

EYELA

Aspirator

A-1000S

Instruction Manual



This manual includes important information concerning the maintenance of the functionality of the product and safety use.

IMPORTANT Please read this manual carefully especially on “Safety precautions” before use.



Please keep this instruction manual within easy reach of yourself whenever using the product.

• Safety precautions

1. Signal word for warning

Due to its function and characteristic, a part of this product rotates rapidly and suctions organic solvent. Contamination of foreign substance and insufficient drainage treatment may damage the product. However, if you have proper information, you can avoid almost all these troubles.

Therefore, this manual categorizes the level of importance and danger as below with alert mark and signal word. Please follow the instructions and use the product safely.

Alert mark Signal word	Definition
 WARNING	Mishandling the product may cause serious personal injury or loss of life.
 CAUTION	Mishandling the product may injure users or cause serious property damage.

Though we are trying to look into conceivable risk of using the product, it is very difficult for us to expect all of it. It means that all the instructions in this manual do not cover all the types of risks that may be caused by the product. However, if you follow the instructions, you surely can handle and operate the product safely. Please sue extreme care when handling this product and try to prevent all the potential accidents and mechanical failures.

Thank you for choosing the product of



Introduction

This instruction manual describes the procedure of setup, operation, troubleshooting, maintenance, check-up and disposal of Aspirator, A-1000S.

Please read this manual carefully before use.

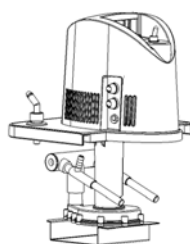
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Check-up list of packing

Please check the type and quantity of each part before setting up the instrument.

Contents		Product	A-1000S
1	Pump		1
2	Bath		1
3	Cover for bath		1
4	Y-shaped joint		1
5	Vacuum hose		2
6	Fuse	115V (3A)	1
		220V 240V (2A)	2
7	Instruction manual		1



Pump



Bath



Cover for bath

1 Outline of the product

1-1 Use application



WARNING

Do not remodel the product.

Make sure that it should not be used out of intended use.

Remodeling and improper use may cause electric shock or breakdown.

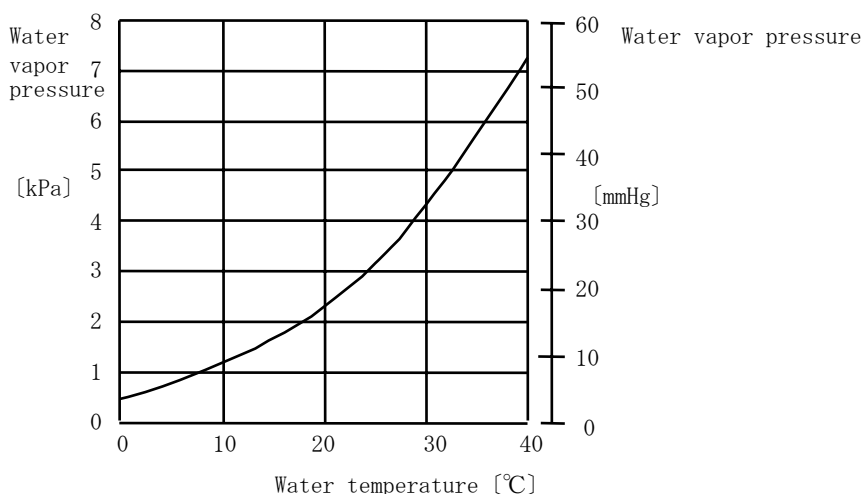
This product is a decompression device that decreases the pressure of condenser, such as rotary evaporator, test tube evaporator and centrifugal evaporator.

1-2 Specification

Product name		Aspirator
Model		A-1000S
Feature	Maximum exhaust velocity	16 / 19 L/min (50/60Hz)
	Attainable vacuum degree	Depends on saturated water vapor pressure
Configuration	Motor	Induction motor Output 150W
	Aspirator	Metal
	Bath	Polypropylene 10L
	Suctioning nozzle	2 points External diameter 9mm
	Drainage system	Over flow system (External diameter of nozzle 17.5mm)
Specification	External measurement	255 (W) × 361 (D) × 406 (H) mm
	Power source input	300W
	Rated supply	AC115V 60Hz AC220V 50/60Hz AC240V 50Hz
	Weight	6.7kg

※ Attainable vacuum degree differs depending on dissolved gas or impurity dissolving into water.

