

Advanced Retort Clave Model RK-3030

Specification sheet



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TOKYO JAPAN

This specification sheet describes the ALP Advanced Retort Clave Model RK-3030 for Research & Development and/or pilot production which sterilizes foodstuffs or others sealed in a retort pouch, steel can, glass jar, etc. under high temperature and pressure, and then cools while maintaining pressure.

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

1. Main features

- Sterilizes various sealed containers such as a retort pouch, steel can, etc.
The included compressor pressurizes the chamber inside to a pre-set pressure during rising the temperature until a pre-set sterilization temperature so that preventing the samples inside inflation from deforming and bursting.
- You can select and save three kinds of operation pattern depending on the samples and also change the selected pattern with the Pt buttons. Not only for foods or other samples, but also it can be used for packaged materials themselves for an evaluation test.
- Equipped with a multi-stage pressure control
Samples potentially wrinkle and deform when heating to a pre-set pressure of a pre-set sterilization temperature at once or dropping the temperature during cooling at once. For preventing that, each pressure at each temperature can be set.
- Equipped with a hot water sterilization mode
Equipped with a hot water sterilization mode where the chamber inside is filled with hot water making the samples impregnated so that the samples get temperature uniformity.
- Equipped with a cooling shower
From the shower nozzles located on the chamber wall and chamber lid back, spraying warm water coming from the tank into the chamber inside to the samples while pressurizing and holding pressure so that a mild cooling realizes. This function can suppress wrinkles and deformation of the sample due to rapid cooling.
- Maximum temperature 140 degree Celsius
A wide temperature range provides superiority in durability testing of packages.

2. Main specifications

2.1 Sterilization temperature range: 80–140°C

2.2 Maximum pressure: 0.34MPa

2.3 Chamber inside dimensions: $\phi 300 \times 450$ mm (38 litres)

2.4 Chamber

- Stainless Steel 304, including 4 pcs. \times Lid lock handles, Silicon rubber lid gasket

- Heating element with 3kW+3kW for steam (for hot water sterilization)

- Cooling shower: 1 pc. \times shower nozzle located on the chamber lid back
2pcs. \times shower nozzle located on the chamber wall

As an option, a “Monitoring window” made of high-pressure glass with lighting can be arranged on the chamber.

2.5 Temperature/Time control

- Programmable controller

Setting sterilization/pre-heating temperature and time.

Setting temperature range: 40–90°C (Pre-heating)

80–140°C (Sterilization)

Setting time range: 0–5 hours 00 minutes

Outputting the control temperature to the recorder (2.8 ①) to record it.

- Control sensor (for the chamber temperature)

A sensor connecting the programmable controller to control the temperature.

Platinum resistance temperature detector (Pt100, Class B)

2.6 Pressure control

- Pressure controller

Setting the upper and lower limits of the chamber pressure in each process to control them within each limit.

Setting pressure range: Upper limit 0.030–0.340MPa

Lower limit Deducting 0.020MPa from the upper limit (Autofill)

- Pressure sensor

A sensor connecting the pressure controller to control the pressure.

Outputting the control pressure to the recorder (2.8 ①) to record it.

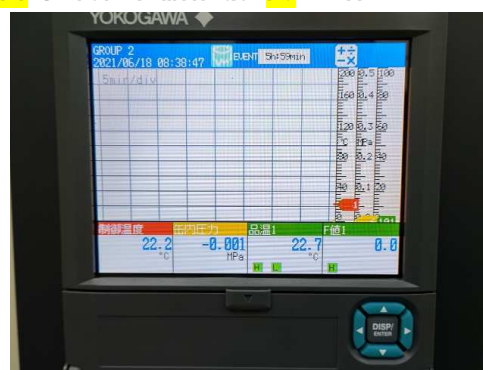
2.7 Port seal fittings for passing the item (sample) temperature sensor through the chamber lid.

