

ALP Retort Clave

Model RKZ-40II

Specification sheet



ALP Co., Ltd.
TOKYO JAPAN

This specification sheet describes the ALP retort clave model "RKZ-40II" which sterilizes cooked food sealed in a retort pouch, can, bottle such as Ready-To-Eat meals, under high temperature and pressure, and then cools while maintaining pressure. As a result, sealed foods can be stored for long periods at room temperature.

The letters in blue appearing on the pages later are options depending on the conditions.

1. Features

● Sterilizes packaged/pre-cooked foods as Ready-To-Eat Meals without burst

"Packaging burst" which is troublesome tending to be caused when heating and cooling packaged foods including Ready-To-Eat Meals is solved by operating a pressurizing compressor during the cooling process and allows sterilization reliably.

● Ideal for a pilot/small-batch production processing

Processes pillow pouches with 180 x 140 x 20mm for up to 96 pcs. (divided into three baskets with three partition) at one cycle. That is about 500 pouches of the same size can be sterilized per a day.



● F-value operation as standard

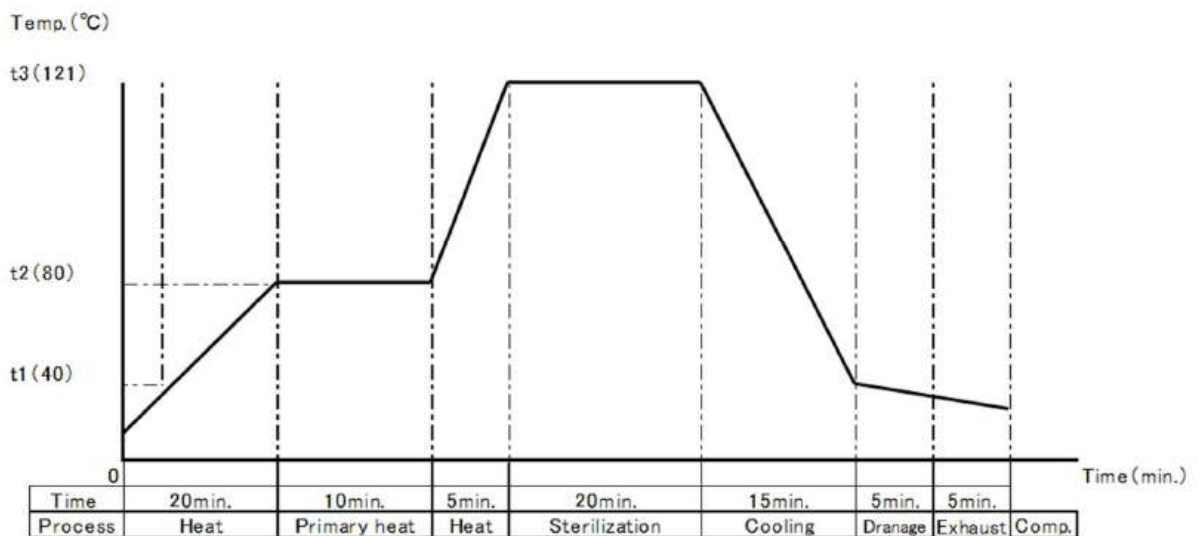
F-value operation which enables to not only measure F-value which is indispensable for the sterilization but also operation ends automatically when F-value reaches to the set value.

This function makes easy to find out the setting condition of various samples.

* F-value which is the sterilization strength of retort food can be calculated, recorded and managed.

● Significantly reduced variation in F-values

Thanks to the primary heating process which keeps low temperature for a certain period enables to prevent variation in F-values according to the setting location of pouch in the basket. This enables uniform heat treatment which prevents to deterioration of food. (Please refer below chart)



* Each time may vary according to the material and quantity of samples.

● 3 patterns of the sterilization temperature and time can be set and saved

3 patterns of the sterilization temperature and time can be set and saved according to the material (packaging material, sample material).

Pattern can be switched with button.

- **Cooling shower, Submerged cooling**

At the cooling process after the sterilization, cooling shower from the tap water operates for the rapid cooling controlling pressure to prevents burst, wrinkle and deform of the sample due to radical pressure change.

Submerged cooling also makes rapid cooling against the large capacity of pouch, canned food which hard to be floated.

