam temperature indicator, RT101/200 model solvent collection device, vacuum pump control unit for RE600/800, which enables automatic operation of vacuum pump, relay hose connection fitting used on the vacuum hose or cooling water circulation hose, and glass trap to prevent back-flow.

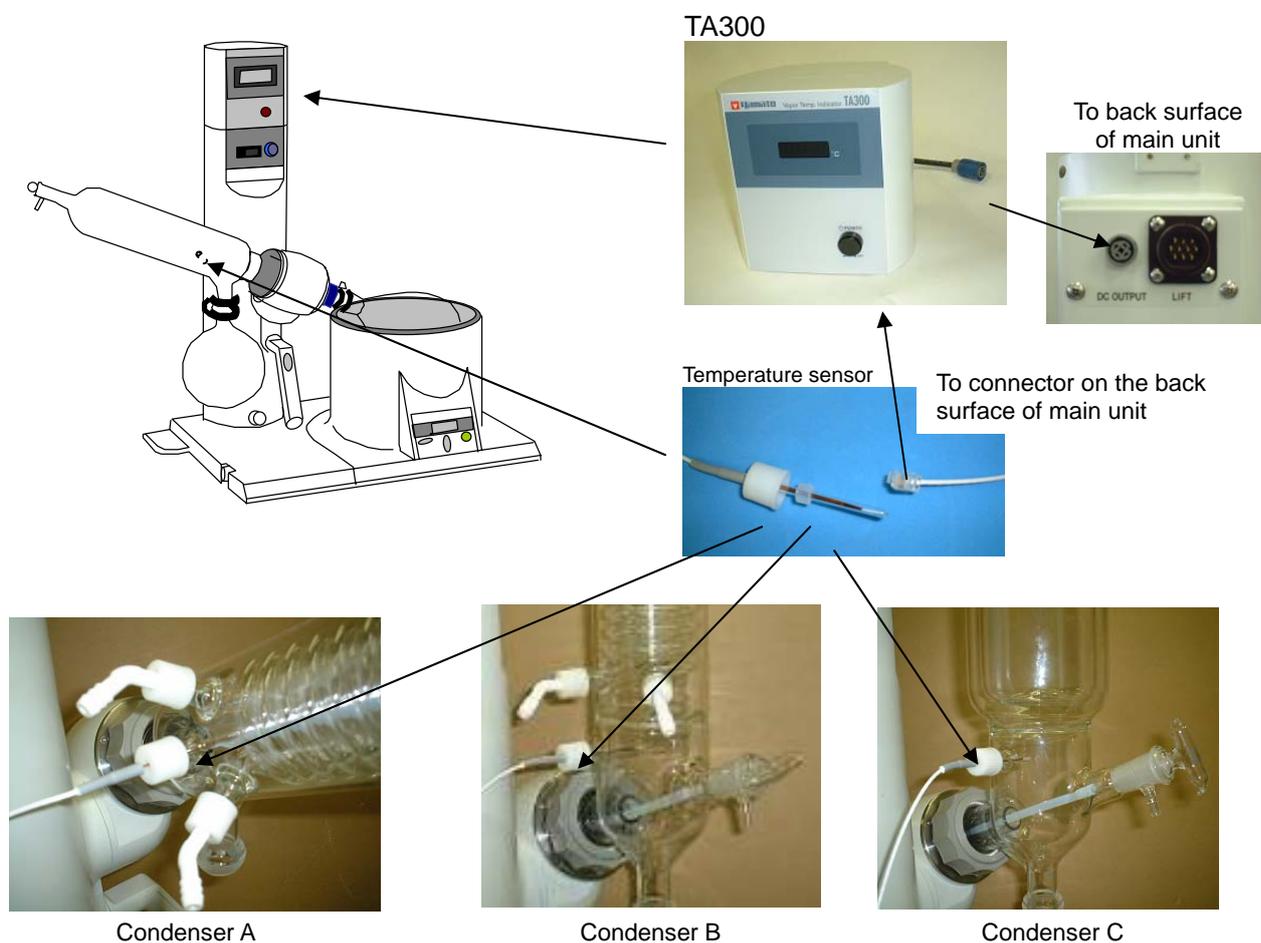
No.	Name	Model	Applicable model		
			RE300	RE600	RE800
①	Optional accessory name	VR300	○	—	—
②	Vacuum controller for RE300	TA300	○	—	—
③	Steam temperature indicator for RE300	RT101	○	○	○
④	RT101 model solvent collection device	RT200	○	○	○
⑤	RT200 model solvent collection device	ORE30	○	○	○
⑥	Hose connection fitting	ORE40	○	○	○
⑦	Trap	ORE60	—	○	○

① Connection with VR300 model vacuum controller

The connection method conforms to the RE600/800. Refer to the instruction manual attached to the vacuum controller for the function and wiring of VR300 model.

② TA300 model steam temperature indicator

Hose piping is not required. A DC24V power source cable must be connected to the RE main unit to connect the steam temperature sensor to the condenser.



