



“Sturdy” Autoclave Sterilizer

SA-232V

Instruction Manual

















Please read manual carefully before using and keep it well.














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1. Important Safety Instructions

-  **CAUTION:** Please install, operate and maintain the sterilizer in accordance with this Instruction Manual. Failure to do so could result in serious injury or damage to the unit.
-  **WARNING:** The outer casing and metal surfaces of the sterilizer will be hot during operation, please do not touch it.
-  **WARNING:** Steam and hot water will be present when opening the door after a sterilizer cycle. Avoid contact.
-  **WARNING:** DO NOT place alcohol or other flammable items in the sterilizer. An explosion could occur, causing personal injury.
-  **WARNING:** DO NOT place any objects on the top of the sterilizer.
-  **WARNING:** It will require at least two (2) or more people to carry the sterilizer to avoid dropping it off by mistake.
-  **WARNING:** Always check the pressure gauge before opening the door. DO NOT attempt to open the door if the pressure is not at zero (0).
-  **WARNING:** Use only distilled water. Normal tap water contains minerals, especially chlorides, which have corrosive effects on stainless steel. Failure to use distilled water will invalidate the warranty.
-  **WARNING:** Always allow a minimum of 20 minutes between each sterilization cycle.
-  **WARNING:** Use sterilization indicator test strips to check that sterilization has been successful.
-  **WARNING:** Failure to follow the Maintenance Instructions will adversely affect performance and lifespan of the sterilizer, and may invalidate the warranty.
-  **WARNING:** Always keep the sterilizer clean.
-  **WARNING:** In an emergency, or before carrying out any maintenance, always disconnect the power cord from the outlet.
-  **WARNING:** A separate (dedicated) circuit is recommended for the sterilizer. The sterilizer should not be connected to an electrical circuit with other appliances or equipment.
-  **WARNING:** Please unplug the power cord if the sterilizer will not be used regularly.
-  **WARNING:** Always check the status of the electric wire; unplug the power cord if breakage comes up. Contact your supplier for service support.

2. Explanation of Safety Symbols and Notes

	Caution, consult instruction manual for use
	Protective earth (ground)
	Alternating Current
	Attention! Hot surface
	Disposal of Electrical & Electronic Equipment (WEEE): This product should be handed over to an applicable collection point for the recycling of electrical and electronic equipment. For more detailed information about the recycling of this product, please contact your local city office, household waste disposal service or the retail store where you purchased this product. (European community only)
	Authorized representative in the European community
	Manufacturer
	Date of manufacture It is a 6-digit number. The first 4 digits represent the year and the last 2 digits represent the month.
	Consult instruction manual for use
	On, connection to the mains
	Off, disconnection from the mains
POWER	Power switch
NOTE	Indicates information that user should pay special attention to.
CAUTION	Indicates correct operating or maintenance procedures in order to prevent damage or destruction of the equipment or other property.
WARNING	Indicates correct operating or maintenance procedures in order to prevent damage or destruction of the equipment or other property.

3. Unpacking



CAUTION: It will require at least two (2) or more people to carry the sterilizer to avoid dropping it off by mistake.

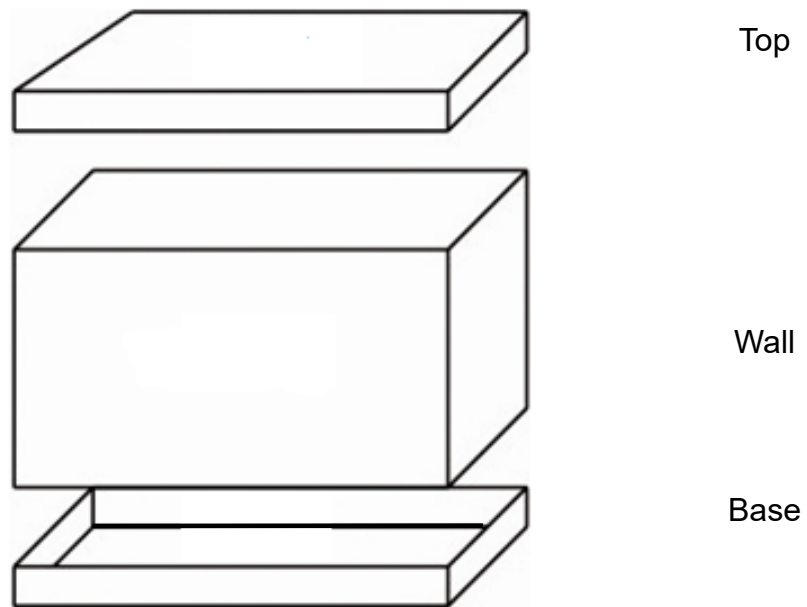


Figure 1

- A Cut the banding
- B Lift off the top cover of the carton
- C Remove the wall and the foam packaging inserts
- D Carefully lift the sterilizer from the packaging base
- E Check all accessories are present as follows (accessories are packed inside the sterilizer chamber):
 - Instruction Manual × 1
 - Heater Cover × 1
 - Basket × 1
 - Water pipe × 1

We recommend that all packaging material is retained for possible re-use.