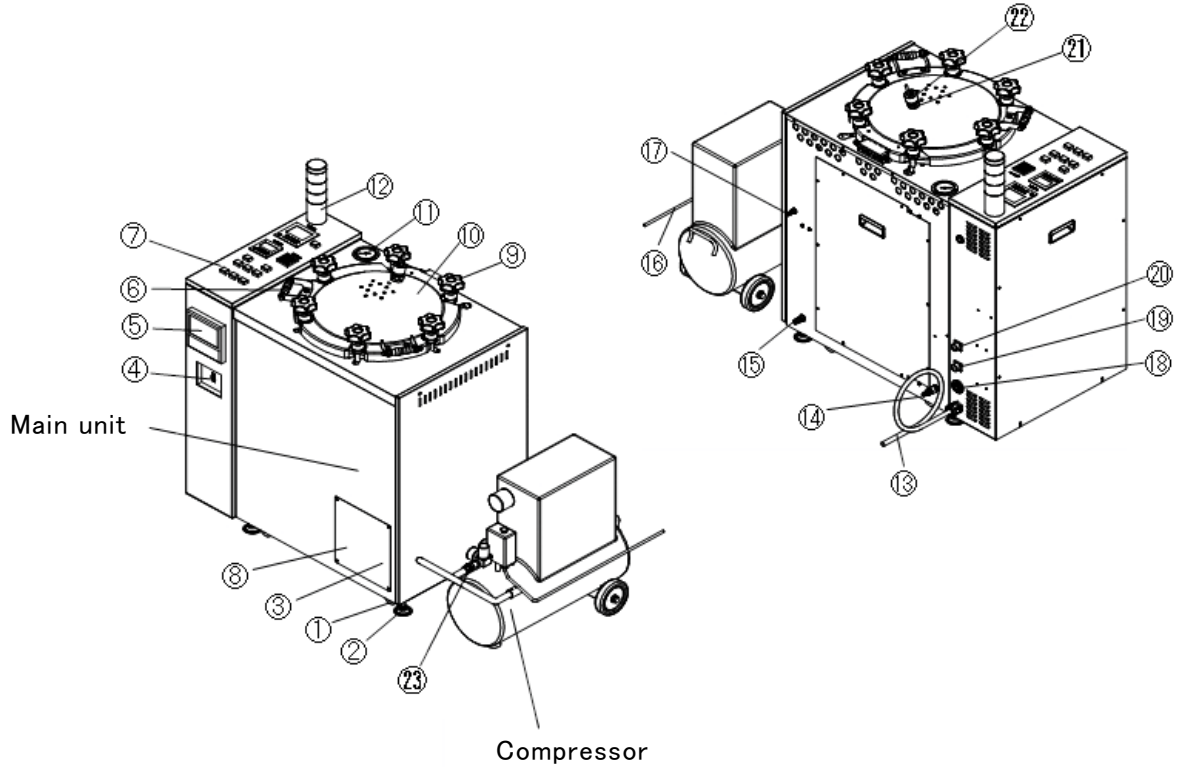
- **Only baskets are required as optional accessories**

Needed functions for the retort sterilization are already included in the RKZ-40II.

Only options such as basket, tray, partition according to the form and setting of the samples are required.

