



# **“Sturdy” Autoclave Sterilizer**

## **SA-300VLA**

### **Instruction Manual**

Please read manual carefully before using and keep it well.

**CE**<sub>2460</sub>

# **OPERATION INSTRUCTION SA-300VLA**

## **LAB-SERIES**

FULLY AUTOMATIC AUTOCLAVE STERILIZER  
FOR LABORATORY & LIQUID STERILIZATION

## **CONTENTS**

Please read this manual carefully prior to using your SA-300VLA.

Following the simple instructions contained in this manual will help ensure ease of use,  
trouble free operation, and a longer working life for this Autoclave.

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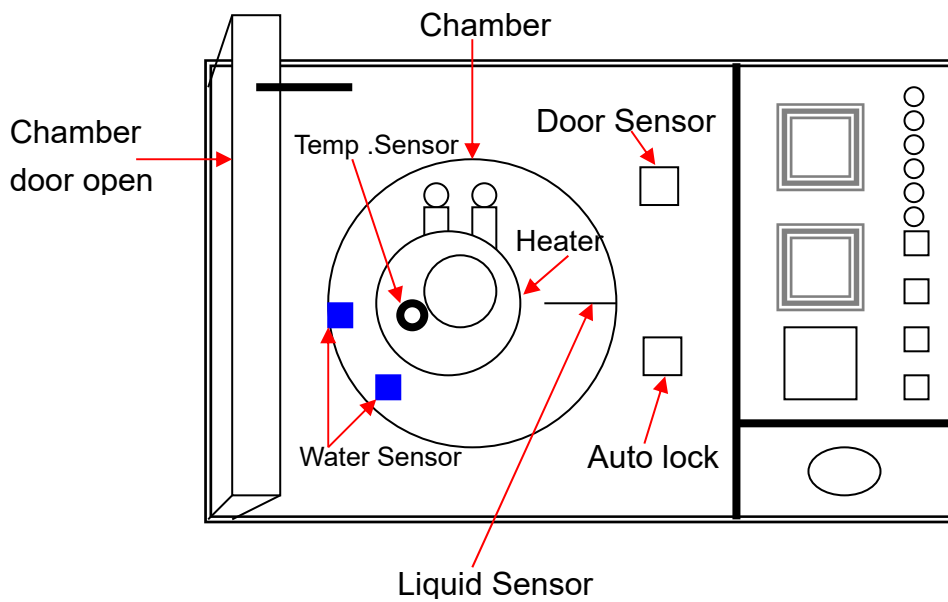
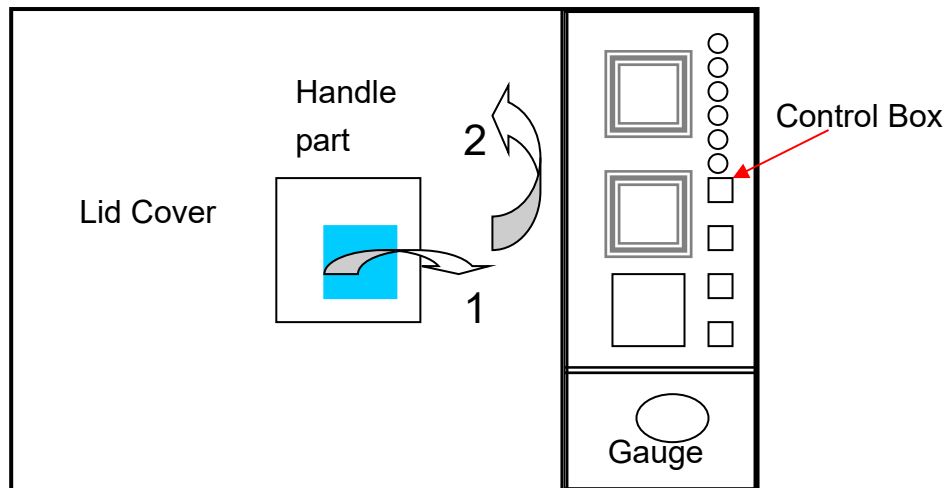
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**STURDY INDUSTRIAL CO., LTD.**