4. Installation

4.1 Environment

This equipment has been designed for use in accordance with the International EMC (Electromagnetic Compatibility) Standards. In view of different environments, please follow the instructions given below to eliminate interference, if necessary.

- Move the equipment or rotate its direction;
- Enlarge the space between the equipment and other machines;
- Put the plug into other outlets;
- Please consult with the local distributor or qualified electrician.
- Regarding the environmental temperature for installation, please refer to “9. Specifications”.

4.2 Install the sterilizer



CAUTION: Please read and follow “5.2” on Page 8 in order to understand the operation of the sterilizer.



CAUTION: While installation; please make sure that the bearing capacity of installation table is enough to carry the sterilizer. For the weight information of the sterilizer, please refer to “Specifications”.

- A. Position the sterilizer on a stable laboratory bench or work surface, ensuring at least 10 cm clearance between the wall or other pieces of equipment and the sides of the unit for free circulation of air as Figure 2.

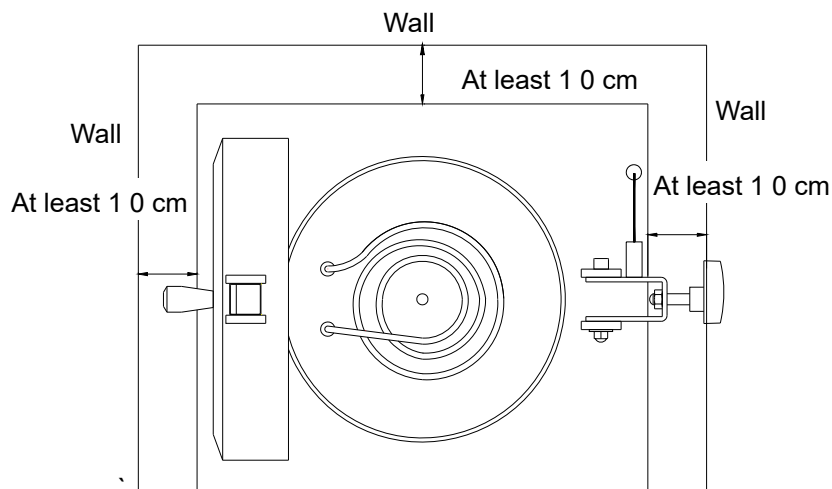


Figure 2



CAUTION: Make sure that the door can be opened freely after installation.



WARNING: Do not install or operate the sterilizer in areas where flammable items or volatile substances are used or stored. An explosion could occur, causing personal injury. An installation site with good air circulation is required.

- B. Heating water is drained from the chamber through this outlet. Connect the exhaust hose to the “Exhaust (C)” as shown in Figure 3 to drain heating water according to the local national law.



CAUTION: Do not obsolete, block, or twist the exhaust house.

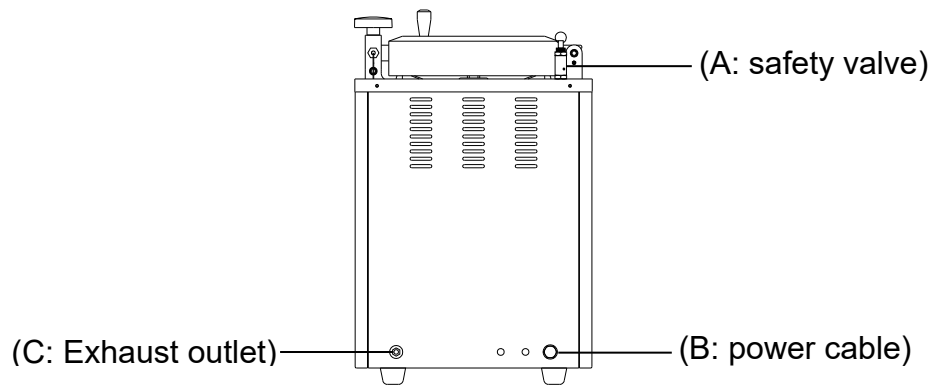


Figure 3

- C. Install the heater cover to the chamber as Figure 4.