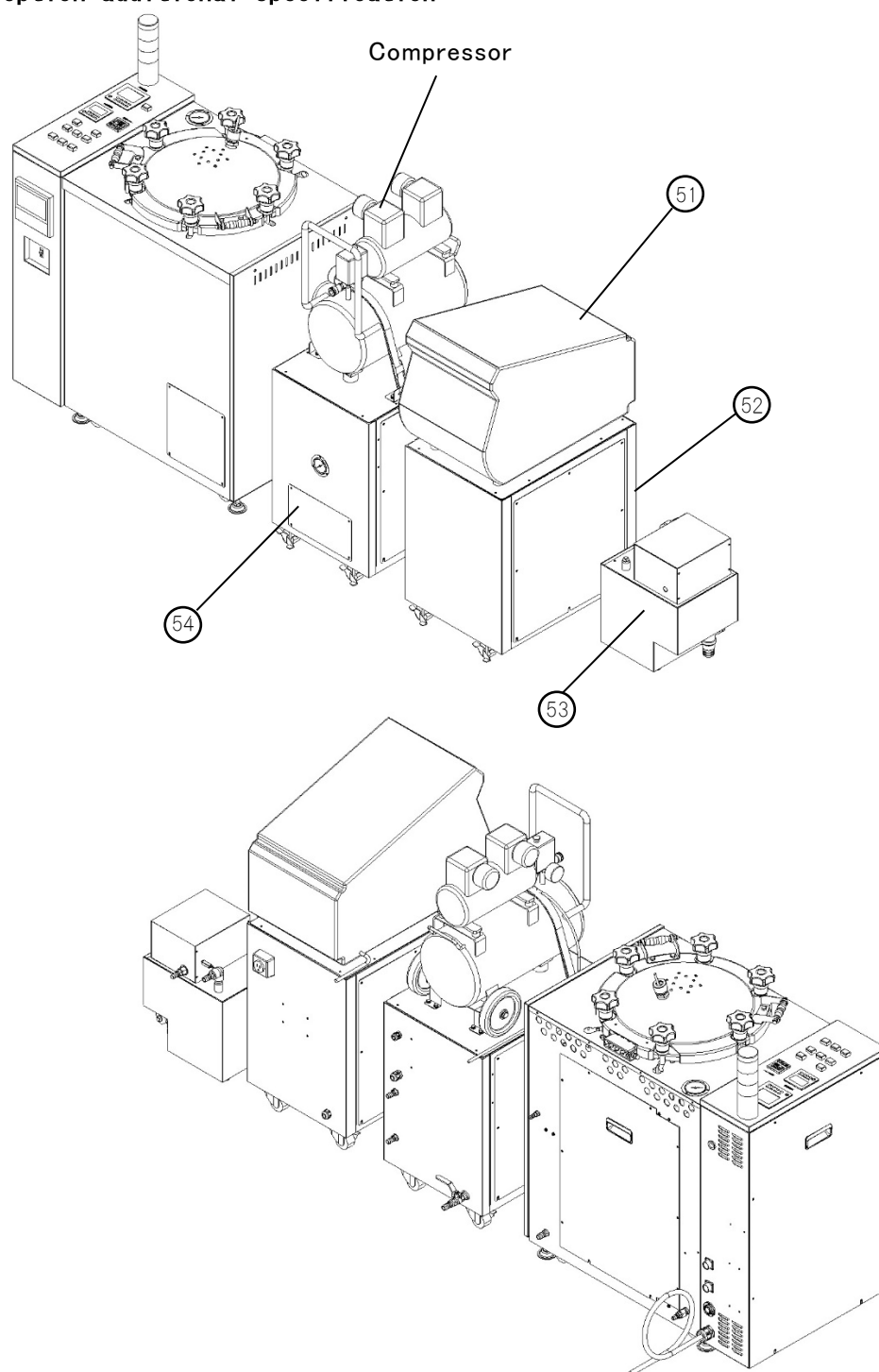
2. Name of each part

2.1 Standard specification



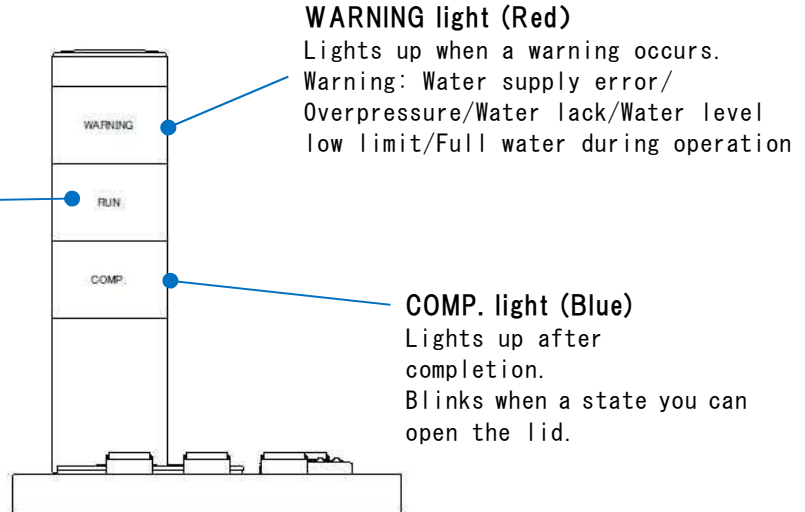
| No. | Part name | No. | Part name |
|-----|---|-----|--|
| 1 | Caster | 13 | Power cable |
| 2 | Adjuster | 14 | Water supply port |
| 3 | Maintenance port | 15 | Exhaust/Drain port |
| 4 | Power switch | 16 | Compressor power cable |
| 5 | Recorder | 17 | Air supply port |
| 6 | Lid handle | 18 | Water pumping unit power connector |
| 7 | Operation panel | 19 | Water pumping unit signal connector |
| 8 | Drain valve (inside the maintenance port) | 20 | Drainage cooling unit signal connector |
| 9 | Lid lock handle | 21 | Port seal fittings for item temp. sensor |
| 10 | Lid/Lid cover | 22 | Sensor fittings |
| 11 | Pressure gauge | 23 | Compressor air supply port |
| 12 | Indicator light | | |

2.2 Option additional specification



| No. | Part name | No. | Part name |
|-----|--------------------------------|-----|-----------------------|
| 51 | Vacuum packaging machine | 53 | Drainage cooling unit |
| 52 | Vacuum packaging machine stand | 54 | Water pumping unit |

2.3 Indicator light & Operation panel



Pressure controller

Controls the chamber pressure from the upper limit value to the lower limit value.

Primary heating pressure (fixed)
Upper limit: 0.030MPa
Lower limit: 0.010MPa
Sterilization pressure setting range
Upper limit: 0.030-0.170MPa
Lower limit: Equal to the upper limit minus 0.020MPa

FV CONT. button

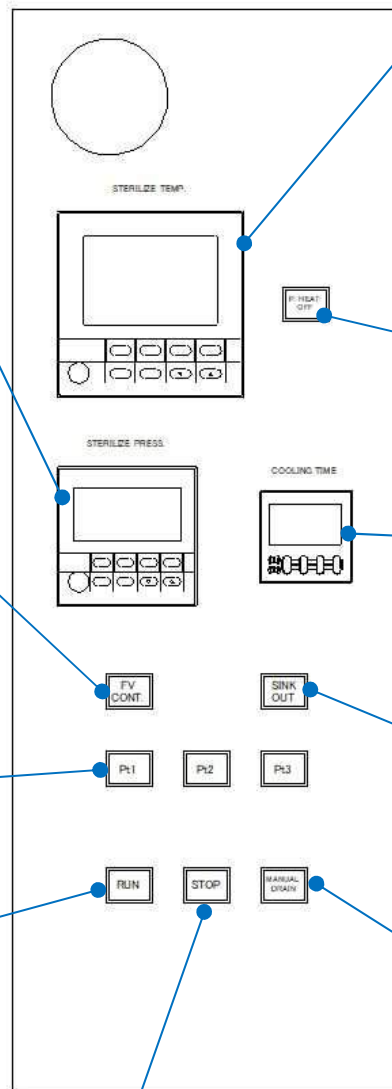
A button to select the F-value operation.
ON (Lights up) : F value operation
OFF (Lights out) : Lights out when pressing the Pt1-Pt3 button.

Pattern selection button

Select the Pt1-Pt3 in the standby mode (when RUN and COMP. are not lit). The selected Pt button lights up. The Pt1 is selected when turning the power Off, and then turning ON it again.