Connecting method and assembling procedures of glass unit

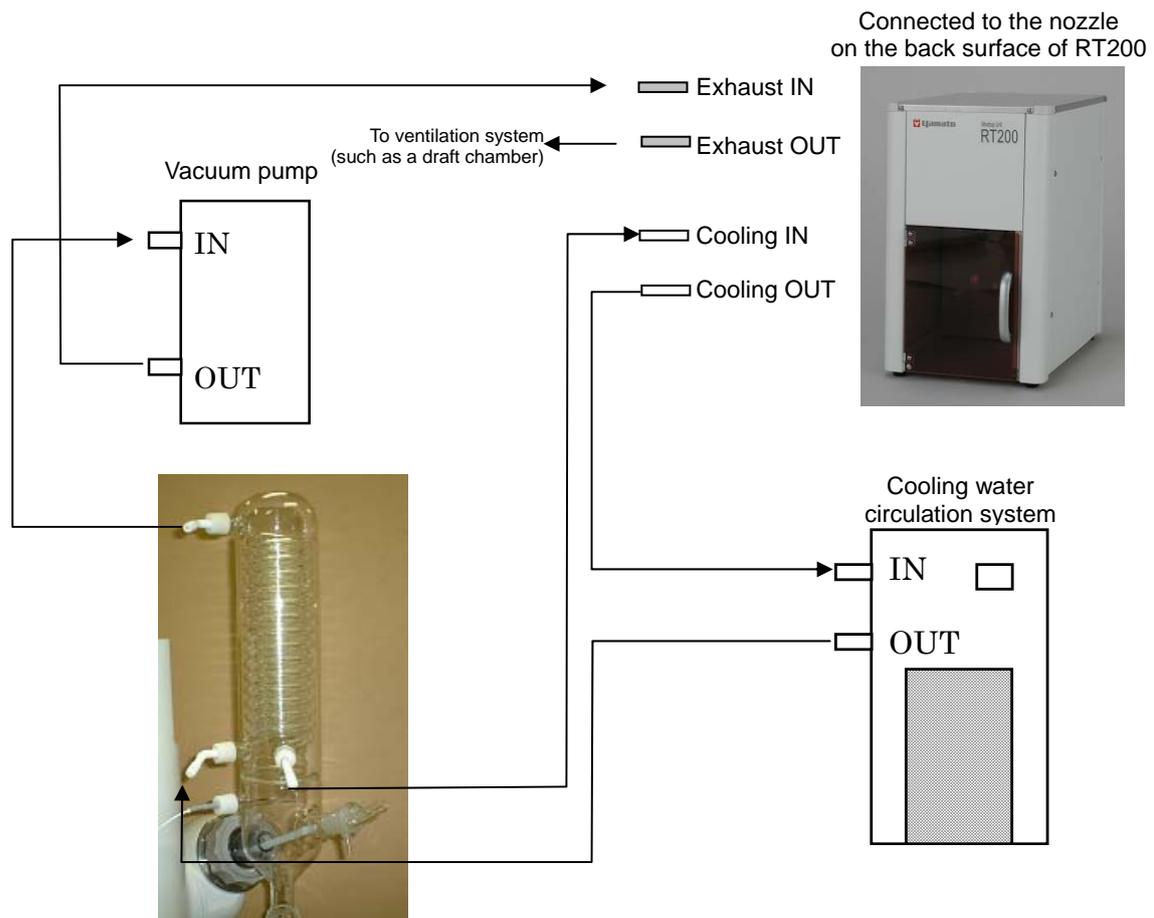
③ RT101 model solvent collection device

Refer to the RT101 model instruction manual for the connection method.

④ RT200 model solvent collection device

The device consists of glass condenser and 500 milliliter collection flask. The device requires a cooling water circulation unit.

Connect the vacuum hose between the exhaust nozzle of vacuum pump and IN nipple on the RT200, as shown in the figure. The end connection of exhaust piping and cooling water piping on the RT200 model are placed on the back surface of main unit.



Connecting method and assembling procedures of glass unit

⑤ Piping hose connection to hose connection fitting

The nipple-fitting is used to reduce the load of vacuum hose and cooling water circulation hose, which are connected to the condenser unit on the RE main unit, at the operation of lift by supporting them.

Refer to the instruction manual of hose connection fitting for the connection method.

⑥ Connection of vacuum pump control unit for RE600/800

When the vacuum pump is connected to the RE600/800, the unit has the function that turns on/off the power of vacuum pump interlocking with the start/stop of RE main unit. It also has the function that operates the pump for three minutes after the operation end of RE main unit to exhaust the residue inside the vacuum route by auto cleaning function which is integrated into the vacuum controller.