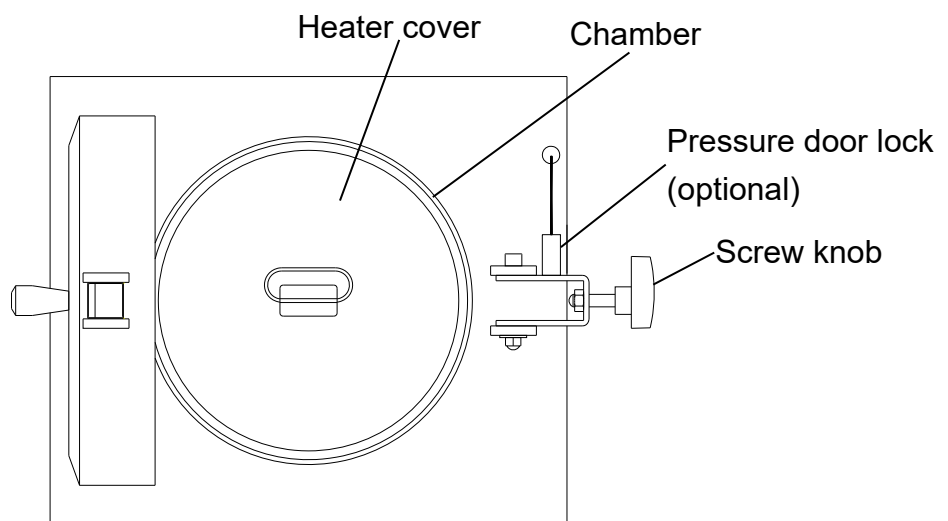


Figure 4

Open the chamber cover; pour distilled water 1200 cc into the chamber as Figure 5.

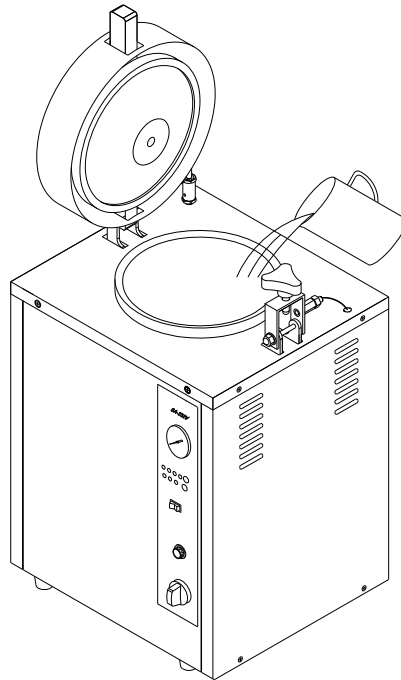


Figure 5

D. Install the Sterilization basket as Figure 6.

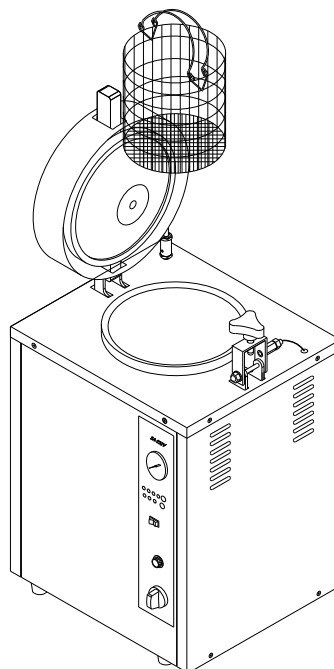


Figure 6

E. Ensure the Power Switch is in OFF “O” position, and then plug the power cord into a separate (dedicated) mains socket.



WARNING: A separate (dedicated) socket is required for the sterilizer. Make sure the socket is earthed and can offer the capacity of 15 A / 230V AC.



WARNING: The plug is one of the measures of emergency cutoff; please make sure that the plug is accessible after installation.

- F. Press the “POWER” switch to ON “I” position, the power indicator light should illuminate with a short beep. The “POWER” indicator light should be on. If the sterilizer does not perform as above-mentioned, please turn off the power and unplug the sterilizer, repeat the steps from 4.2.A to 4.2.F. If the problem still presents, please turn off the power and unplug the sterilizer. Contact the local distributor for help.

5. Introduction

5.1 Intended Use

This product is a tabletop high pressure steam sterilizer which is designed and developed for the sterilization of unwrapped items. It can also perform sterilization of liquid which is not for medical purpose*.