1-3 Characteristic of water vapor pressure



1-4 Attainable vacuum degree (reference)

Water temperature	kPa	(mmHg)
5°C	0.93	(7)
10°C	1.60	(12)
20°C	2.66	(20)

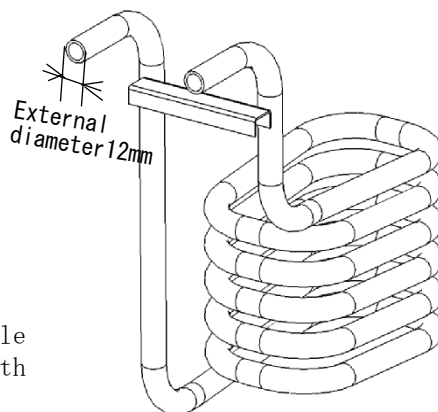
※ Attainable vacuum degree differs depending on dissolved gas or impurity dissolving into water.

1-5 Option

(1)

Product name	Cooling coil	
Model	CCU (copper)	CCS (SUS)
Cat. No.	119050	119060

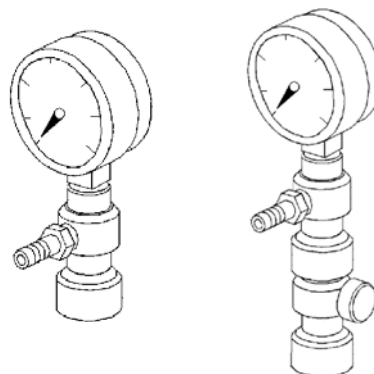
※ Cooling coil is used for cooling down the water in the bath by connecting to external circulating nozzle of low temperature circulator (CA-1112 and etc.) with using hose.



(2)

Product name	Nozzle with vacuum gauge	Controlling decompression valve
Model	VG-1000	VG-1000V
Cat. No.	210550	212380

※ Nozzle with vacuum gauge is used for checking up attainable vacuum degree of aspirator and controlling vacuum degree.