Front view



Manual/auto switch

Outlet to connect pump

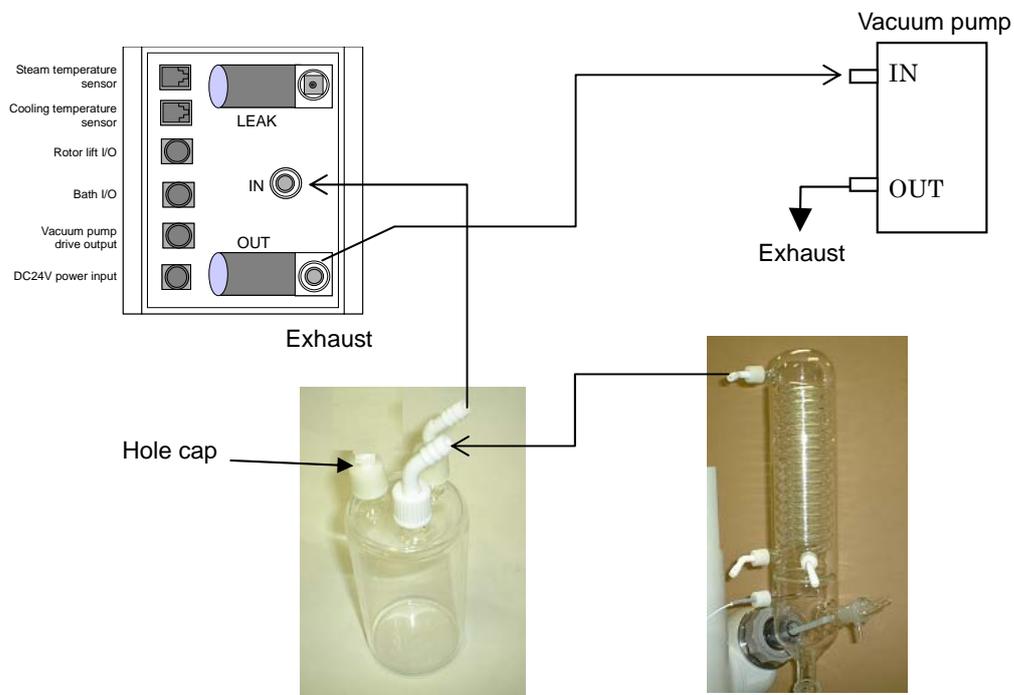
Rear view



RE connection cable
Connected to the vacuum controller

Power cord plug-in connector

⑦ Connection example of glass trap

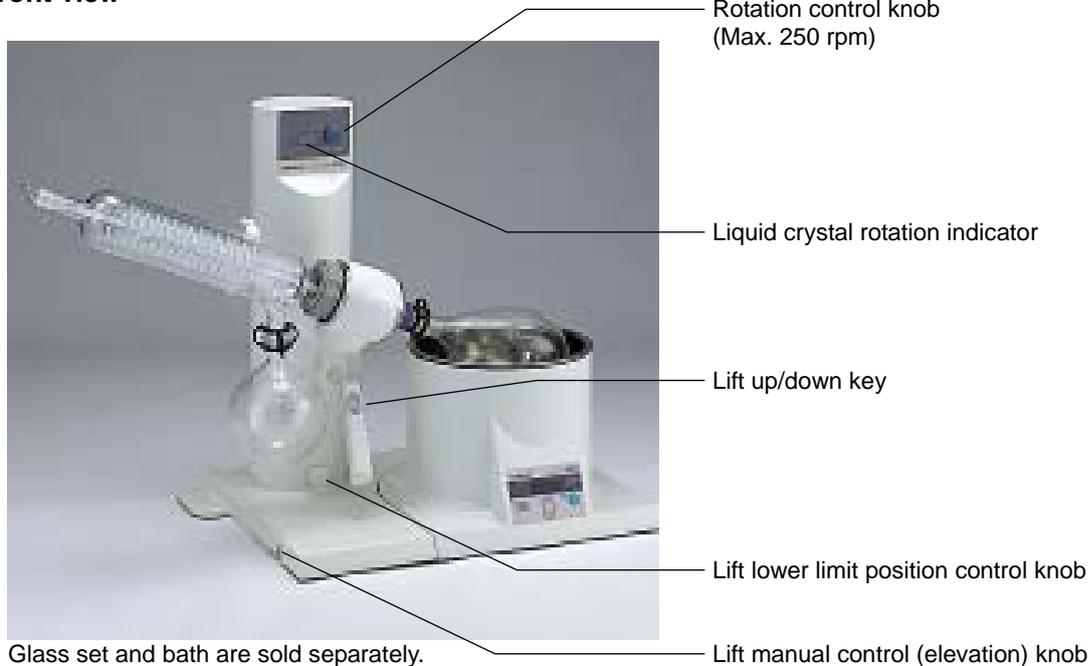


Description and Function of Each Part

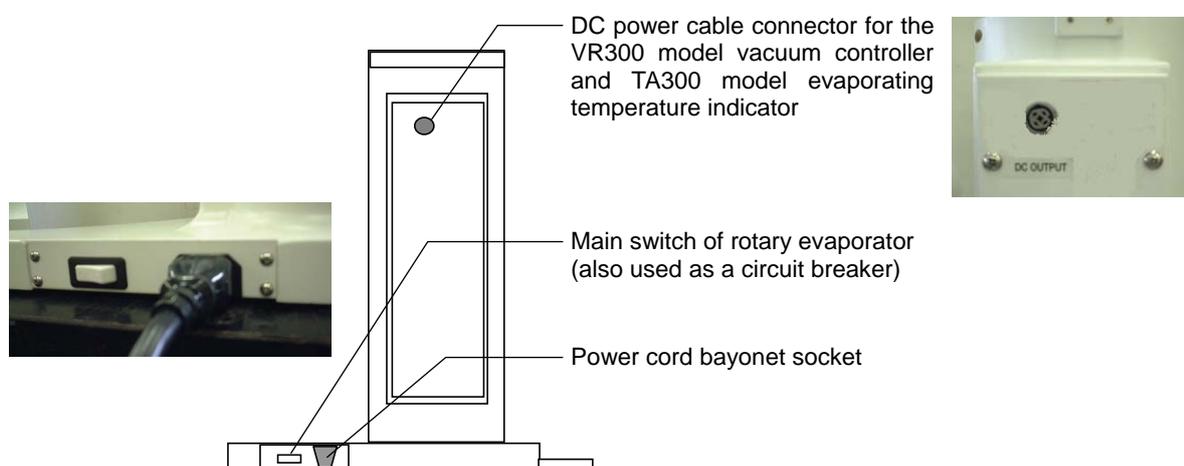
Main Unit

RE300

Front view



Rear view



Description and Function of Each Part

Main Unit

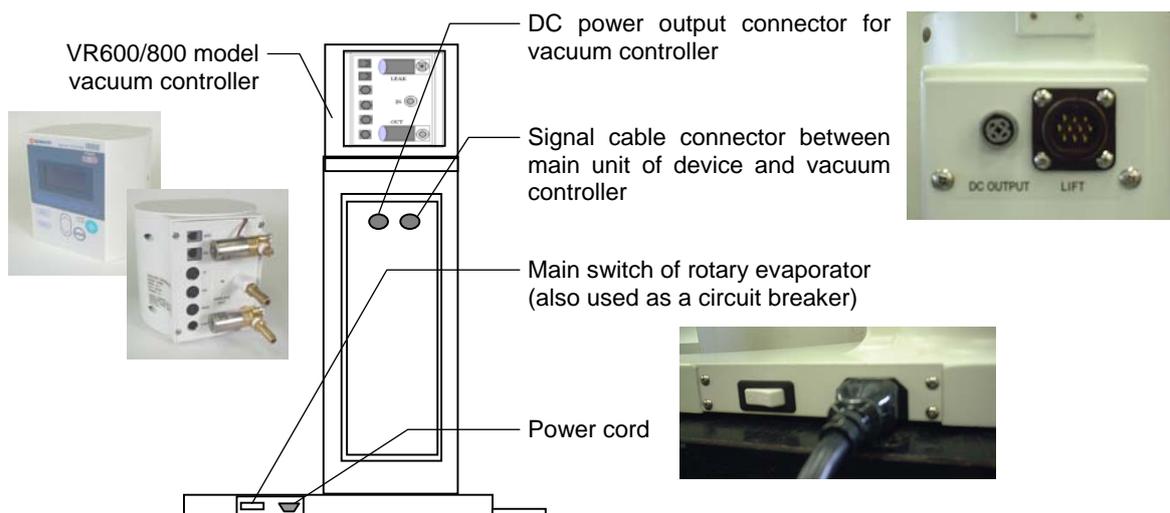
RE600/800

Front view



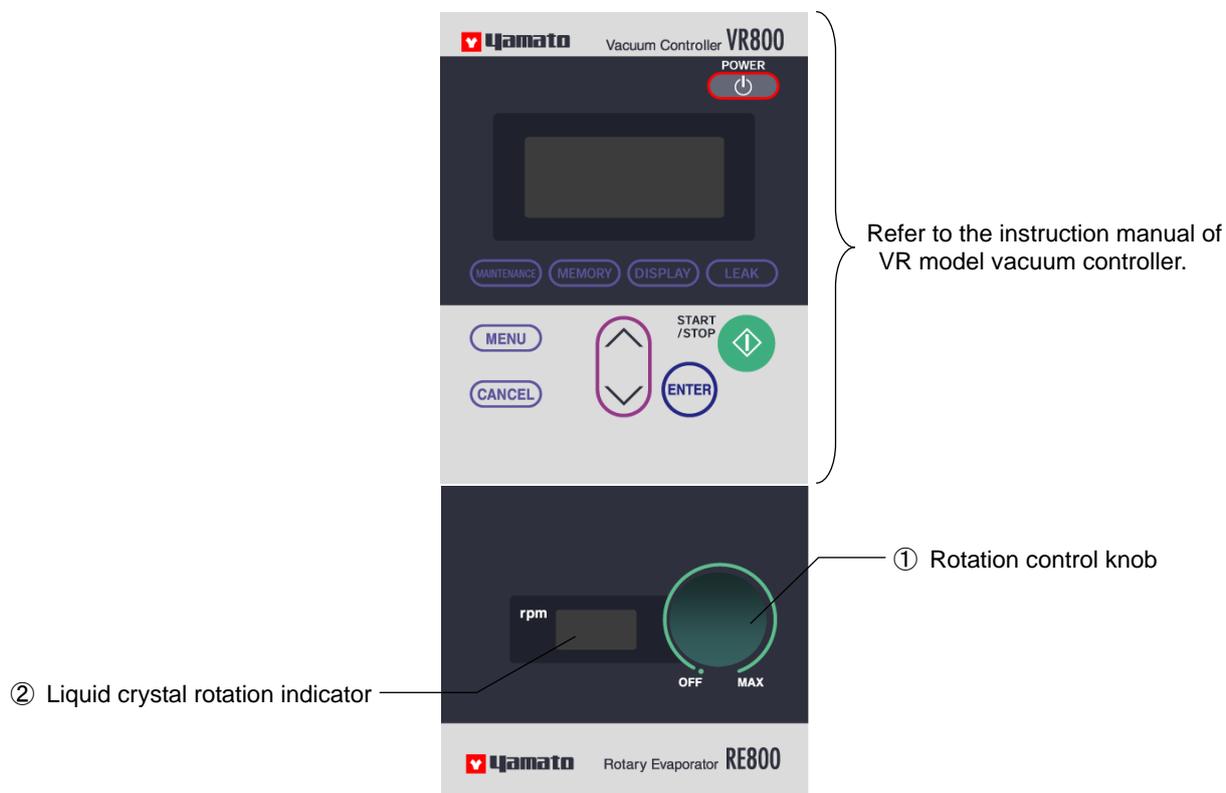
Glass set and bath are sold separately.

Rear view



Description and Function of Each Part

Control Panel



- The RE600/800 model includes respectively the VR600/VR800 vacuum controller as standard equipment.
- Refer to the instruction manual of VR model vacuum controller for of VR model vacuum controller.
- The VR300 model vacuum controller for the RE300 model is an optional accessory. The VR300 model does not have memory function (MEMORY key).

No.	Name	Function
①	Rotation control knob	The control knob equipped with the rotary motor ON/OFF switch. Maximum rotation speed: 250 rpm
②	Liquid crystal rotation indicator	The indicator digital displays the rotation speed. It indicates the abnormality state when overload in motor occurs.

Description and Function of Each Part

Other Functions



Glass set and bath are sold separately.

Rotary evaporator drive unit

The glass unit goes up and down by operating the lift up/down key. During the auto operating of RE800, it automatically goes up and down by operating the START/STOP key on the VR vacuum controller.

Rotor

It starts, stops and adjusts the rotation of rotary joint (sample flask) by the operation of rotation control knob.

Lift lower limit position control knob

It adjusts the lower limit position of lift when it is lowered. Move the lift to the uppermost position. Loosen the knob, push up to the proper position and then tighten it again to change the lowermost position of lift.

Lift release knob

It is used to manually operate the lift at power failure, or when it does not move smoothly.

Turn the knob counterclockwise to loose it to operate the lift manually.

Turn the knob clockwise to tight it to operate the lift automatically.

Note: The lift does not move up and down by the key operation if the knob is loose. In this case, tighten it firmer clockwise.