5.2 Description of the Sterilizer

5.2.1 External View

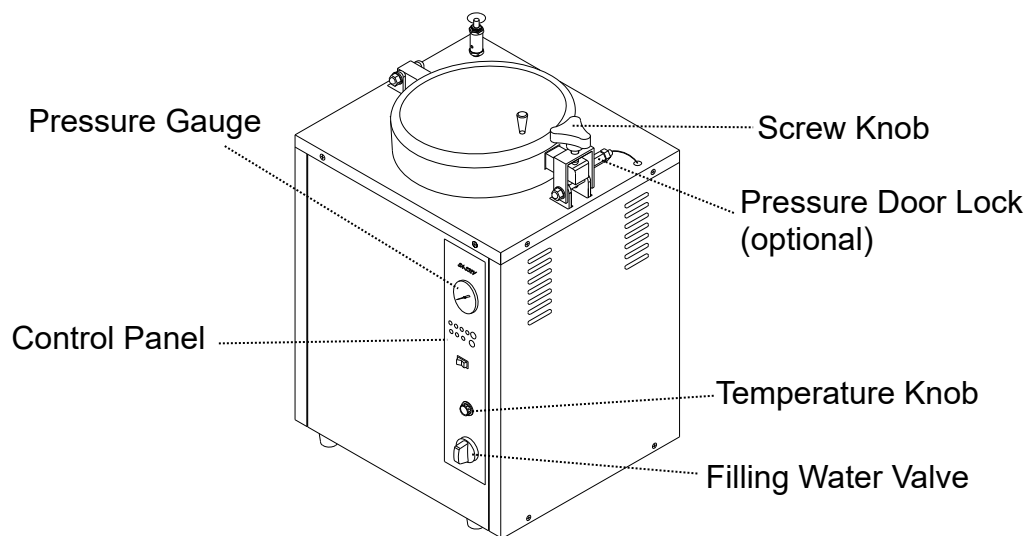


Figure 7

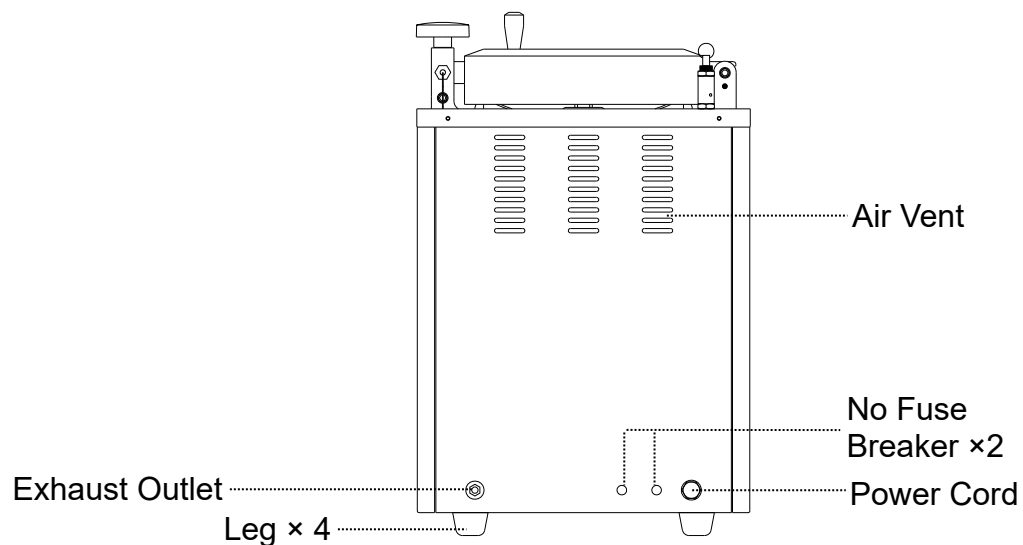


Figure 8