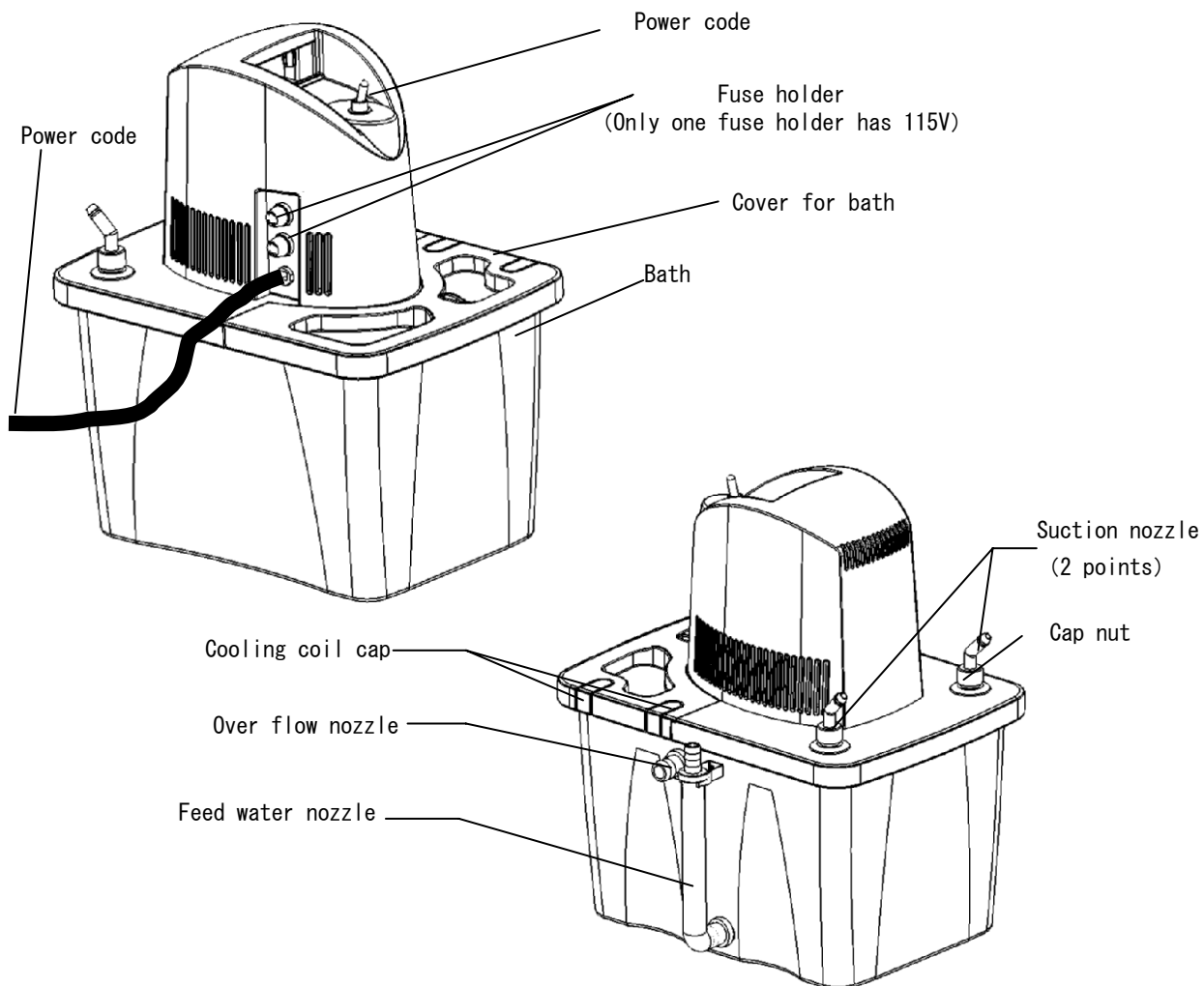


VG-1000

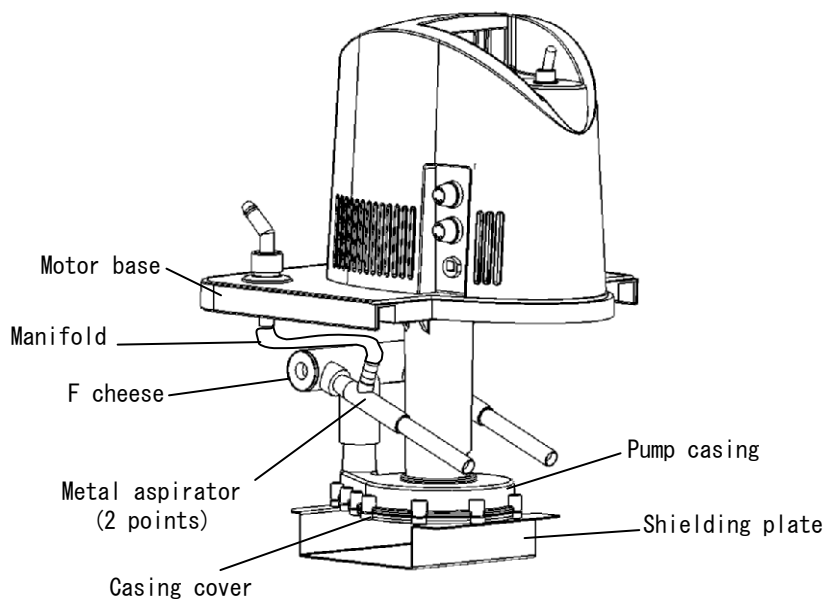
VG-1000V

1-6 Name of each part

Assembly drawing



Main body



1-7 Safety functions

This product is equipped with safety functions as below.

However, when trouble occurs, please refer to “Troubleshooting” on page 10 and follow the proper instructions.

Safety functions

Safety device	Operation	Reasons why safety device works
Fuse	Gets fuse blew and cuts off the power	Excess current flows.
Thermal protector	Stops motor. (Motor re-starts up when temperature lowers) .	Motor is heated exceptionally

2 Setup

2-1 Setup environment



WARNING

Be careful with setup environment

Bad setup environment may damage the product and worsen the function.

Select the setup location as below.

- No inflammable solid, liquid and gas around the unit.
- Range of ambient temperature is from 5°C to 35°C.
- No dew condensation
- Fewer humidity and dripping
- Fewer dust
- No direct sunlight
- Good ventilation
- Even and stable
- Since the unit uses water, water leakage must flow into drain when leak of water occurs.



2-2 Utility connection



WARNING

Make sure of the voltage, phase, capacity and the type of outlet.

Wrong connection may cause fire or electric shock.



WARNING

Connect earth wire properly.

Do not connect earth wire to gas pipe or water pipe for preventing electric shock.



WARNING

Do not use branching socket and power strip.