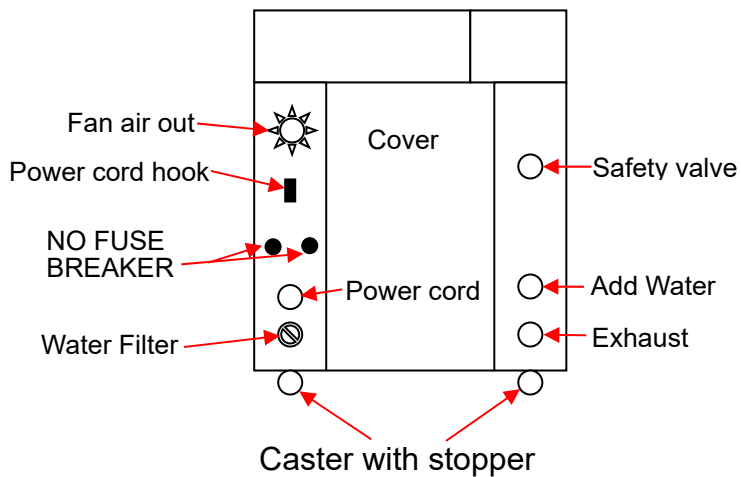
ISO 13485 Certificated Firm

# CHAPTER 1. LOCATION

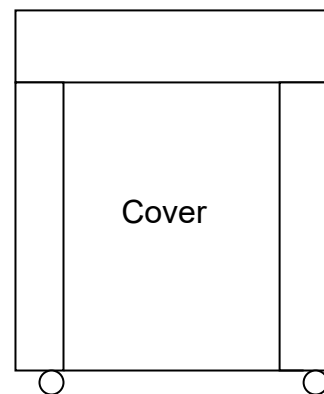
TOP VIEW



Rear side.



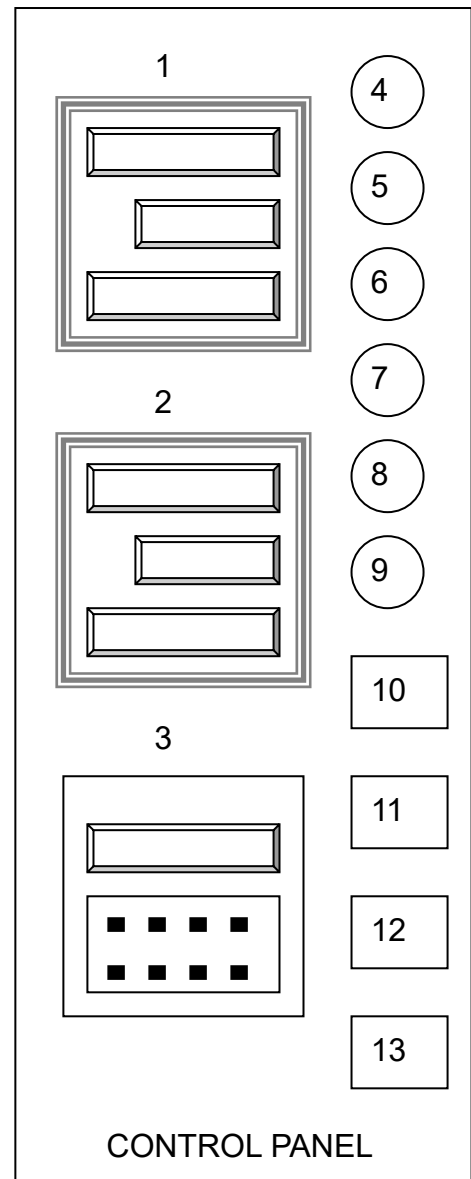
Side cover



1. Main temperature control: Normal program use, the range is 105°C to 136°C
2. Liquid temperature control: Liquid program use, temperature is 121°C
3. Sterilization timer: The digital is count down when it power on.

The maximum range is 1 second to 60 minute.

4. Alarm lit: It is over temperature or pressure when lit turn on.
5. Add water indicator: It is add water step when lit turn on.
6. Heat indicator: It is warm up step when lit turn on.
7. Steri. Indicator: It is sterilization step when lit turn on.
8. Exhaust indicator: It is exhaust step when lit turn on.
9. Complete indicator: The cycle is finish when lit turn on.
10. Sensor selector switch: The liquid program is active when lit turn on.
11. Emergency switch: The emergency event occur when lit turn on. You can hear the alarm sound and exhaust the pressure and water inside of chamber.
12. Start switch: Press the switch for start program.
13. Power switch: The autoclave is ready to use when lit is turn on.