5.2.2 Internal Configuration

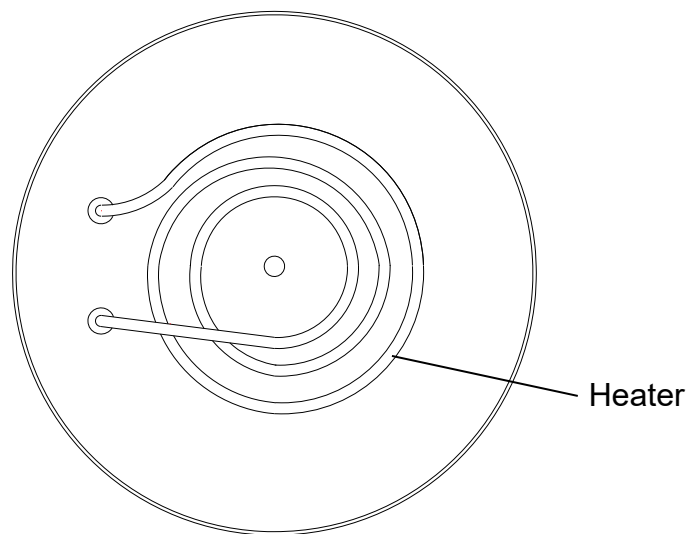


Figure 9

5.2.3 Control Panel

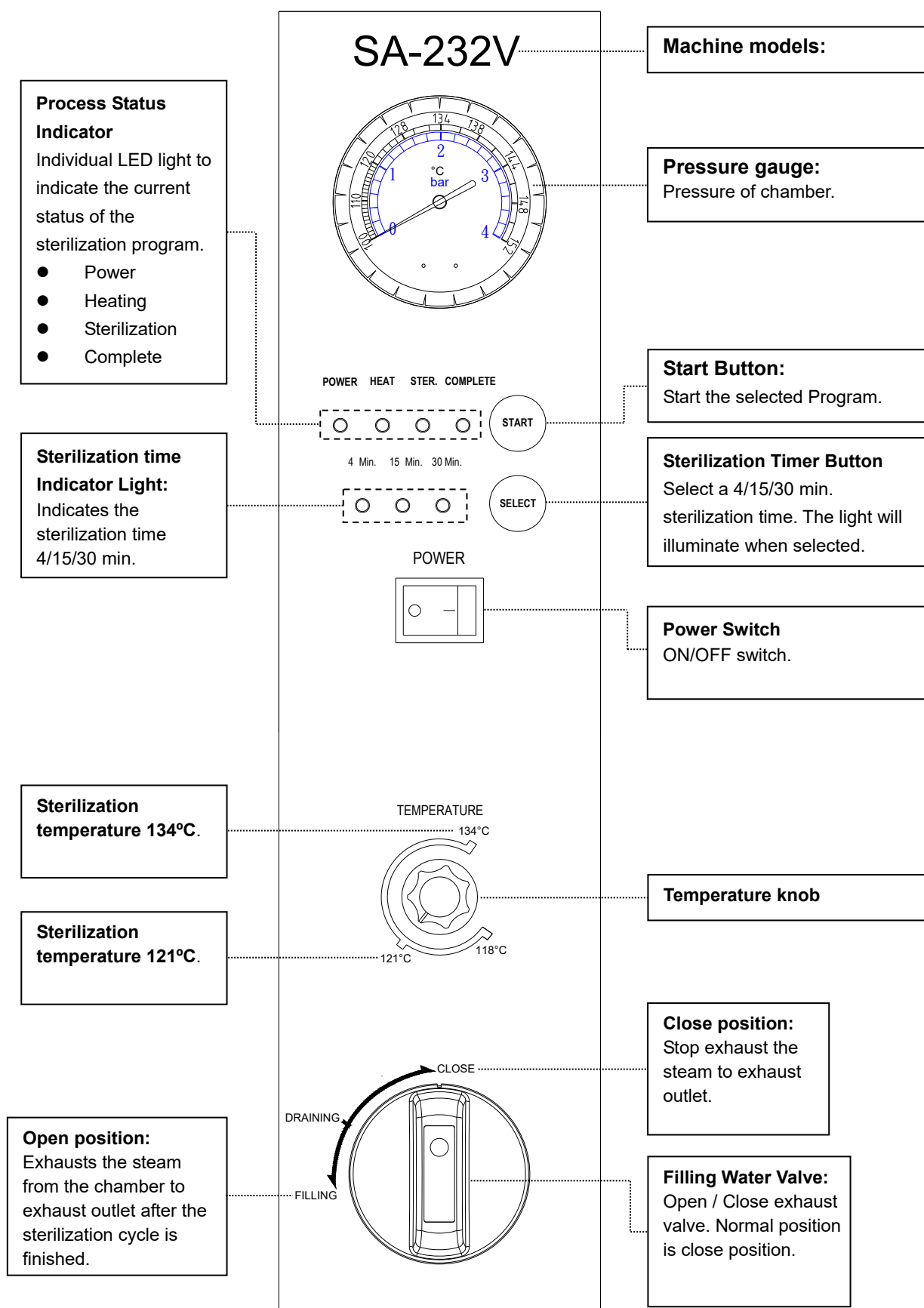
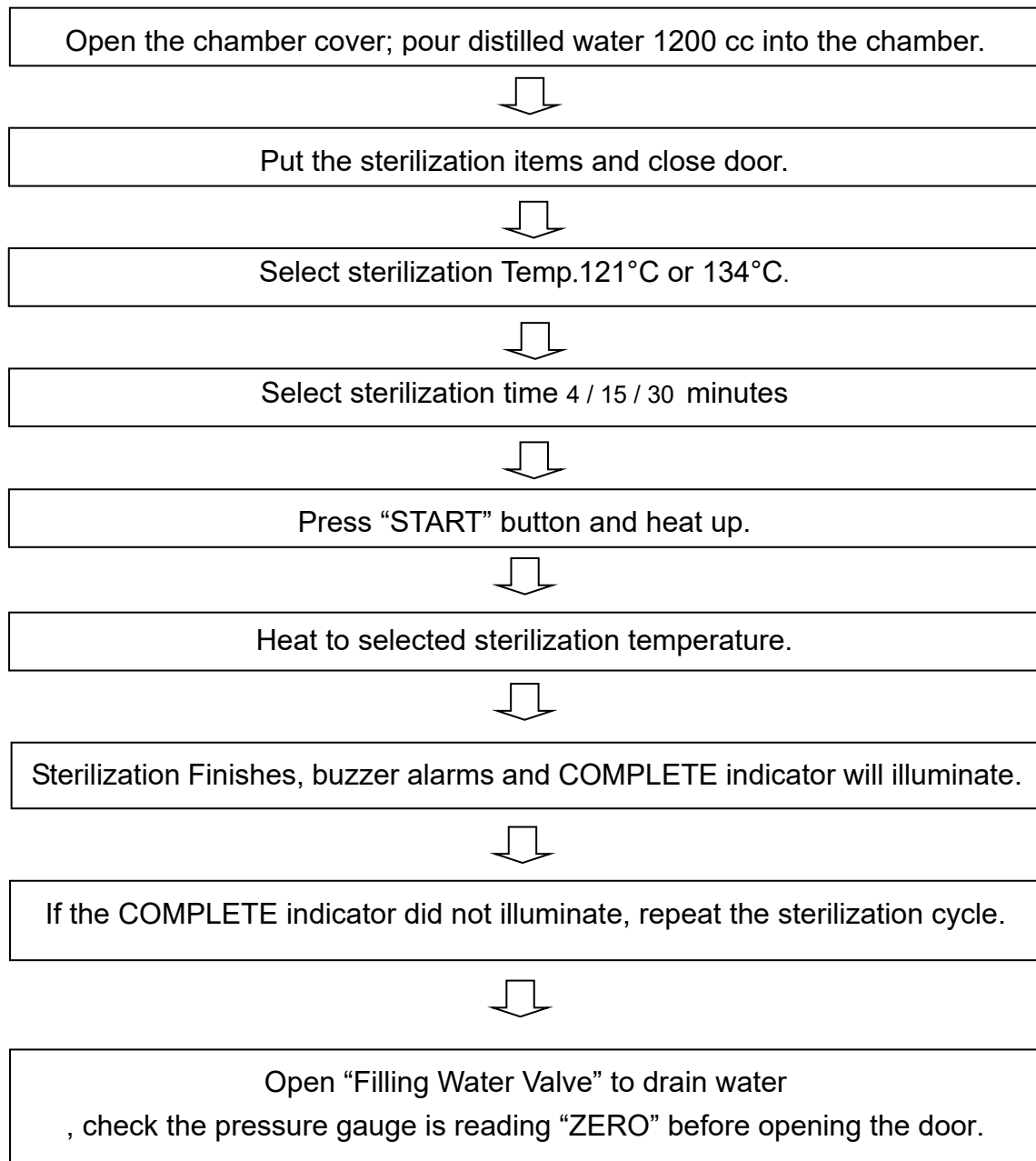