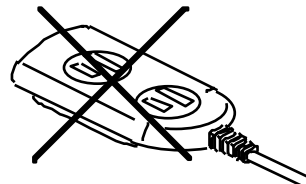
Excess current may burn cable or cause fire.

- (1) Check the voltage, phase and capacity of power source connecting to the product. Required power source is as shown on right table.

Model	Required power source	
	Voltage	Capacity
A-1000S	AC115V	15A
	AC220V	7A
	AC240V	7A

- (2) Make sure of the type of outlet and plug mains connector.

When connecting to power source, do not use branching socket and power strip.



3 Operation

3-1 Preparation

CAUTION

Make sure that no foreign substance such as dust is adhered in the bath.

Pump and aspirator that are clogged with dust and cotton waste will worsen the attainable vacuum degree. Also, they will cause glitch on motor.

CAUTION

When suctioning organic solvent, use trap and do not let solvent mix into the bath.

If the organic solvent is dissolved into the water, attainable vacuum degree will be worsened or metal aspirator and driving part will be damaged. Also, it may cause nasty smell or fire.

※ Attainable vacuum degree of the unit depends on water temperature and water quality.

※ When the solution can not perform overflow for maintaining water temperature because of effluent regulation, use cooling trap to prevent the interfusion or change the water in the bath regularly.

Notice 1 When water temperature in the bath rises during the operation, it may worsen the attainable vacuum degree, and water in the bath may flow upstream. Therefore, circulate the cooling water or conduct overflow to keep the same water temperature for avoiding the trouble. Also, use store-bought backflow prevention valve.

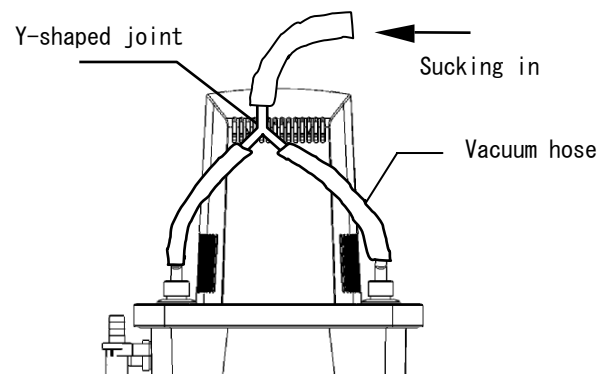
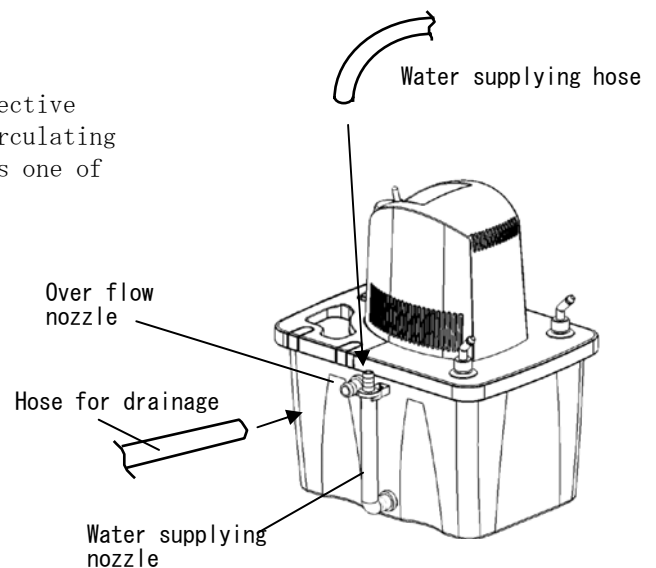
※ When water can not be overflowed, it is effective to use immersion cooler or cooling water circulating device combining with cooling coil, which is one of the options.

Notice 2 When the solvent mixes into the bath, it will worsen the attainable vacuum degree and may cause back-flow. Also, when the solution vapors, it may cause nasty smell or fire.

1. Connecting hose

- (1) Place the main body on the bath and set it up on the point of use.
- (2) Remove the cap of water supplying nozzle.
- (3) Install hose for drainage (bore diameter: 16mm) onto overflow nozzle and also install water-supplying hose (bore diameter: 12mm) onto water-supplying nozzle tightly for preventing leak.
- (4) Connect decompression system and suctioning nozzle with using vacuum hose (bore diameter: 6mm).