RUN button

A button to start the operation. You cannot start the operation when the COMP. lights up. Press the STOP button once, and then the RUN button.



STOP button

A button to halt/interrupt the operation.
Also, if you press it while the COMP. lights up, each device will be reset to be the standby mode.

3. Utility (See the next page regarding the water supply and drainage)

3. 1 Required power supply

Main unit: AC220/230V, Single phase, 30A or more, Power cable 5m

Compressor: AC220/230V, Single phase, 10A or more, Power cable 5m

3. 2 Water supply: Water tap (Water pressure 0.25MPa or more required), Connect the included water supply hose (5m, 18x12) into the water supply port (Plastic barbed fitting Part No.14 in 2-1 Standard version)

Insufficient water pressure requires to use the optional equipment "Water pumping unit" (See 9.1①for details).

3. 3 Drainage : Drainage: A heat-resistant drainage facilities required (Polyvinyl chloride made piping not allowed). Lead the drain hose (5m, 24x16) into a drainage ditch/pit positioned 70mm height or less from the floor. Drainage through polyvinyl chloride made piping (Non heat resistant pipe) require to use optional equipment "Drainage Cooling unit" (See 9.1②for details).

4. Installation environment/location

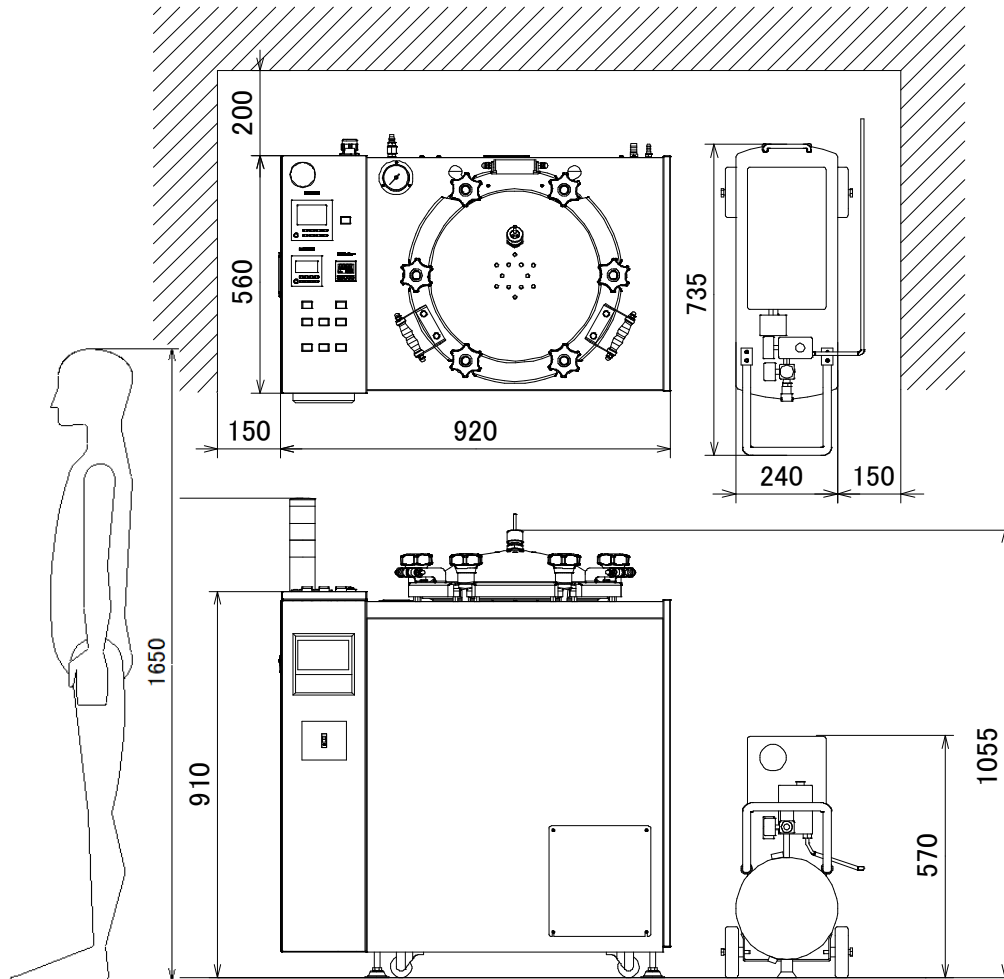
- Ambient temperature: 5–35°C
- Relative humidity: 30–85%
- Atmospheric pressure: 90–106kPa
- A robust flat floor
- Isolation distance (See 5. Installation diagram)
 - 200mm or more from the indicator light on the back of the unit
 - 150mm or more from the side of the unit

✘Environments/locations where the unit shall not be used

- Places where difference in temperature largely.
- Places exposed to direct sunlight
- Places where water drops splash (Non-waterproof structure)
- Places with a lot of dust
- Sloped places
- Places where substances such as explosive, flammable, and corrosive gases are scattered