Figure 10

6. Operation

6.1 Operation Overview



6.2 Prepare Sterilization

- A. Follow “4. Installation” on Page 3 to finish installation first.
- B. Check the Pressure Gauge is reading ZERO, and then turn the screw knob to open the door.
- C. Place the items to be sterilized and the sterilization indicator strips into the basket as required as Figure 11.

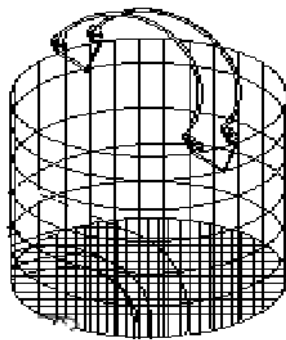


Figure 11



CAUTION: Before loading, ensure instruments are cleaned and rinsed.



WARNING: Refer to “9. Specifications” for the maximum permissible load. Failure to follow these instructions may cause the sterilizer to malfunction and result in an unsuccessful sterilization cycle.

- D. Close the door and turn the screw knob to tight.
- E. Press the “POWER” switch to ON “I” position, the power indicator light should illuminate with a short beep.
- F. How to set the normal program:

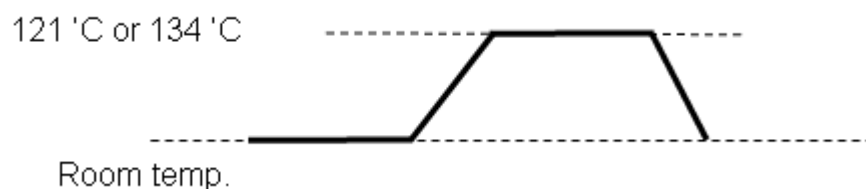


Figure 12



G.1 Turn “STERI TEMP” knob to select 121°C or 134°C



G.2 Press “SELECT” to select sterilization time. The corresponding parameters will be:

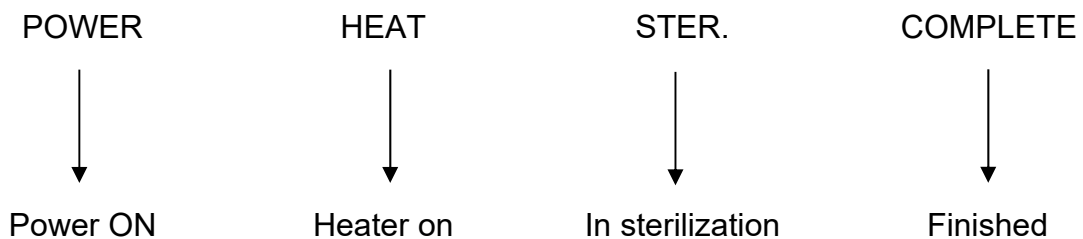
	Sterilization Temperature 121°C about 1.2 bar(kgf/cm ²)	Sterilization Temperature 134°C about 2.1 bar(kgf/cm ²)
Unwrapped	15 Mins	4 Mins
Wrapped	30 Mins	15 Mins
Liquid	30 Mins	NA



CAUTION: After completing liquid sterilization cycle, DO NOT turn the ‘Filling Water Valve” to “OPEN”.