2.8 Measuring instruments for a F-value

① Recorder

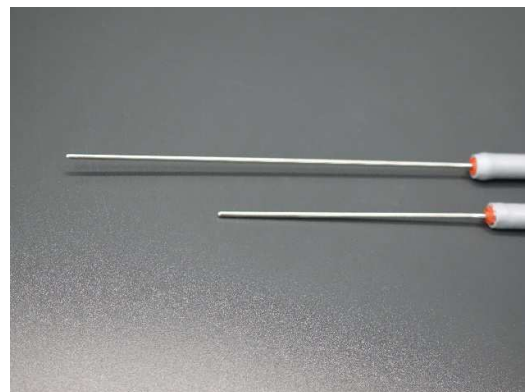
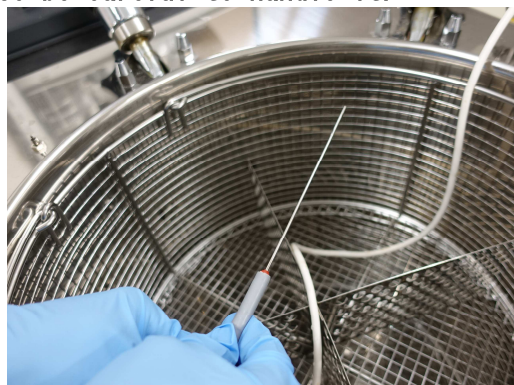
Records the chamber temperature (2.5), item (sample) temperature, F-value (2.8 ②), and chamber pressure (2.6).

- Each measured data can be retrieved with a USB memory to verify and monitor the data on a PC.
- Automatically starts/stops to record linked with the main unit operation.
- A F-value is a numerical value of sterilization strength of packed foods, which is a value obtained by converting the heating time required to kill a certain number of bacterium at a certain temperature into the sterilization strength, defines 121.1°C for 1 min as $F_0 = 1$.



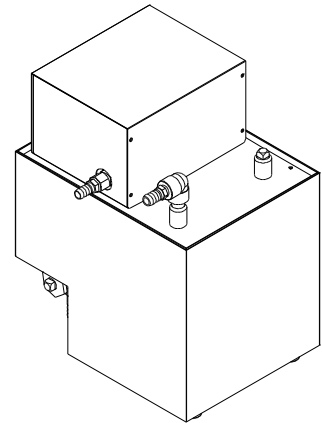
② Item (Sample) temperature sensor - Type T thermocouple

The sensor with cable has been passed through the port seal fittings on the chamber lid as standard. The tip of the sensor probe measures the core temperature of the **foodstuffs** sealed in packages such as a retort pouch etc. You can select the length of the probe from among either 100 or 150mm when ordering. **The sensor probe** is easily broken due to bent and/or shocks so be careful to handle it.



2.9 Drainage cooling unit

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



2.10 Other accessories (Additional purchase available)

① Sensor fittings and holder for retort pouch (2.8 ②, 1 set per 1 sensor as standard accessory)

Dedicated fittings with a holder, used to measure the temperature of the item (sample) inside a retort pouch



② Sensor fittings for can (Option)

Dedicated fittings, used to measure the temperature of the item (sample) inside a can



③ Wire basket for retort pouches, steel cans, and glass jars/bottles (Option)

2 pcs. × Wire basket ϕ 270 × 200mm 1 pc. × Wire basket ϕ 270 × 400mm



④ Cross partition for retort pouch vertical placement (Option)

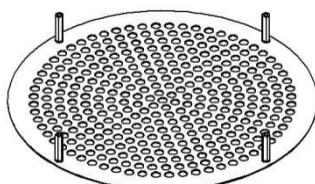
Though retort pouches are easily to wrinkle, more quantities of retort pouches to be placed into the wire basket.



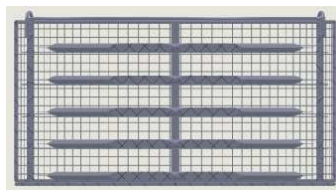
1-partition can be put into 1-wire basket ϕ 270 × 200mm

⑤ Trays for retort pouch horizontal placement (Option)

Though less quantities of retort pouches to be placed, they are not easy to wrinkle. Place the trays on the wire basket.



Tray



5-trays can be put into 1-wire basket ϕ 270 × 200mm

2.11 Automatic water supply: Automatically supplies the stipulated water volume into the chamber (A water tap required).

2.12 Pressurizing: Compressor (Standard equipment/Separate placement)

Without compressor available (An air source of 0.5MPa or higher is required.)