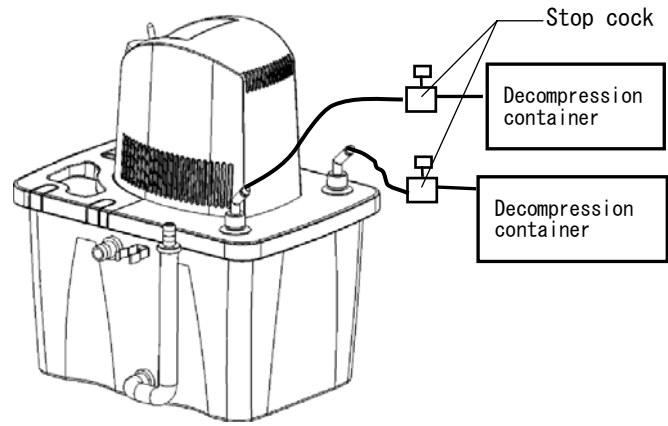
※ When reducing the pressure at only one point, using two suctioning nozzles with Y-shaped joint simultaneously can shorten the time required for decompression.



Decreasing pressure at 2 points simultaneously

- ※ When releasing decompression at one decompression container and sucking in air, air bubble will be sucked into the pump and attainable vacuum degree will be worsened. In this case, water may flow upstream into other decompression container.

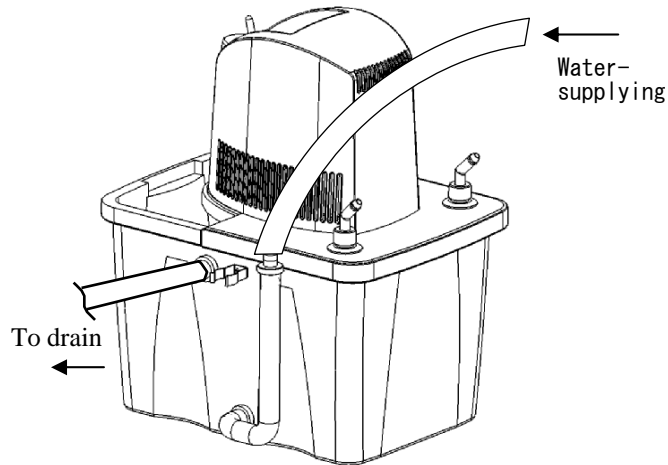
When decreasing pressure in both containers, set up stop cock in each decompression line and close the stop cock before releasing the decompression.



2. Water supplying into bath

Fill the water into the bath up to the point where flow nozzle supplies water.

- ※ If the water supply is too much, water may overflow from the bath.
- ※ Though the water supply is controlled properly, it may be changed because of the change of water pressure. Pay attention to the water level during overflow.



3. Connecting mains connector

Make sure that the power switch is off before plugging the mains connector into outlet.

3-2 How to operate



Stop using the product if it does not work properly.

In case of trouble, release the decompression and turn off power switch immediately, and refer to "Troubleshooting".

(1) Turn on power switch.

Pump rotates and metal aspirator exhausts and starts reducing pressure.

※When starting it up, exhaust sound is loud because of huge displacement.

※Use cover for bath if it is possible. It prevents water scattering when releasing decompression.

※After checking up that the suctioning nozzle and decompression system are surely connected, turn on power switch. If they are not connected, water bubble may overflow from the bath.

(2) When completing operation, turn off power switch after releasing decompression.

※This unit is equipped with backflow prevention valve that prevents backflow caused by huge pressure difference, which was occurred when power switch is turned off by mistake. However, since backflow progresses little by little if decompression is continued for a long time, please release the decompression. Also, store-bought backflow prevention valve is available.

Procedure after finishing operation

If you don not use the product for a long time, turn off the power switch and unplug the mains connector. Also, drain the water of the bath.

3-3 How to operate options

(Nozzle with vacuum gauge attached VG-1000、Controlling decompression valve with vacuum gauge attached VG-1000V)

(1) Turn cap nut and remove suctioning nozzle and rubber packing on the one side. Pay attention not to lose rubber packing.