Adjuster

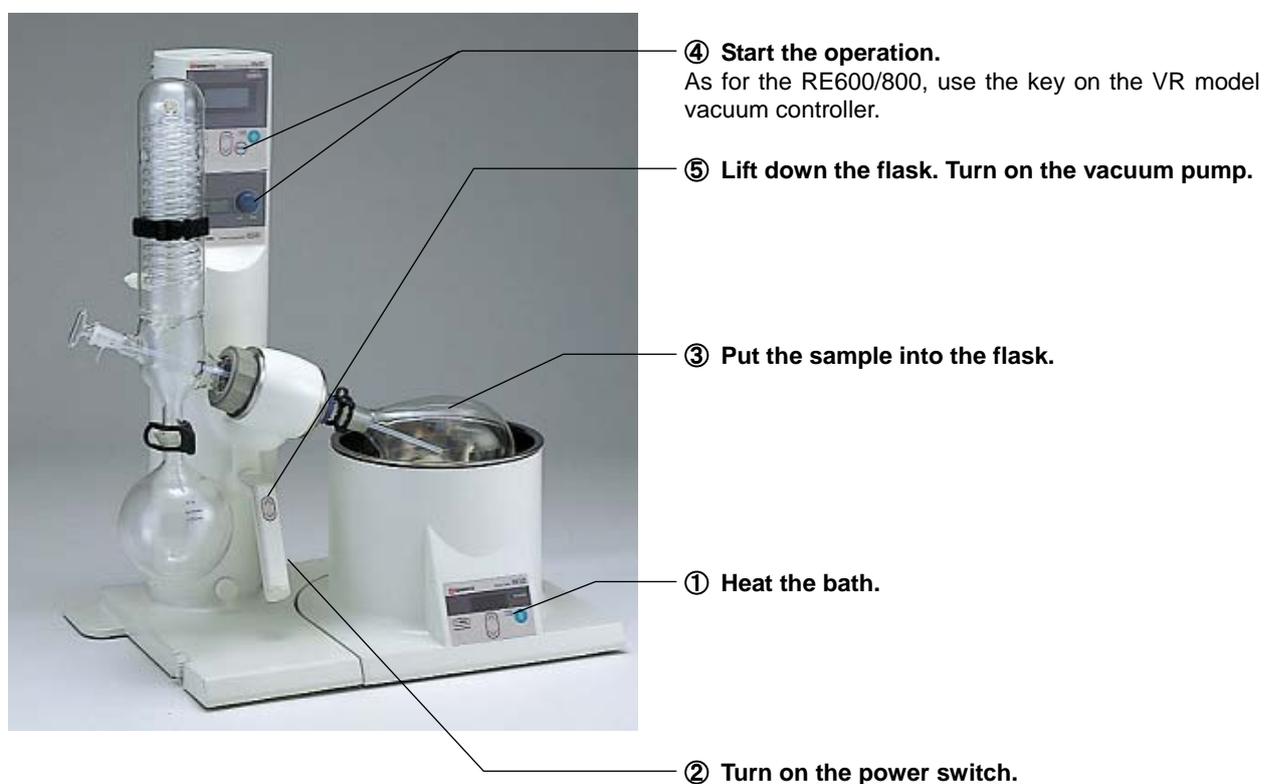
It is used to adjust the level of rotary evaporator.

Basic Operation

Flow of Basic Operation

The operation procedure of rotary evaporator is described below. Please use this document together with the instruction manual of the VR model vacuum controller for the operating instructions of device when using the RE600/RE800 or VR300 model rotary evaporator.

- ① Set the desired bath temperature and heat the bath until the bath temperature becomes stable.
- ② Make sure that the rotation control knob is fully turned to the left (rotation OFF). Turn on the power switch (1 position) on the back surface of RE main unit.
- ③ Put the moderate amounts of sample into the distillation flask and connect it to the rotary joint.
- ④ As for the RE300, turn the rotation control knob on the rotary evaporator and set it to the desired rotation speed. As for the RE600/800, set the desired rotation speed with the rotation control knob and then start the operation by the key operation on the VR model vacuum controller.
- ⑤ Lower the sample flask using the lift ∇ (down) key to heat it.
- ⑥ Turn on the connected vacuum pump to start depressurization.



WARNING!

Substances that cannot be used

-  Never use explosive substances, flammable substances and substances that include explosive or flammable ingredients in this unit. Explosion or fire may occur. (Refer to page 31 "List of Dangerous Substances".)

If a problem occurs

-  If smoke or strange odor should come out of this unit for some reason, turn off the power key right away, and then turn off the circuit breaker and the main power. Immediately contact a service technician for inspection. If this procedure is not followed, fire or electrical shock may result. Never perform repair work yourself, since it is dangerous and not recommended.

Do not disassemble or modify this unit

-  Do not disassemble or modify this unit. Fire or electrical shock or failure may be caused.

CAUTION!

During a thunder storm

-  During a thunderstorm, turn off the power switch immediately, then turn off the main power. If this procedure is not followed, fire or electrical shock may be caused.

Recovery after power failure

-  Turn off the power switch when a power failure occurs to avoid unmanned operation.

Daily Inspection and Maintenance

For the safety use of this unit, please perform the daily inspection and maintenance without fail. Using the city water to this unit might attach dirt. Do inspect and maintain this point while performing daily inspection and maintenance.

WARNING!

- Be sure to disconnect the power cord during inspection or maintenance of device.
- Do not disassemble the device.

CAUTION!

- Wipe the dirt with soft cloth wrung out with mild detergent. Do not use benzene, thinner or cleanser, or do not scrub it with a scrubbing brush. Deformation, deterioration or discoloration may result in.

For any questions, contact the dealer who you purchased this unit from, or the nearest sales division in our company.

When not using this unit for long term / When disposing

CAUTION!

When not using this unit for long term...

- Turn off the power and disconnect the power cord.

WARNING!

When disposing...

- Keep out of reach of children.

Environmental protection should be considered

We request you to disassemble this unit as possible and recycle the reusable parts considering to the environmental protection. The feature components of this unit and materials used are listed below.