2.13 Rated voltage - current: AC220/230V, Single phase, 33/35A

2.14 Safety devices

- Water lack protection device

In the event that the water level in the chamber falls below the prescribed level during operation, it activates with "WATER LACK" lighting up with beep to shut off the heater.

- Pressure safety switch

In the event that the chamber pressure reaches the prescribed pressure 0.36 MPa, it activates with "OVER PRESS" lighting up with beep and shut Off the heater, compressor, and pump.

- Safety valve

Independently from the electrical circuit operating mechanically to release the chamber pressure by opening the valve when reaching the prescribed pressure 0.37MPa from the chamber in order to prevent the chamber pressure from rising more.

- Counterbalance lid hinge

Prevents your fingers from getting caught.

2.15 Electrically safety

- Electrical isolation: 100M Ω or higher (500V DC)

- Earth leakage breaker shared with protection of overload and short circuit:
Rated current 40A, Current sensitivity 30mA

3. Utility

3.1 Required power supply: AC220–230V, Single phase, 40A or higher

3.2 Water supply: Water tap (Water volume 7 litres/min required) One-touch joint

3.3 Drainage: A heat-resistant facility required (Polyvinyl chloride made piping not allowed) Lead the drain hose into a drainage ditch/pit positioned 100mm height or less from the floor level.
Drainage through polyvinyl chloride made piping (Non heat resistant pipe) require to use optional equipment "Drainage cooling unit" (See 2.9).

4. Installation environment/location

- Ambient temperature 5–35°C, Relative humidity 30–85%, and not exposed to direct sunlight.
- Robust flat floor placement, keep 300 mm or more on the back of this unit and 150 mm or more on the side of that from a wall and another equipment.

*Installation environment/location where not allowed

- Where a high humidity and water or cleaning agent scatter (Non-waterproof)
- Where explosive materials, flammable materials, or corrosive gas scatter.
- Where an outdoor or large temperature difference.

5. Exterior/External dimensions/Weight

Stainless steel plate, Melamine resin baking finish

W1050 × D470 × H1000mm, 134kg (excluding the compressor)