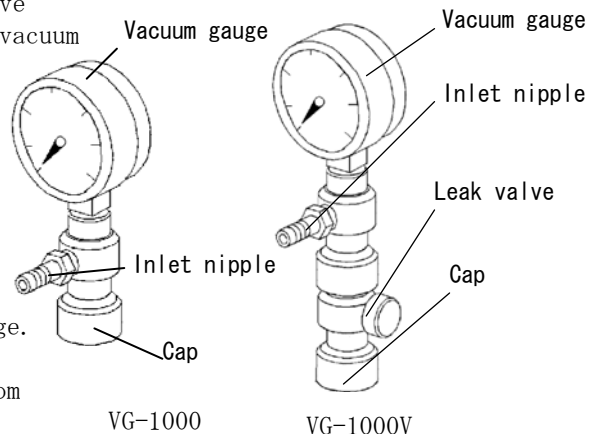
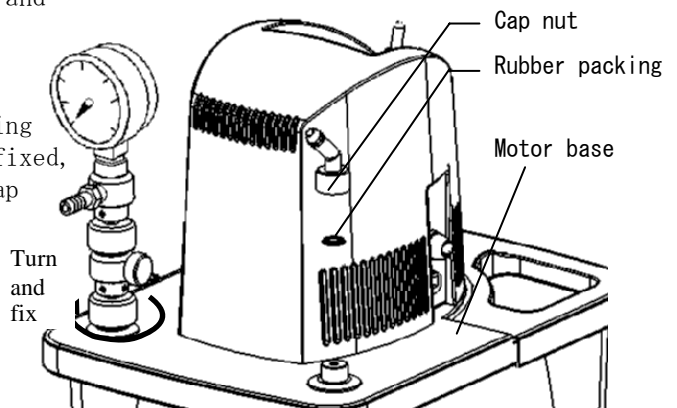
(2) After removing cap nut, place rubber packing on the part of motor base where screw is fixed, and insert VG-1000 or VG-1000V and turn cap nut to fix it.

※ Do not insert VG-1000 or VG-1000V with a slope.

(3) Connect inlet nipple of VG-1000 or VG-1000V to vacuum hose and also connect to decompression system.

(4) To control vacuum degree, unloose the leak valve slowly with reducing pressure and also reduce vacuum degree gradually and set up at your desired vacuum degree (VG-1000V).

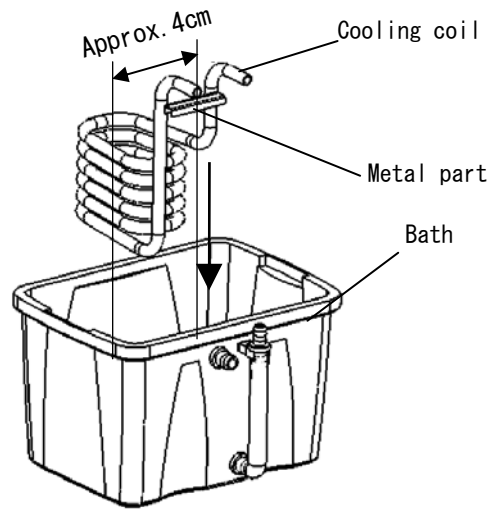
※ Instruction for using VG-1000 and VG-1000V
When getting the condition back to normal pressure, do not pull out vacuum hose with a sudden jerk or get the condition back to normal pressure hastily. Releasing decompression rapidly may break a vacuum gauge. When getting it back to normal condition, please pull out the vacuum hose gradually from inlet nipple or loosen the leak valve slowly. (only for model VG-1000V).



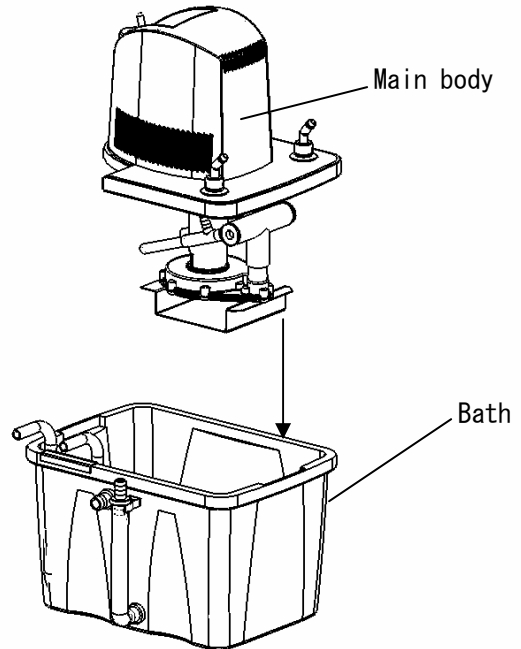
3-4 How to operate options (cooling coil CCU and CCS)

- (1) Remove cover for bath from main body.
Fit the lamp part of cooling coil into the edge of bath and set up cooling coil in the bath.