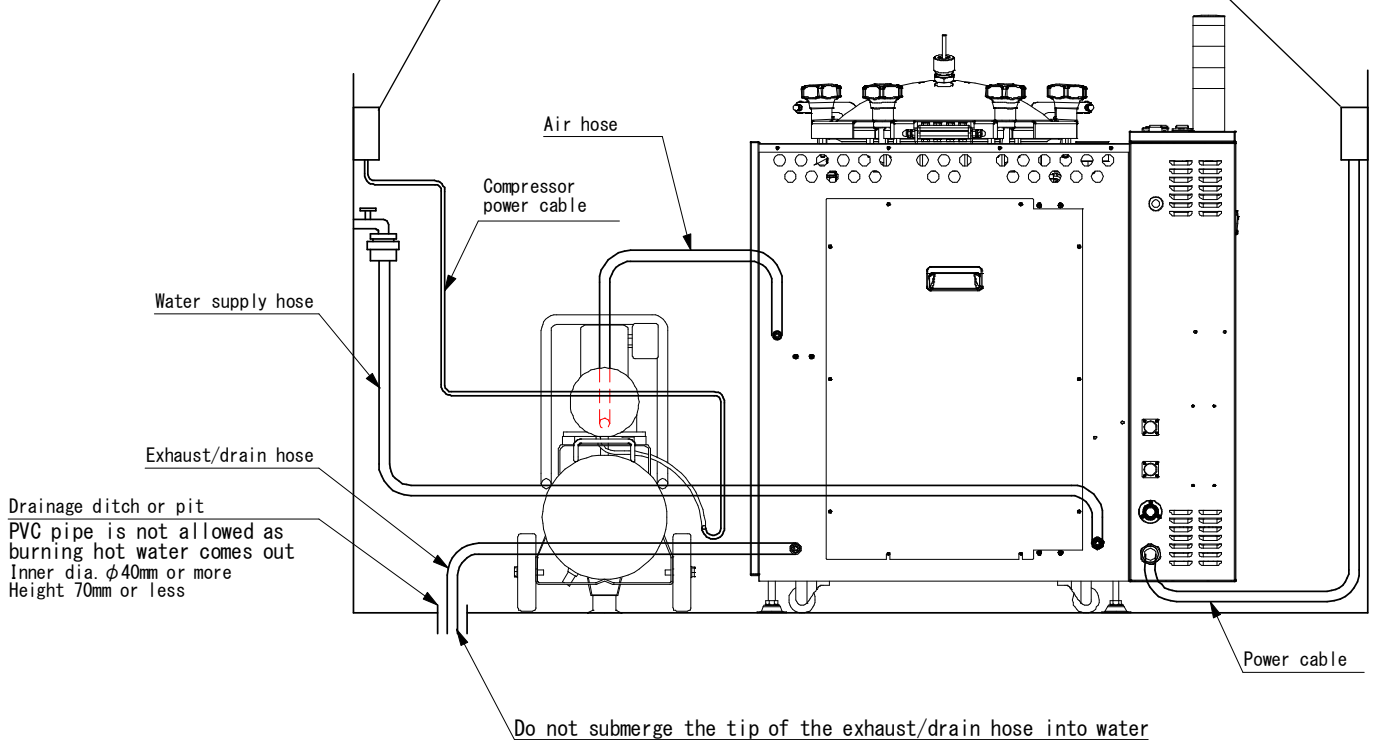
5. Installation diagram

5.1 Standard version

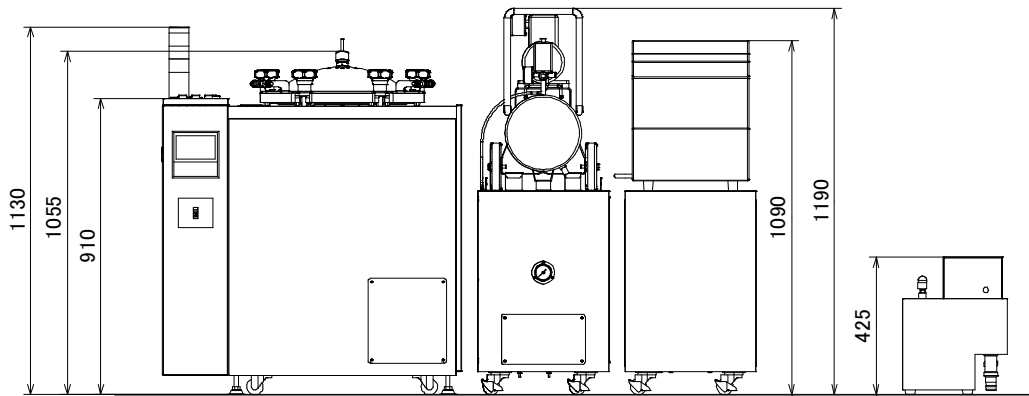
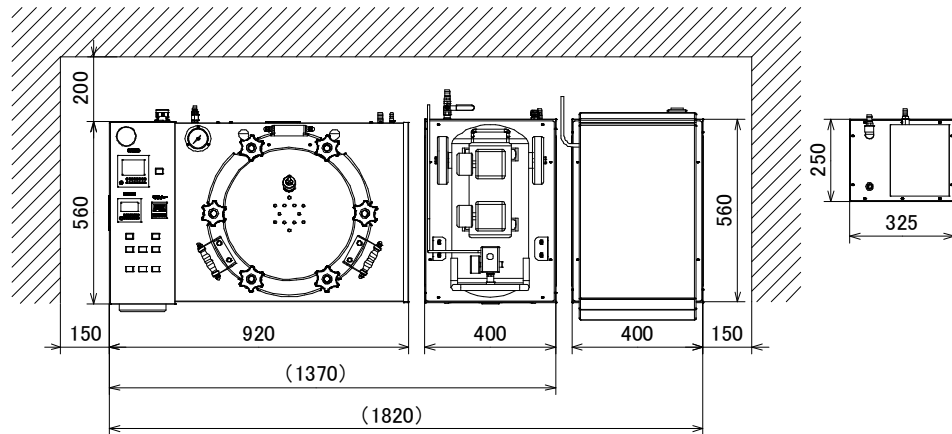