6. Standard accessories

6.1 Compressor

6.2 Base plate

6.3 Spacer

6.4 Water supply hose, Exhaust hose, Drain hose, Air hose

6.5 Sensor fittings and holder for retort pouch

6.6 Drain receiver

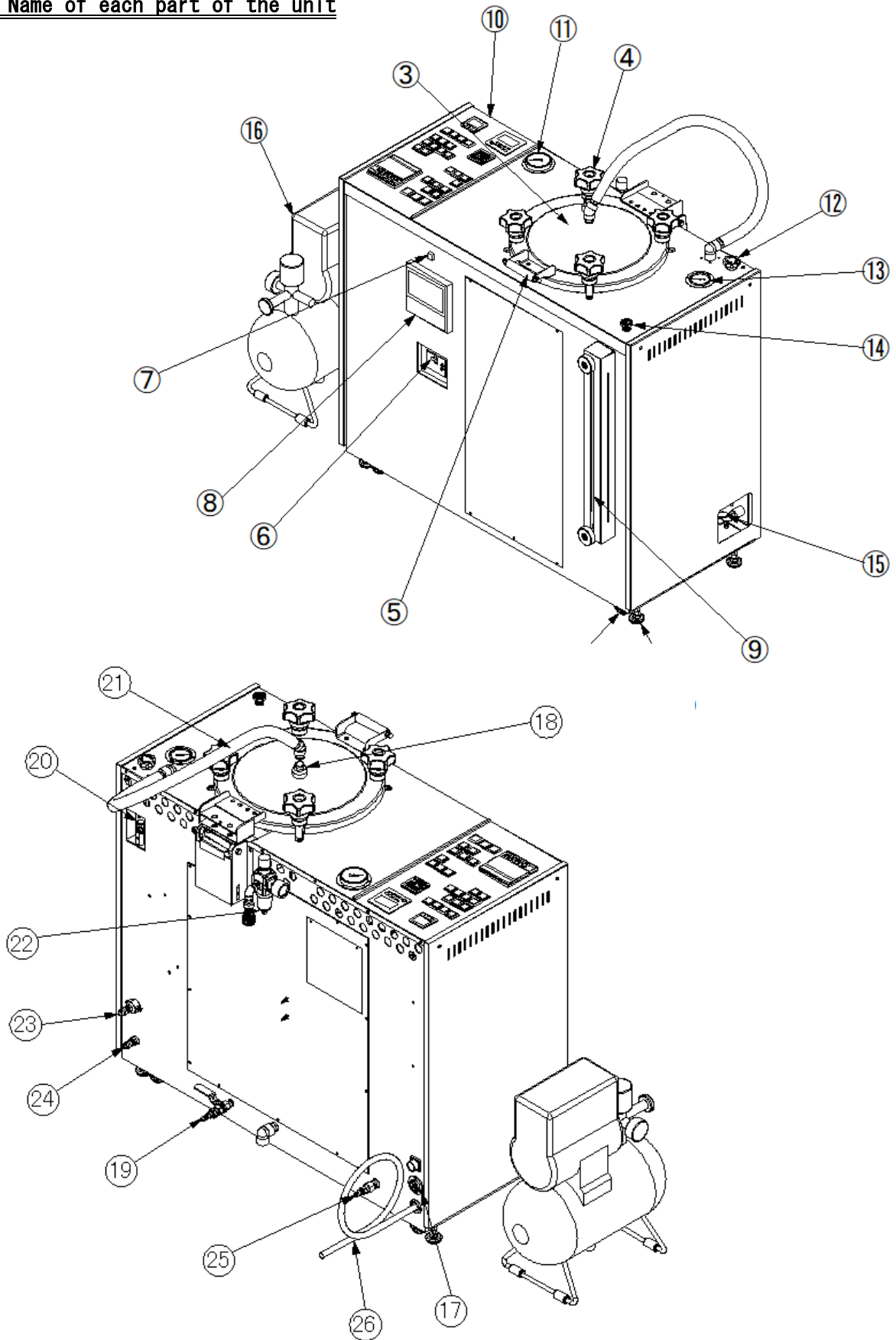
6.7 USB Memory

*Wire basket (2.10 ③) must be purchased separately depending on desired packages.

7. Documents come with the unit

- Instruction manual
- Certificate of Quality
- Yearly Periodic Self-Inspection check list for ALP retort autoclaves

8. Name of each part of the unit

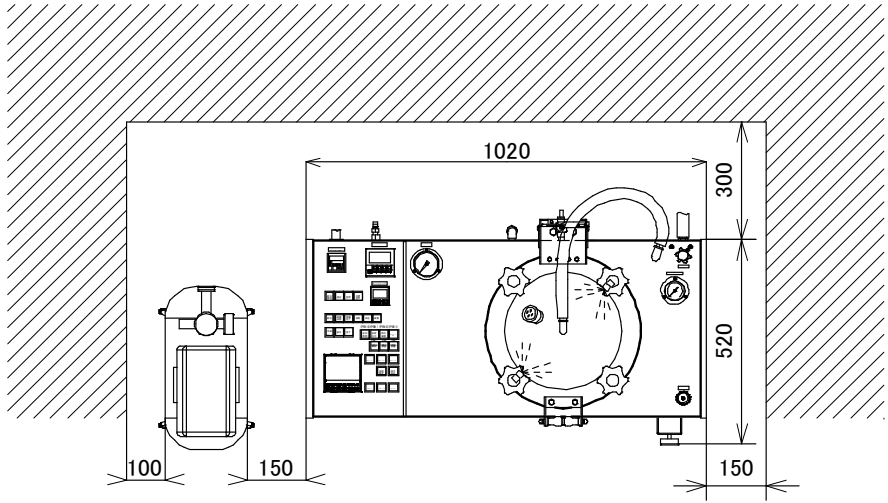


No.	Part name	No.	Part name
1	Caster	14	Manual exhaust valve
2	Adjuster	15	Drain amount adjusting valve
3	Lid	16	Compressor
4	Lid lock handle	17	Compressor power connector
5	Lid handle	18	Sensor insertion port
6	Power switch	19	Cooling water tank drain port
7	Power light	20	Safety valve
8	Recorder	21	Cooling shower hose
9	Water level gauge	22	Air supply port
10	Operation panel	23	Exhaust port
11	Pressure gauge	24	Drain port
12	Drain valve	25	Water supply port
13	Cooling shower pressure gauge	26	Power cable