Component Name	Material
Exterior Parts	
Outer covering	Aluminum printed coating, ABS resin
Electrical Parts	
Switches, Relay	Composite of resin, copper and other
Circuit boards	Composite of glass fiber and other
Power cord	Composite of resin coating, copper, nickel and other
Wiring material	Composite of flame-resistant vinyl, copper and nickel
Sticker	Resin material

Turn off the power and disconnect the plug immediately if the liquid leaks into the device. There is a danger of electric shock if the power is turned on after the device is dried. In this case, please call the service department of our company.

Error Code:

Check the error code and stop the operation immediately.

Error Display	Cause/Solution
LOCK	The generator stops when an error occurs in the rotor of RE main unit and the motor stops for more than two minutes. The LCD screen displays LOCK. Cancel the error by restoring the breaker.

Refer to the instruction manual of VR model for the display of abnormality on the vacuum controller.

Trouble Shooting

Phenomenon	Check point
Overload on rotor motor?	<ul style="list-style-type: none"> • If the rotor stops due to the overload on the rotor motor, turn off the power for about 30 minutes to cool inside the motor. Remove the cause of overheat and reduce the overload.
Device does not start after turning on the power switch.	<ul style="list-style-type: none"> • Check if the power source is turned to on. • Check if the power cable is securely plugged. • Check if a power failure occurs.

In the case if the error other than listed above occurred, turn off the power switch and primary power source immediately. Contact the shop of your purchase or nearest Yamato Scientific Service Office.

In Case of Request for Repair

If the failure occurs, stop the operation, turn OFF the power switch, and unplug the power plug. Please contact the sales agency that this unit was purchased, or the Yamato Scientific's sales office.

< Check following items before contact >

- ◆ Model Name of Product
 - ◆ Production Number
 - ◆ Purchase Date
 - ◆ About Trouble (in detail as possible)
- } See the production plate attached to this unit.

Minimum Retention Period of Performance Parts for Repair

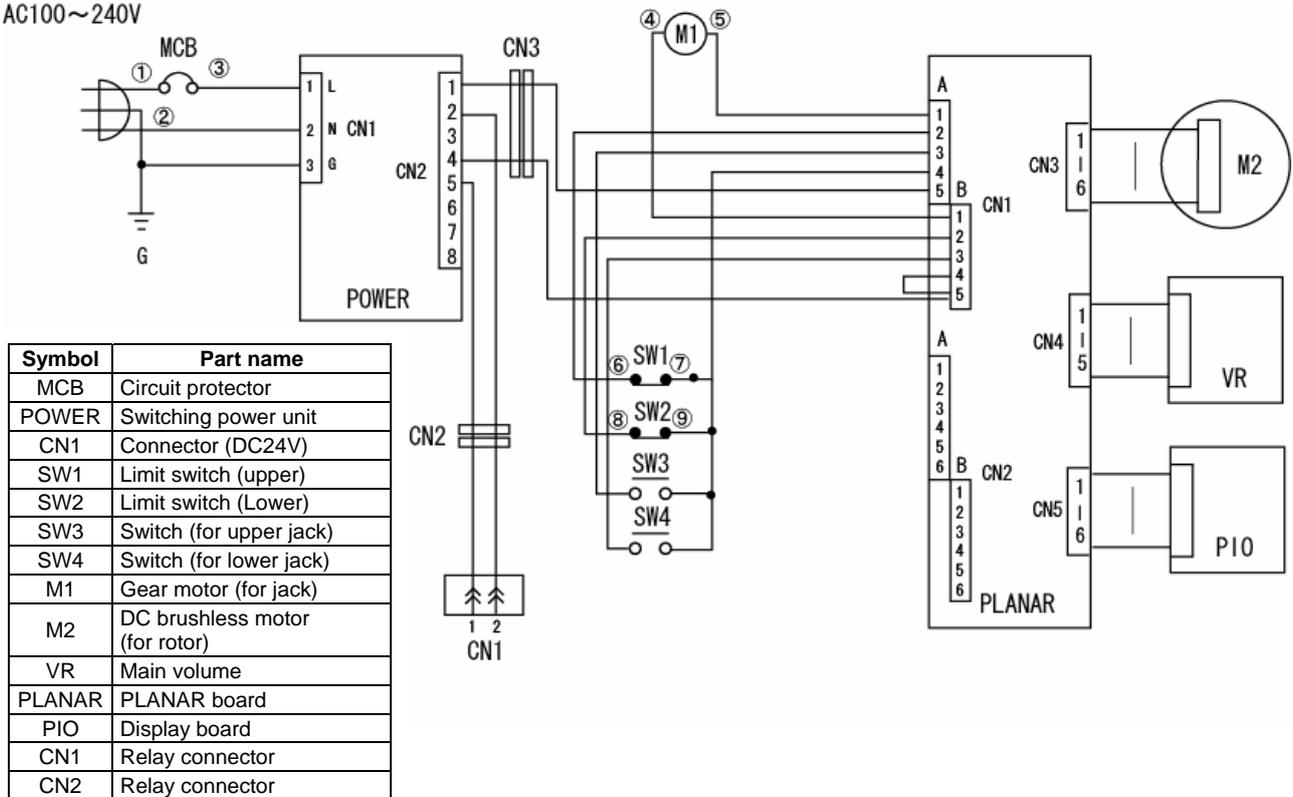
The minimum retention period of performance parts for repair of this unit is 7 years after discontinuance of this unit.

The "performance part for repair" is the part that is required to maintain this unit.