AC220-230V, Single phase, 10A or higher, Power supply box

AC220-230V, Single phase, 30A or higher, Power supply box

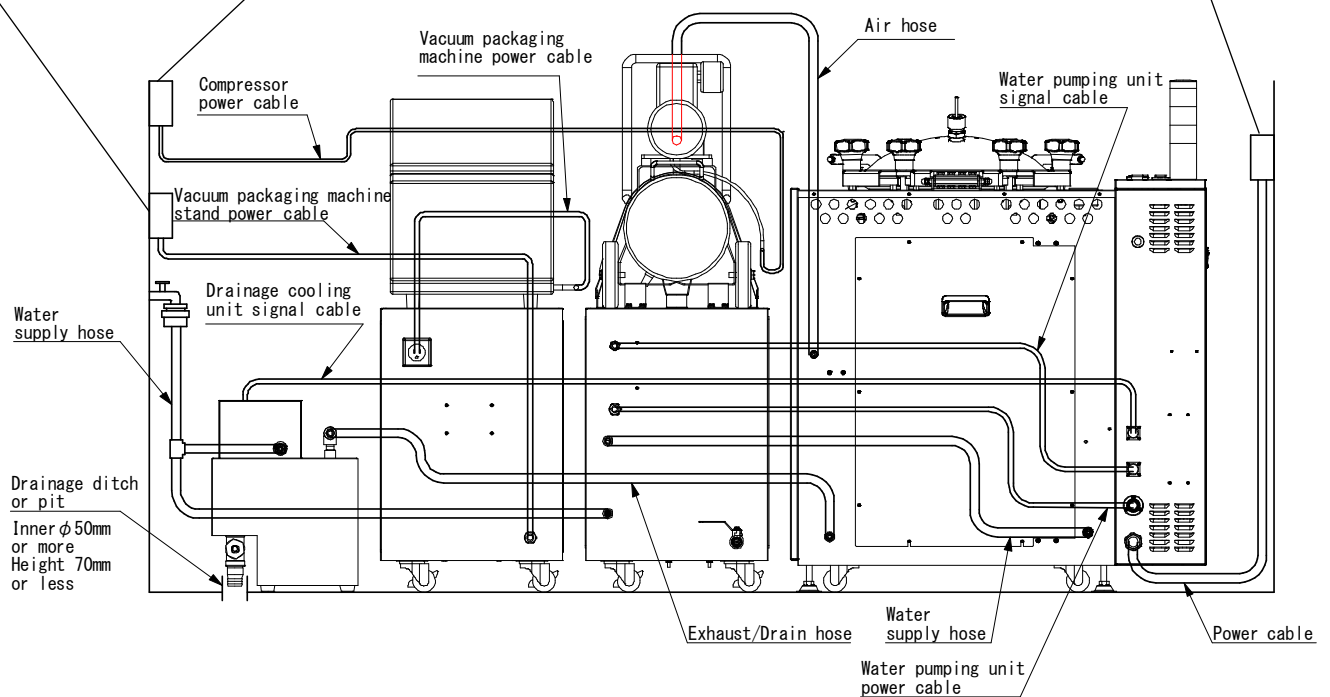


5.2 Fully-equipped specification



AC220-230V, Single phase, 10A or higher,
Power supply box

AC220-230V, Single phase, 30A or higher,
Power supply box



6. Exterior/External dimensions/Weight

Stainless steel plate, Melamine resin baking finish

W920×D560×H1130mm 115kg (excluding the compressor)

7. Standard accessories

- 1) 1 pc. x Base plate
- 2) 1 pc. x Drain receiver
- 3) 1 pc. each of Water supply hose, Exhaust/drain hose, Air hose, 5m
- 4) 1 pc. x USB memory (for the operation data save)
- 5) 1 set x Sensor fitting for the retort pouch
- 6) 1 pc. x Silicon rubber plug for sensor inlet

8. Main specifications

8.1 Chamber dimensions : ϕ 400 × 650mm (96L)

8.2 Chamber details

- 6 pcs. x Lid lock handles, Lid with silicone gasket
- 2 pcs. x Internal heating element: In total AC230V 5.82kW
- 2 pcs. of the cooling shower nozzle installed in the inside of the chamber wall.

8.3 Voltage & Current

Main unit : AC220/230V, Single phase, 26/27A

Compressor : AC220V/230V, 1 ϕ , 5A

8.4 Maximum pressure : 0.170Mpa

8.5 Setting pressure range : 0.030~0.170MPa

8.6 Setting temperature range : 60.0~121.0°C

8.7 Setting time range : 0 min. 1 sec.-99 min. 59 sec.

8.8 Compressor control

- Pressure controller and sensor

Pressurized by compressor till set pressure then keep pressure.