## CHAPTER 2. SPECIFICATION

ITEM	SA-300VLA
Product Name	Vertical type autoclave sterilizer CLASS-S
Fill water system	Auto-Fill water system
Dry Function	NA
Overall	450mm(D) x 600mm(W) x 980mm(H)
Chamber Size	Ø300 x 710 mm (D)
Chamber Diameter	Ø300 mm
Water capacity of water	1000cc
Water capacity of water tank	NA
Chamber capacity	50 Liter
Gross Weight	77 kg
Power Supply	AC230V 50 / 60 Hz
Pressure Display	gauge display Ø2-1/2 "(Ø40mm) 1/4PS
Program function display	LED display
Indication	Door Closed, Low water, Over heat display
Power consumption	2300W / 10 Amp
Sterilization temperature	105°C / 136°C
Program of selection	121°C / 134°C , wrapped / unwrapped Liquid special program selection
Sterilization temp. for selection	121°C / 134°C
Special program for selection	Liquid sterilization program
Dry function for selection	NA
Safety valve	Set up at 2.55bar(2.6 kgf/cm <sup>2</sup> )
Over temperature protection	Independent temp. protection device
Electric overload protection	20 AMP No Fuse Breaker x 2
Over pressure protection	Safety valve
Door lock indication	Micro-switch as to door lock switch
Water tank water level sensor	NA
Chamber water level sensor	HIGH, LOW WATER LEVEL SENSOR
Pressure door auto lock	Silicon pressure lock
Standard Accessories	St. ST. Wire Basket x 2 Heater cover x1 2000cc bottle x 1.
LIFE TIME	7 YEARS

## CHAPTER 3. PREPARATION & INSTALLATION

### CHECKLIST FOR UNPACKING INSTRUCTIONS

TO UNPACK AUTOCLAVE FROM CARTON.

1. Cut off the banding.
2. Remove top cover of the carton.
3. Remove wall piece of the carton.
4. Remove foam-packing pieces.
5. Move out the autoclave from the base plate.



### CHECKLIST BEFORE USING THIS AUTOCLAVE

**NOTE:** PLEASE CHECK THE ENCLOSED ACCESSORIES FIRST.

1. Put this autoclave on the level floor, and keep the distance more than 10 cm between the wall and the case. And keep this autoclave in level condition then press the caster to fix the machine.

**NOTE:** KEEP THE FAN OPENING FREE.

2. Install piping:

2-1 Install the exhaust hose: that one end to be fixed on the pipe connector “G” outlet And another end must be fixed on the connector of the water exhaust piping system.

2-2 Install the Fill water inlet that one end to be fixed at the pipe connector “F” port And another end must be fixed on the connector of the water source system.

A: Fan air out

B: NFB

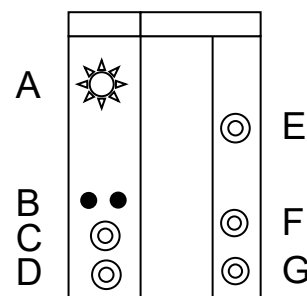
C: Power cord

D: Water Filter

E: Exhaust for safety valve

F: Water inlet (A net at inside joint)

G: Exhaust (A net at inside joint)



3. Check the elec. Power source 220v~240v. You are now, ready to take the power cord out, and connect the wire to **1Ø, 20 Amps. NFB** (No Fuse Breaker).

**NOTE:** THE NO-FUSE-BREAKER IS NECESSARY FOR SECURITY.




**<<VERY IMPORTANT>>**

4. The water sure be RO or DISTILLED water only.
5. Switch the Power on, and the power light will illuminate, indicating that the autoclave is now in standby mode.