Model		RE300	RE600	RE800
Configuration	Rotary motor	DC brushless motor with feedback control		
	Rotation speed	10~250r/min		
	Lift motor	DC gear motor		
Performance /function	Lift stroke	150mm		
	Lift function	electrical operation		Auto
	Display	Rotation unit: liquid crystal display	Rotation unit: liquid crystal display LCD display in Kanji or alphabetical characters	
	Setting system	Rotation unit: dial	Rotation unit: dial Vacuum control unit: keying	
	Outer covering	ABS resin, aluminum coating finish		
	Setting range of vacuum degree	—	0~981 h Pa	
	Measurement range of vacuum degree	—	0~1033 h Pa	
	Resolution of vacuum degree	—	1 h Pa	
	Setting range of hysteresis	—	1~50 h Pa	
	Indicated resolution of evaporating temperature	—	Selective: 1°C or 0.1°C	
	Indicated resolution of cooling water temperature		Optional, Selective: 1°C or 0.1°C	
	Operational function	—	Fixed temperature, fixed temperature timer, descending, descending timer	Fixed temperature, fixed temperature timer, descending, descending timer, automatic I, II and III
	Timer setting range	—	Fixed temperature timer: 1 to 999 hours, descending timer: 1 to 99 hours	
	Memory function	—	10 functions for each operation	
	Data operation	—	53 kinds of solvent data at fixed temperature, fixed temperature timer, descending, or descending timer operation	
Safety function	Refer to the description of safety feature and function in the instruction manual.			
Interlocking function	—	Bath auto stop/heat-retention, abnormal stop		
Standard	External dimensions	When glass set A equipped	W828 × D400 × H580 (740: at lift-up)	W828 × D400 × H721 (881: at lift-up)
		When glass set B/C equipped	W643 × D400 × H717 (877: at lift-up)	W643 × D400 × H721 (881: at lift-up)
	Rating	Main unit: AC100V~240V 1.5A Vacuum controller: DC24V 0.5A and below		
Weight	Approx. 13kg (Glass and bath not included)		Approx. 14kg (Glass and bath not included)	

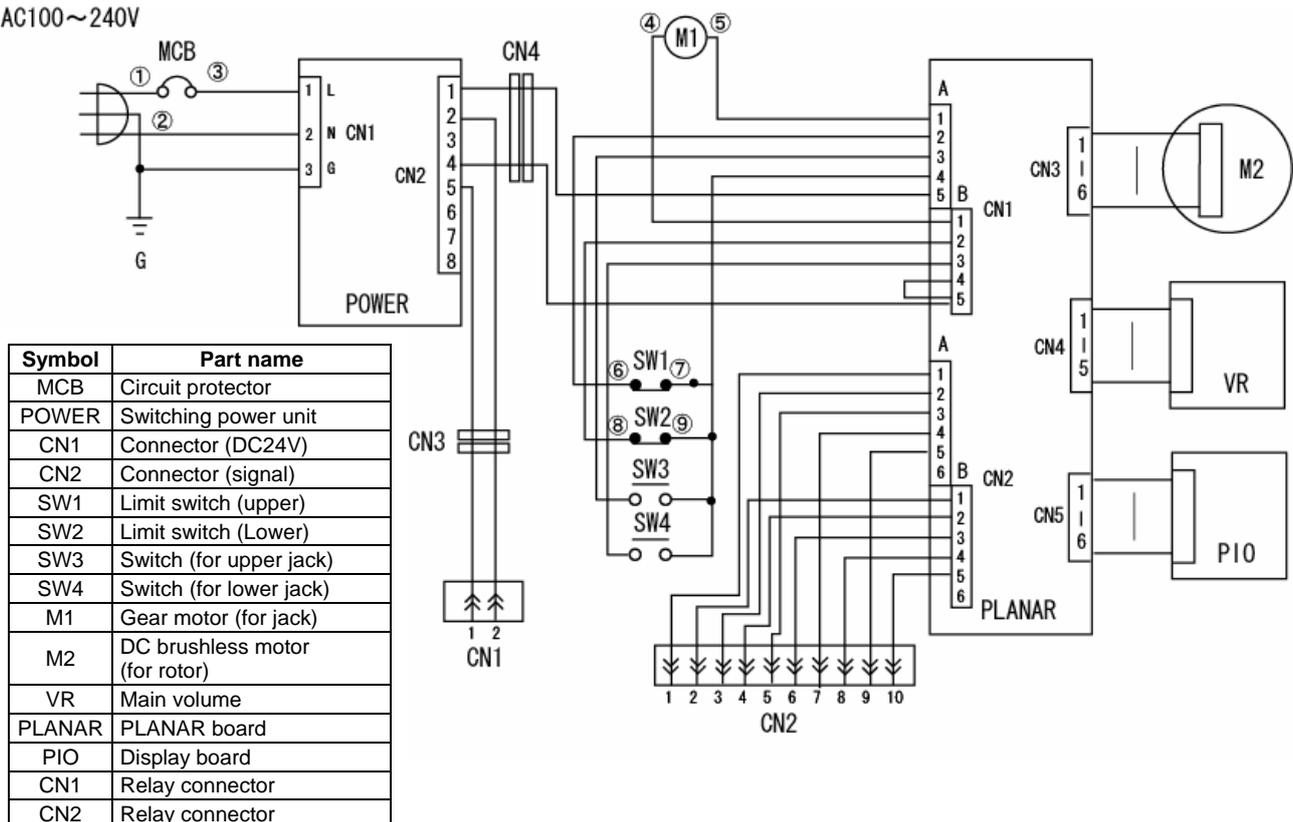
RE300

AC100~240V



VR600/800

AC100~240V



Replacement Parts Table

Part Name	Code No.	Specification	Manufacturer
Ring (large)	RE50040193	Common to the previous RE model	Yamato Scientific
Ring (medium)	RE30040240	No compatibility with the previous RE model	Yamato Scientific
Ring (small)	RE50040073	Common to the previous RE model	Yamato Scientific
O-ring	4210020010	Viton P22, common to the previous RE model	Yamato Scientific
Rotary joint retainer	RE50040081	Common to the previous RE model	Yamato Scientific
Condenser mounting nut	RE50040700	Common to the previous RE model	Yamato Scientific
Coil ring	255172-503	SUS304WPA, common to the previous RE model	Yamato Scientific
Motor	LT00015023	DC brushless motor	Yamato Scientific
Volume board	LT00015024	For RE300/600/800	Yamato Scientific
Rotation control board	LT00015025	For RE300/600/800	Yamato Scientific
Display board	LT00015026	For RE300/600/800	Yamato Scientific
Gear motor for lift	LT00015028	For RE300/600/800	Yamato Scientific
DC power unit	LT00015033	For RE300/600/800	Cosel
Warm	LT00015034	For RE300/600/800	Yamato Scientific
Wheel	LT00015035	For RE300/600/800	Yamato Scientific
Circuit breaker	LT00015041	ETA 310-F212-P7T1S02Q-3A	ETA
Power cord	LT00015042	VL1P-C-ULJPSS-31	Yamato Scientific
Limit switch	LT00015045	VX-012-1C23	OMRON

Refer to the instruction manual of VR model for the components of VR model.