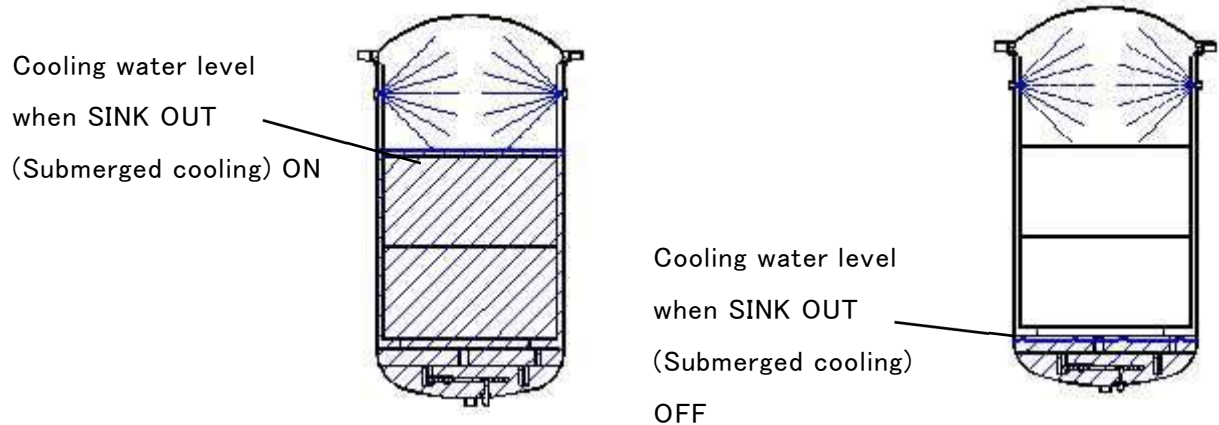
8.9 Cooling control

At the cooling process after sterilization, water supplied from water tap is splashed from inside of the chamber keeping set pressure which makes rapid cooling.

● Setting cooling time range : 0 min. 0 sec. -99 min. 59 sec.

● Cooling method : SINK OUT ON/OFF selectable

※Insufficient water pressure (under 0.250MPa) requires to use the optional equipment "Water pumping unit" (See 9.1① for the details).



8.10 Equipments for F-value operation

Mount following equipment for recording temperature, F-value and pressure

① Recorder (See 2.1 Part No.5)

To record chamber temperature, temperature and F-value of the sample, and chamber pressure.

- Check and management of samples on PC is enable by the data saved to USB memory.
- Start and stop to record automatically corresponding to the unit starts.
- F-value which is the sterilization strength of retort food can be calculated, recorded and managed.

Also F-value operation which units complete operation when unit reaches target F-value is available.



② Item temperature sensor (1pc.)

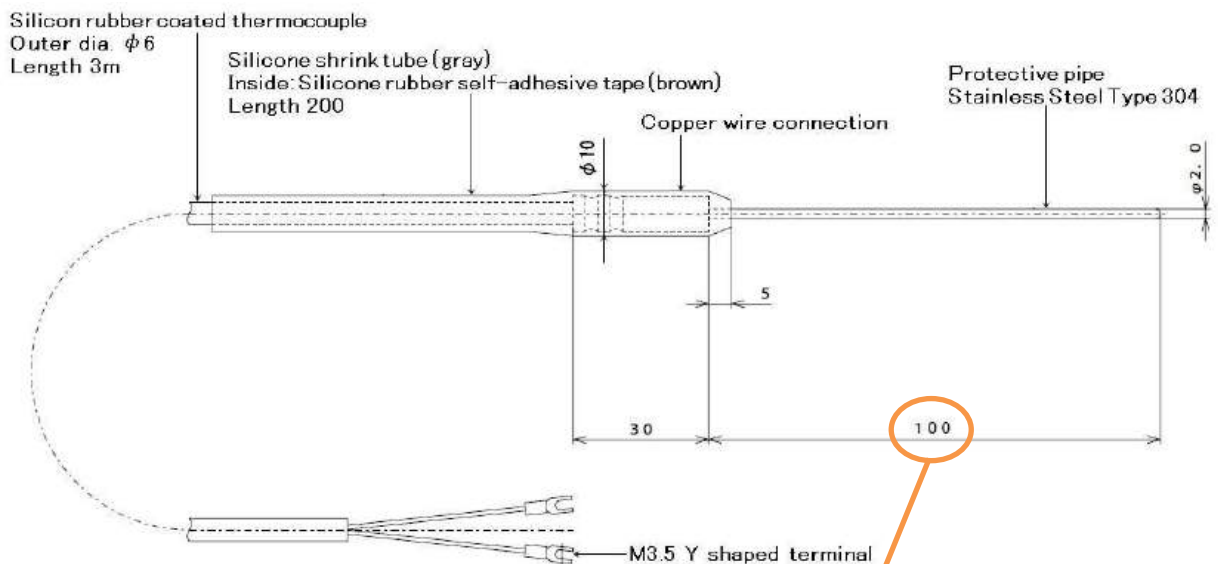
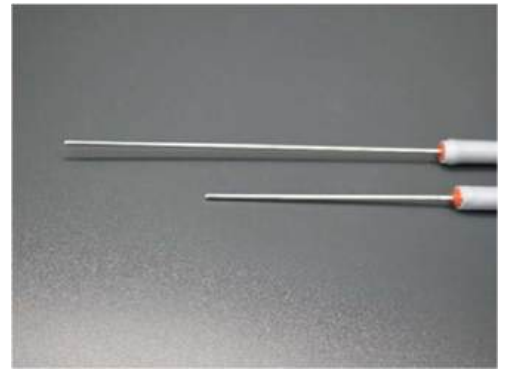
Type : T thermocouple, Class2

Insert to the chamber through sensor fittings (2.1 Part No.22) on the lid then put its protective pipe into the center part of the sample to measure the temperature.