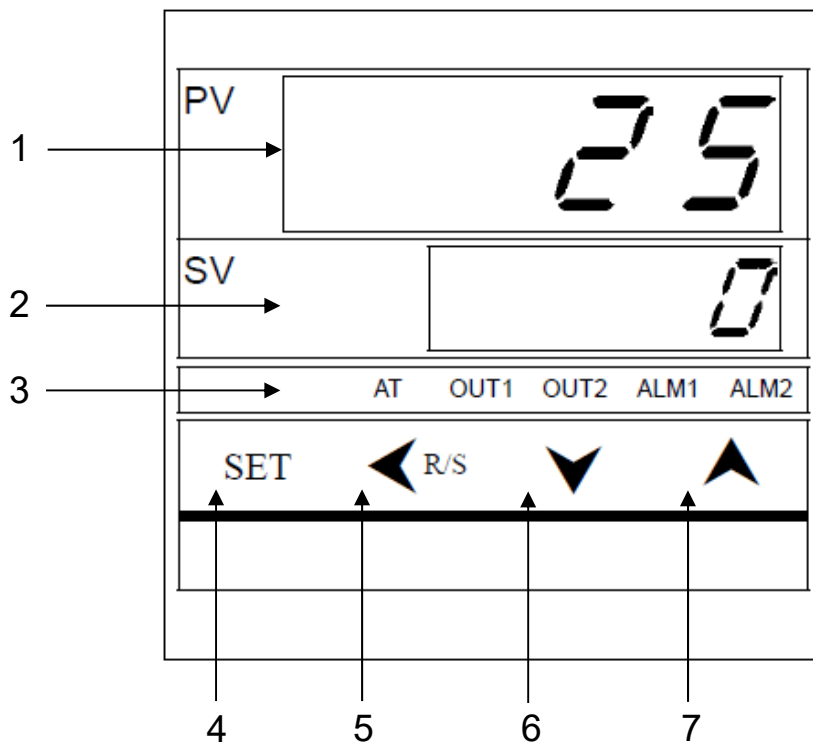
## CHAPTER 4. OPERATION

### OPERATION OF TEMPERATURE CONTROL:

※ Use CB-100 temperature controller position description :

1. PV: Actual chamber temperature display (green color)
2. SP Set value (set sterilization temperature) display (Orange color)
3. Indication Lamps:
  - "AT": Auto-tuning Lamp (green): Flashes during auto-tuning execution.
  - "OUT1": Control Output Lamp (green): Lights when control output is turned on.
  - "ALM 1": Control Output Lamp (red): Lights when alarm 1 output is turned on.
4. **SET** key: Used for parameter calling up and set sterilization temperature registration.
5.  KEY: 1). Shift digits, when settings are changed.  
2). Modify the internal data of the temperature controller with the SET button.
6.  Down-key: Decrease numerals.
7.  Up-key: increase numerals.

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## How to operation the CB-100 temperature control.

Turn on the power, and wait 5 seconds for machine to be in standby mode.



### ※Set the sterilization temperature.

1. Press **SET** key
2. Please press ▼ or ▲ to set sterilization temperature 121°C or 134°C
3. Press **SET** key again
4. Temperature set is complete.



**NOTE:** *Do not change the following parameter, changing the parameter would cause damage to the machine. The different series machine has a different parameter, please follow the steps below to set the parameter.*