※To get a rough guide, the point where cooling coil should be attached is about 4cm from the center of exterior part of coil to the edge of the bath.



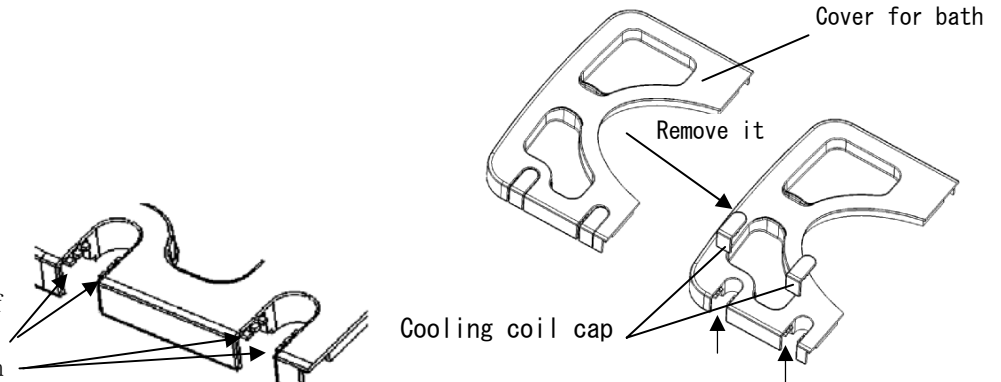
- (2) Fit the main body into bath



- (3) Remove cooling coil cap from the cover for bath.

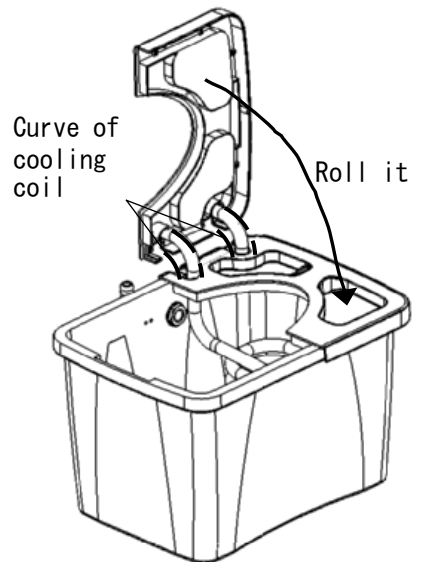
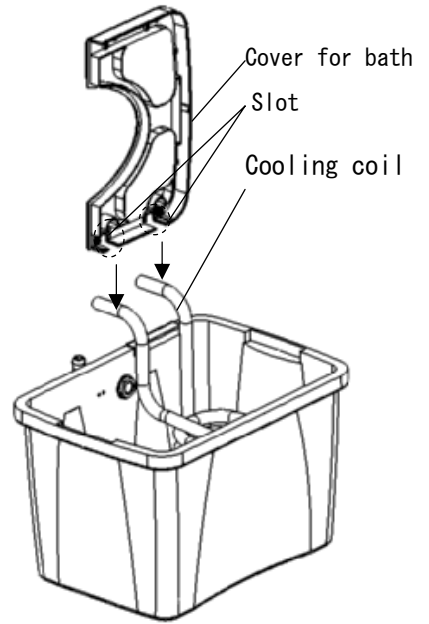
※Cooling coil cap can be attached once again.

※When using model CCU, cut off approx. 1mm of two clicks. Then, cooling coil can be fit in smoothly.

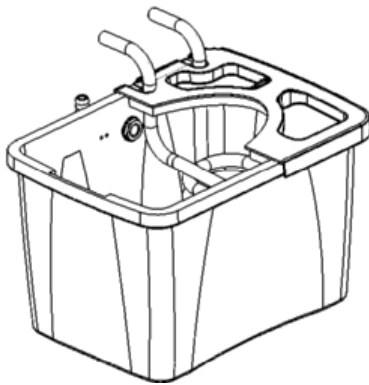


(4) Setting up cover for bath
 Fit the slot of the cover into the pipe of cooling coil.