G.3 Press the START Button and the sterilizer will automatically run through the selected program. The current progress of the sterilization cycle is indicated by the illuminated LED on the Process Status Indicator.



ATTENTION: In the STER. stage/step, the HEAT LED flashes intermittently, which means the heater is heating.



Figure 13

On completion, the buzzer will sound (long beep). The program has finished when the buzzer STOPS and the COMPLETE indicator light is illuminated on the Process Status Indicator.



WARNING: If the COMPLETE indicator light was not lit, the cycle has failed and should be re-run.

G.5 Turn “Filling Water Valve” to open position to drain water out of chamber and then turn “Filling Water Valve” to close position when the pressure gauge to zero.

G.6 Open the door and take out the sterilized items. Check the status of the indicators. If failed, repeat the cycle. Consult with the qualified technician for calibration if necessary. Please refer to “8. Troubleshooting”.



WARNING: Check the Pressure Gauge is reading ZERO before opening the door.



WARNING: Beware of steam when opening door after a sterilization cycle.



WARNING: Be careful when removing the sterilized items as the metal surfaces might still be hot. Always wear suitable hand protection to remove the basket



WARNING: If using the sterilizer continuously, it's required to have a 20-minute interval between each sterilization cycle to allow the unit to cool.

6. Maintenance Instructions



WARNING: Before conducting maintenance, please turn off the sterilizer and disconnect from the power supply. Check the sterilizer has cooled down to room temperature.



WARNING: Make sure that pressure gauge is reading ZERO before opening the door.



CAUTION: Before conducting maintenance, confirm that the chamber is empty without loads.

Correct and regular maintenance is required to optimize the performance of the sterilizer. Failure to follow the Maintenance Instructions will adversely affect performance and lifespan of the sterilizer.

7.1 Daily

- Clean the external surfaces with soft cloth.
Note: Use only quaternary disinfectants to clean the units. Use of alcohol cleaner containing substantial of alcohol in the formula may damage the faceplate.
- Wipe the inside of the chamber, door and the gasket with a damp, lint-free cloth.
- Check the status of the power cord. Call for service if breakage comes up.

7.2 Weekly

- Clean the heater cover and basket with detergent, or a non-corrosive stainless steel cleaner and water, using cloth or sponge.

7.3 Monthly

- Clean the chamber and piping system with “CHAM-MATE” following the instructions on the sachet.
- Check the safety valve

Turn off the power and unplug the sterilizer. Use a screw driver to pull the metal ring of the safety valve for approx. 3 seconds; then release. Perform the check 3 times.



WARNING: If excessive force is required to pull the safety valve, it must be replaced. Call for service.

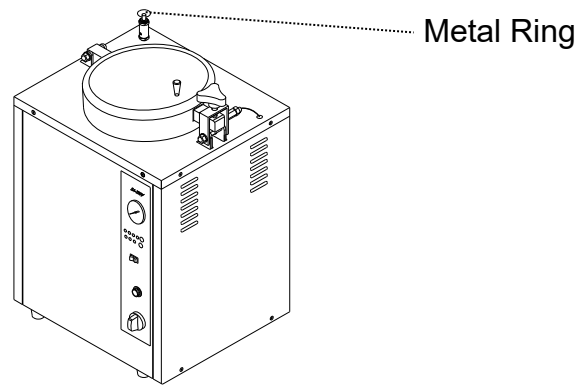


Figure 14

7.4 Annually



CAUTION: An annual maintenance service by a trained engineer is necessary. Contact your distributor for details. The following maintenance instructions are for your reference only.

- Calibrate the temperature during sterilization process. (Use biological indicators to test the validity of sterilization)
- Check if there's any leakage of the piping.
- Check if the Process Status Indicator lights are functioning normally.
- Check the working status of steam trap, safety valve, and heater.
- Check if the silicone door gasket is chapped or worn. Silicone door gaskets are consumable parts, replace the silicone door gasket every year is recommended.

7.4.1 Replace the silicone door gasket:

How to replace the silicone door gasket:

Install the gasket to the door groove following the order of Figure 15, Figure 16.