You can specify the protective pipe length either 100 or 150 mm.

Attention;

T thermocouple is easy to be bent, broke and/or damaged. Therefore, need attention to handle it.



Item temperature sensor
Type T thermocouple: You can specify the protective pipe length either 100 or 150 mm.

9. Options

9.1

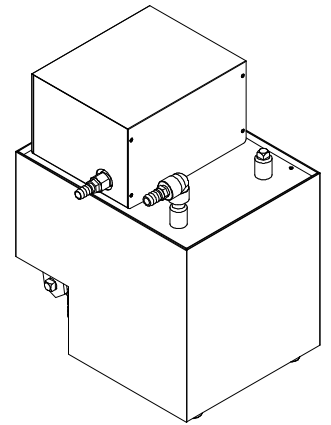
① Water pumping unit (See 3. 2)

Use it necessarily if water with pressure 0.25MPa or less (Lower water pressure than that result in the water not coming out from the shower nozzle during the cooling process, causing not cooling the items). Connect the unit to a water source to store water into the built-in tank. The compressor can be placed on the top results in a space saving.



② Drainage cooling unit (See 3. 3)

Use it if there is no heat-resistant drainage facility. Hot water discharged from this unit can be cool and drained to a non-heat-resistant drainage facility such as a Polyvinyl chloride (PVC) pipe.



③ Specification without compressor

If you already have air piping in the factory and you can connect air piping to the unit directly. You can order without compressor. This case, at least 0.3MPa of air pressure is required constantly.

④ Specification without recorder, item temperature sensor

If you already have recording device such as data logger which can measure F-value and temperature, or you don't need to record temperature for the operation (ex. in case unit is used for other than food market), you can order without recorder nor item temperature sensor.

9.2 Other options (Can be ordered additionally)

- ① Sensor fittings and holder for retort pouch (8.10②, 1 pc. per 1 sensor)

Use it to measure the temperature of the sample inside a retort pouch



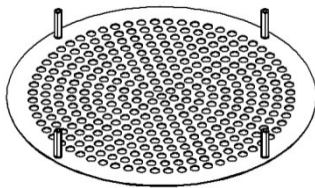
- ② Sensor fittings for can

Use it to measure the temperature of the sample inside a can.

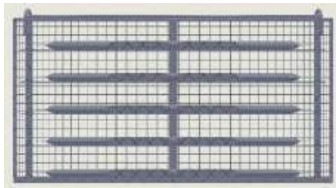


③ Wire basket + tray

Use them by stacking the trays in the wire basket so that the retort pouches are placed horizontally. Use them if you want to be committed to fine appearance as the horizontal placement is not less likely to wrinkle.



Tray



Up to five (5) pieces of the trays can be placed per one (1) piece of the wire basket. 3 baskets can be loaded in chamber.

④ Wire basket + partition

Place partition in the wire basket so that as many retort pouches as possible can be placed vertically.



Used for 4 tiers in the chamber: 4pcs. X ϕ 380×150mm
4 baskets can be loaded in chamber

Used for 3 tiers in the chamber: 3pcs. X ϕ 380×200mm
3 baskets can be loaded in chamber

- ⑤ Wire basket for can and bottle (without tray and partition)
- φ380×150mm, 3 baskets can be loaded in chamber
 - φ380×200mm, 2 baskets can be loaded in chamber



10. Safety device and alarm

● Safety valve

A mechanical safety valve which is independent from the electric circuit spouts out at the prescribed setting 0.20MPa to prevent the pressure from rising any further.

● Earth leakage breaker

It shared with overload and short circuit protection, Rated current 30A, Sensitive current 30mA. In the event of an electric leakage or overcurrent, the main power supply is shut off.

● Water lack alarm

In the event that the water level in the chamber falls below the prescribed level, the WARNING lights up in red with beep and the heater circuit is shut off.

● Over pressure alarm

In the event that the chamber pressure reaches the prescribed pressure 0.19MPa, the WARNING lights up in red with beep and the heater circuit is shut off.

● Abnormal water supply

At the water supply after operation start, in the event that water supply does not complete within setting time, the WARNING lights up in red with beep and the heater circuit is shut off.

- Alarm of full of water at during operation
In the event that water supply does not stop and become full of water in chamber, the WARNING lights up in red with beep and the heater circuit is shut off.
- Alarm of shortage of water during primary heating process.
At the primary heating process after water supply, in the event that shortage of water during primary heating process, the WARNING lights up in red with beep and the heater circuit is shut off.
- Alarm of lid open during operation
In the event that the lid is not tightly closed, the WARNING lights up in red with beep and the heater circuit is shut off.
- Abnormality of control sensor
In the event that control sensor is broken (or disconnection), temperature display on the temperature controller shown 「----」 then the heater circuit is shut off.
- Abnormality of pressure sensor
In the event that pressure sensor is broken (or disconnection), pressure display on the pressure controller shown 「----」 then the heater circuit is shut off.