Consumable supplies related to main body

Part Name	Code No.	Specification	Manufacturer
Fluorine rubber seal *	LT00015013	RE300-4022-X	Yamato Scientific
Teflon seal *	LT00015013/ LT00025955	ORE70	Yamato Scientific

Caution:

Use the Teflon seal which is sold separately for ketone or ether solvent.

The Fluorine rubber seal normally attached will swell if ketone or ether solvent such as acetone, methyl ethyl ketone, methyl isobutyl ketone, ethyl ether, and MTBE is used. Use the Teflon seal which is sold separately.

List of Dangerous Substances



Never use explosive substances, flammable substances and substances that include explosive or flammable ingredients in this unit.

EXPLOSIVE

EXPLOSIVE:	Ethylene glycol dinitrate (nitro glycol), Glycerin trinitrate (nitroglycerine), Cellulose nitrate (nitrocellulose), and other explosive nitrate esters
	Trinitrobenzene, Trinitrotoluene, Trinitrophenol (picric acid), and other explosive nitro compounds
	Acetyl hidroperoxide (peracetic acid), Methyl ethyl ketone peroxide, Benzyl peroxide, and other organic peroxides

FLAMMABLE

IGNITING:	Lithium (metal), Potassium (metal), Sodium (metal), Yellow phosphorus, Phosphorus sulfide, Red phosphorus, Celluloid compounds, Calcium carbide, Lime phosphate, Magnesium (powder), Aluminum (powder), Powder of metals other than magnesium and aluminum, Sodium hydrosulfite
OXIDIZING:	Potassium chlorate, Sodium chlorate, Ammonium chlorate, and other chlorate
	Potassium perchlorate, Sodium perchlorate, Ammonium perchlorate, and other perchlorate
	Potassium peroxide, Sodium peroxide, Barium peroxide, and other inorganic peroxide
	Potassium nitrate, Sodium nitrate, Ammonium nitrate, and other nitrate
	Sodium chlorite and other chlorites
Calcium hypochlorite and other hypochlorites	
INFLAMMABLE LIQUID:	Ethyl ether, Gasoline, Acetaldehyde, Propylene chloride, Carbon disulfide, and other flammable substances having a flash point of lower than -30°C
	Normal hexane, ethylene oxide, acetone, benzene, methyl ethyl ketone, and other flammable substances having a flash point of -30°C or higher but lower than 0°C
	Methanol, Ethanol, Xylene, Pentyl acetate (amyl acetate), and other flammable substances having a flash point of 0°C or higher but lower than 30°C
	Kerosene, Light oil (gas oil), Oil of turpentine, Isopentyl alcohol (isoamyl alcohol), Acetic acid, and other flammable substances having a flash point of 30°C or higher but lower than 65°C
FLAMMABLE GAS:	Hydrogen, Acetylene, Ethylene, Methane, Propane, Butane, and other flammable substances which assume a gaseous state at 15°C and 1 atm

(Source: Appendix Table 1 of Article 6 of the Industrial Safety and Health Order in Japan)

* Install the unit according the procedure described below (check options and special specifications separately).

Model	Serial number	Date	Person in charge of installation (company name)	Person in charge of installation	Judgment

No.	Item	Method	Reference operation manual	Judgment
Specifications				
1	Accessories	Check the quantities of accessories with the quantities shown in the Accessory column.	Specification	P.28
2	Installation	<ul style="list-style-type: none"> • Visually check the surrounding area. Caution: Be careful about surrounding environment.	Before Using This Unit "2. Choose a proper place for installation"	P.5
		<ul style="list-style-type: none"> • Keep space. 		
Operation				
1	Power voltage	<ul style="list-style-type: none"> • Using a tester, measure the voltage of the voltage used by the customer (distribution board, outlet, etc.). • Measure the voltage during operation (the voltage must be within the standard). Caution: When a unit is to be connected to the plug or breaker, use one that conforms to the standard.	Before Using This Unit "1. Always ground this unit"	P.5
			Before Using This Unit "7. Choose a correct power distribution board or receptacle"	P.6
			Specification	P.28
2	Start of operation	<ul style="list-style-type: none"> • Start operation. 	Installation Method	P.8
			Handling Precautions	P. 23
Description				
1	Description of operation	Explain the operation of each unit to the customer according to this Operation Manual.	All	
2	Error code	Explain error codes and the procedure for resetting them to the customer according to this Operation Manual.	In the Event of Failure...	P.26
3	Maintenance inspection	Explain the operation of each unit to the customer according to this Operation Manual.	Maintenance Method	P.24
4	Completion of installation Information to be entered	<ul style="list-style-type: none"> • Enter the date of installation and the name of the person in charge of installation on the face plate on the unit. • Enter necessary information on the guarantee, and pass it to the customer. • Explain the after-sale service route to the customer. 	After Service and Warranty	P. 27

Responsibility

Please follow the instructions in this document when using this unit. Yamato Scientific has no responsibility for the accidents or breakdown of device if it is used with a failure to comply. Never conduct what this document forbids. Unexpected accidents or breakdown may result in.

Note

- ◆ The contents of this document may be changed in future without notice.
- ◆ Any books with missing pages or disorderly binding may be replaced.

Instruction Manual for
Rotary Evaporator
Model RE300/600/800
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