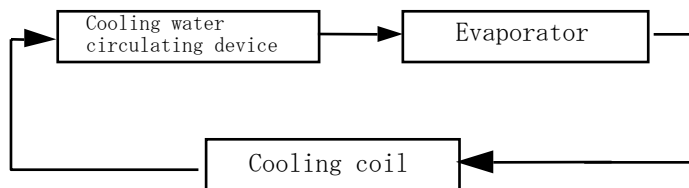
※ When using the cover for bath without cutting about 1mm of clicks (model CCU), turn the cover along the curve of cooling coil, then fit the cover into bath. (Cooling coil can be attached once again after use) .



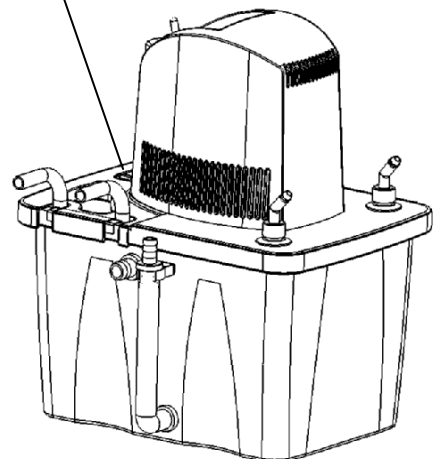
Completed



(5) Please proceed the pipe fitting as below.



Cover for bath



※ Two types of cooling coil are available, which are type CCU that is made of copper, and type CCS that is made of SUS304.

4

Troubleshooting

For the trouble that is not mentioned in this manual, please consult your local dealer or closest customer service center.

T r o u b l e	Cause of trouble	S o l u t i o n
Motor does not work even though power switch is turned on.	Mains connector is unplugged. Or it is not plugged tightly.	Turn off the power switch and plug the mains connector into outlet.
	Power is not supplied.	Turn on the breaker of the distribution board.
	Fuse blows.	Replace fuse. If it still does not work out, stop the operation immediately and call your local dealer or closest customer service center.
	Thermal protector works.	Lower the ambient temperature or lower the water temperature of the bath.
Poor vacuum degree.	Solvent is dissolved into water.	Replace the water of aspirator bath or do not let solvent mix into the water.
	Water temperature in the bath is high.	Use the unit with performing Overflow or put the cooling coil into the bath and connect to cooling water circulating device to cool down the water temperature.
	Metal aspirator is clogged.	Remove the clogged dirt.
	Backflow prevention valve is clogged	
Poor air volume displacement	Corrosion or wear of metal aspirator	Replace metal aspirator.
	Dirt clogged in the pump casing.	Remove the dirt in the casing.
	Pump part is cracked.	Stop the operation immediately and contact your local dealer or closest customer service center.
	Water leaks from casing packing.	
	F cheese of pump part is damaged because of organic solvent.	
	Metal aspirator is clogged with foreign substance.	Remove the dirt.
	Backflow prevention valve is clogged.	
Abnormal noise occurs when motor works.	Oil seal and bearing are worn.	Stop the operation immediately and contact your local dealer or closest customer service center.
	Motor is damaged.	

5 Maintenance • checkup

Cleaning and caring the product.



WARNING

Do not take down the product.

A part of interior portion of the unit is under electric pressure and subject to have high temperature. Therefore, breaking down the unit may cause electric shock or injure yourself.

- (1) When cleaning and caring the product, turn off the power switch and unplug the mains connector.
- (2) For cleaning, use soft cloth after screwing water tightly. Use mild detergent the remove greasy dirt and wipe it off after using the detergent.



CAUTION

Use appropriate product for cleaning and caring the unit in proper way.

When cleaning and caring the product, do not pour water directly on the exterior and internal part of the unit, and also do not use cleanser, thinner, petrol, lamp oil, acid and related products. These products may cause electric shock or damage the unit.

※Checking up piping and etc.
Before and after use, check up the piping system for leaks, slackness or whether the hose is deteriorated. Since the progress of deterioration or obsolescence of the product differ depending on the use condition, please check the machine regularly.

6 Disposal of the product

Please follow the instruction as below when disposing the product or parts.

Major components and the method of disposing

Component	Specification	Weight	External measurement	How to dispose
Main body	A-1000S	6.7kg	255 (W) × 361 (D) × 406 (H) mm	Contact waster disposer.

※Dispose packing materials by separating each type of material.

1. When the machine does not work properly, check and see whether it has breakdown with referring to pages of “Troubleshooting.”
2. If you are sure that it has a breakdown, contact your local dealer or closest customer service center, which is mentioned on the manual.
3. Repair work during guarantee period is available based on service warranty.