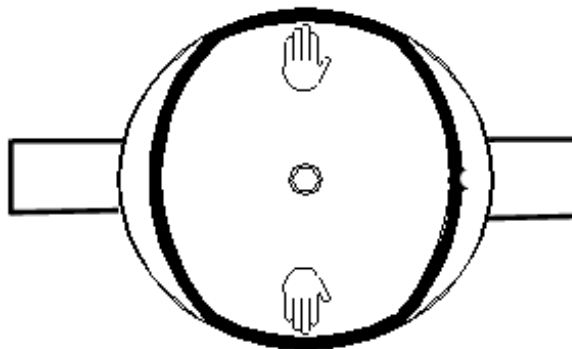


Figure 15

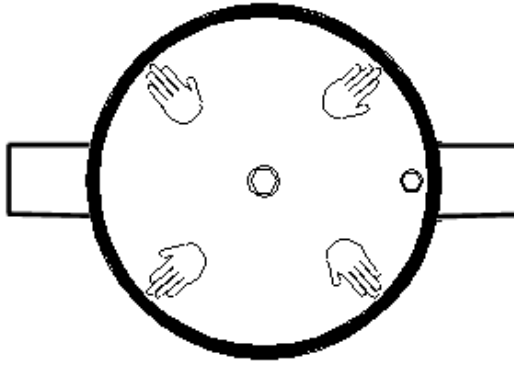


Figure 16



CAUTION: The old gasket should be disposed in accordance with the local laws.

8. Troubleshooting

8.1 Symptoms

Problem	Possible Cause	Solution
Power indicator isn't Illuminated	The main cable is unplugged or the socket switch is off.	Plug in the sterilizer and turn on the socket switch.
	Forget to turn on the switch.	Press the Power switch to ON "I" position.
	No Fuse Breaker tripped.	Wait till the sterilizer cool down the room temperature. Press the buttons of two No Fuse Breakers on rear of unit to reset.
Steam leaks from the door	Dirty or worn silicone door gasket	Clean the silicone door gasket. If the silicone door gasket was used over one (1) year, please follow "7.4 Annually" maintenance to replace it.
Pressure can't up	1. The exhaust valve don't closed complete	1. Turn close complete.
	2. Heater broken.	2. Replace main heater
Excessive force is required to pull the safety valve	1. Do not use the tool.	1. Please use the tool (e.g. screw driver or pliers) to pull the ring.
	2. Faulty safety valve	2. Contact local distributor for service.



CAUTION Contact local distributor for service anytime if encountered other any other problems. Please do not attempt to disassemble the sterilizer by yourself Failure to do so could result in serious injury or damage to the unit.

9. Specifications

Model	SA-232V
Chamber Capacity (L)	16
Maximum Instrument Length (mm)	340
Maximum Load (unpouched) (g)	3000
Maximum Load (pouched) (g)	300
External Dimensions (mm)	398(D) × 382 (W) × 614 (H)
Chamber Size (mm)	230 Diameter × 410 Depth
Gross Weight (kg)	23.5
Voltage/Wattage	230V AC, 50/60Hz 1200W
Fuses	10A × 2, No Fuse (circuit) Breaker
Water Capacity per Cycle (ml)	250
Sterilization Temperature (°C)	121 / 134
Working Environment	<ul style="list-style-type: none"> ● Indoor use; ● Under 1,000m (altitude); ● Temperature 5°C to 40°C; ● Relative Humidity 80%RH@31°C to Relative Humidity 50%RH@40°C; ● Voltage fluctuation ±10 %; ● Transient overvoltages category II); ● (Pollution degree 2)
Transportation Conditions	-10°C to 70°C, 10%RH to 90%RH
Storage Conditions	-10°C to 50°C, 10%RH - 70%RH
Over Pressure Protection	Safety valve 2.55 bar(2.6 kgf/cm²)
Pressure Display	Analog Pressure and Thermo gauge
Function Display	LED
Program Selections	Wrapped/unwrapped
Temperature Selection	121°C/134°C

10. Warranty

WARRANTY

Your “**STURDY**” product has a one (1) year guarantee of defective in materials and workmanship under normal use from the date of purchase.

This warranty does not apply to any product damaged by accident, misuse, abuse, neglect, improper line voltage, drop, fire, flood. Or the products were altered or repaired by anyone other than qualified service personnel.

The liability of Sturdy Industrial Co., Ltd. is limited to repair or replacement and under no circumstances shall “**STURDY**” be liable for any collateral consequential damages or loss. This guarantee specifically excludes the expendables and consumable.

All warranty claims must be directed to the distributors or agents authorized by Sturdy Industrial Co.,Ltd. whom are responsible for the sales of this equipment. The customers are responsible for shipping expense.

User's Name: _____

Address: _____


Country: _____ Tel: _____ Fax: _____

Date of Purchase: _____ Model No.: _____

Series No.: _____

Distributor: _____

Manufacturer: Sturdy Industrial Co.,Ltd. (ISO 13485 Certificated Firm)

Name	Sturdy Autoclave Sterilizer		
Model	SA-232V		
Manufacturer 	Sturdy Industrial Co. Ltd.		
Address	168, Sec. 1, Zhongxing Rd., Wugu District, New Taipei City, 24872, Taiwan		
EC Representative <table border="1" data-bbox="300 1814 395 1859"> <tr> <td>EC</td> <td>REP</td> </tr> </table>	EC	REP	APEX MEDICAL S.L. Elcano 9, 6 ^a planta 48008 Bilbao. Vizcaya SPAIN
EC	REP		

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