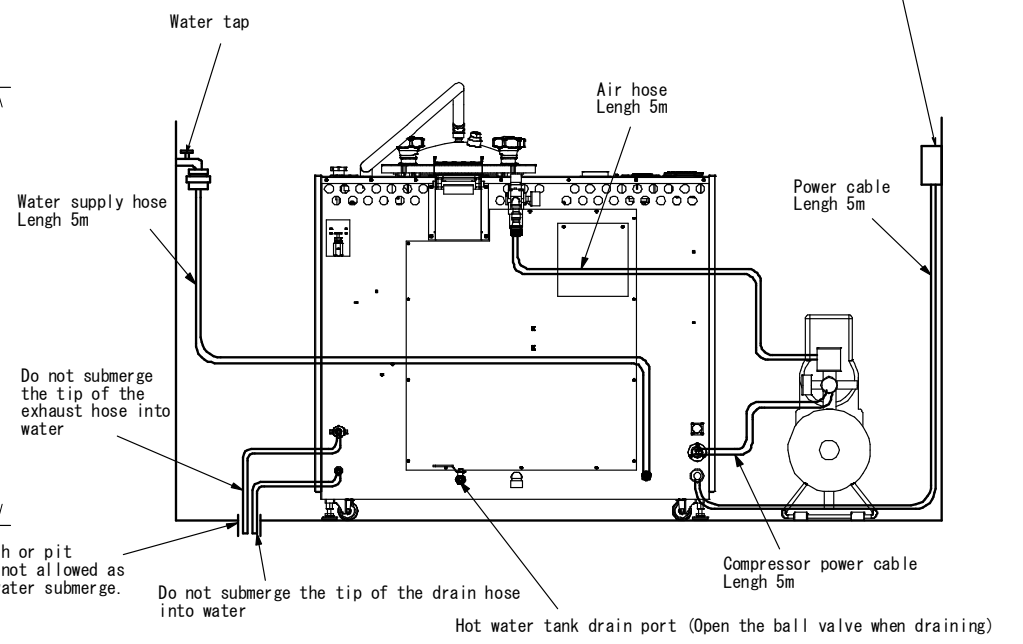
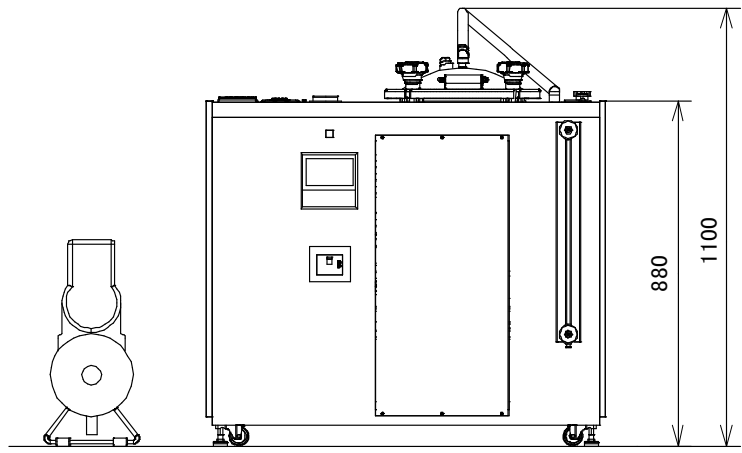
RK-3030 Installation diagram

9. Installation diagram

1. Keep 300 mm or more the surroundings of the back of this unit and 150 mm or more the surroundings of the side of it from a wall etc. (see the Installation diagram) Secure that the front is wide enough so that it does not interfere with your work.
2. Install the power supply box, water tap, drainage ditch (drainage pit), etc. within the reach of the power cable and hose.



Power supply box
AC220-230V Single phase 40A or more



11/11

Oct., 2022