1. Press **SET** key about 3 second. The display is PV ... AL1  
SP... 0



2. Press **SET** key. The display is PV ... ATU  
SP ... 0



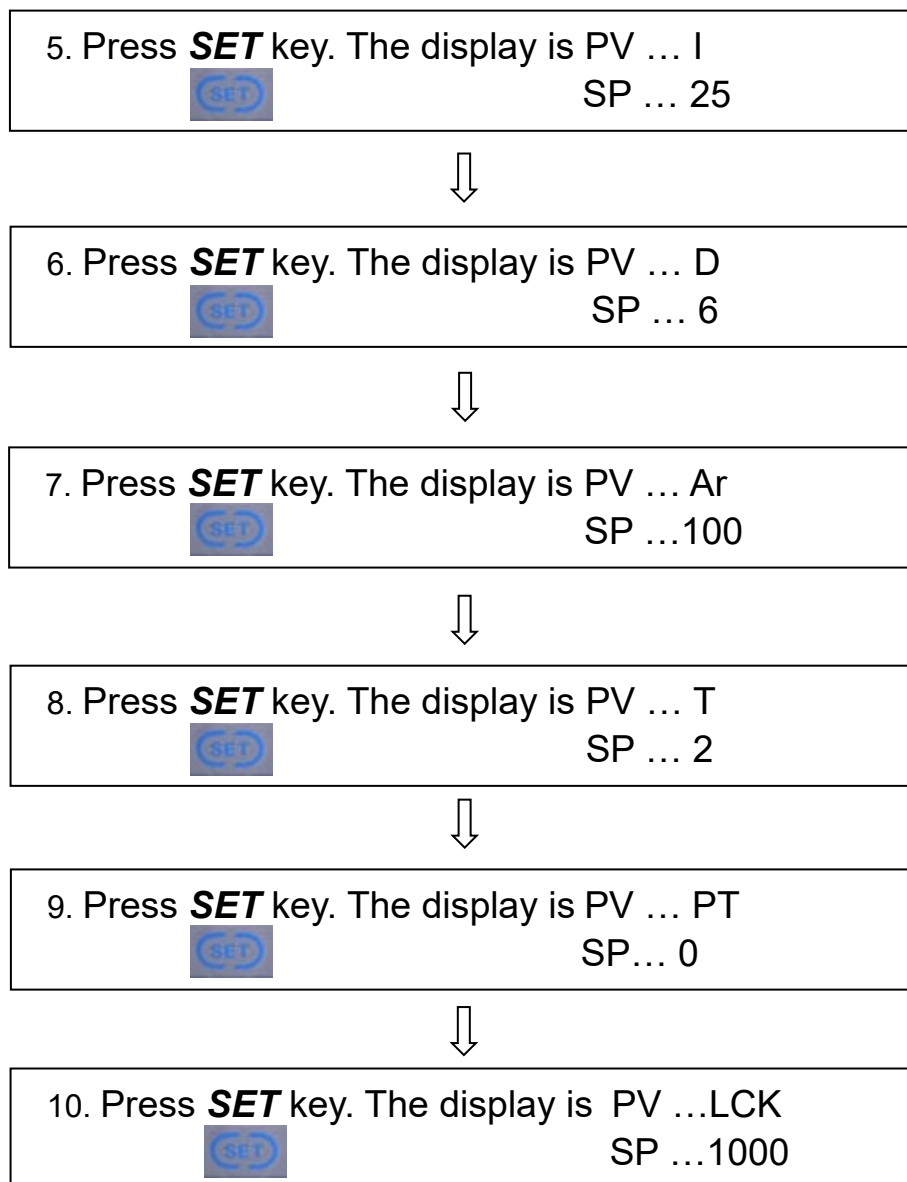
3. Press **SET** key. The display is PV ... STU  
SP ... 0



4. Press **SET** key. The display is PV ... P  
SP ... 1.2





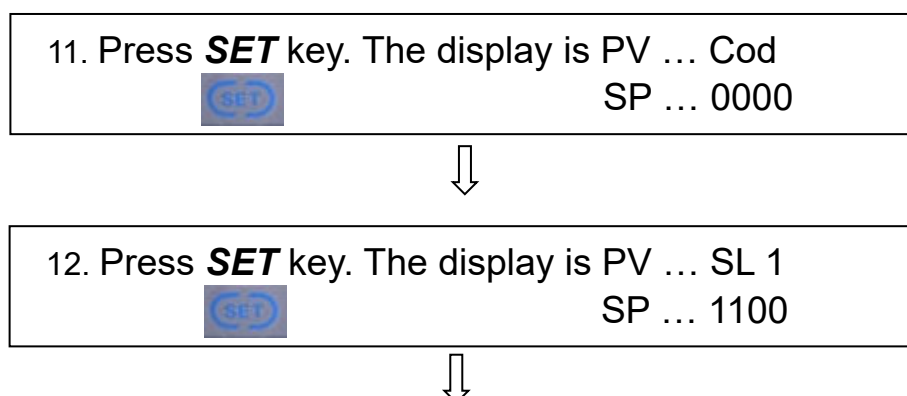


0011 To lock the data

Press "**SET**" key for about 3 seconds, the machine returns to operating mode.

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Press "**SET**" and "<R/S" Key at the same time for about 3 seconds, then enter the next level.



13. Press **SET** key. The display is PV ... SL 2  
SP ... 0000



14. Press **SET** key. The display is PV ... SL 3  
SP ... 0000



15. Press **SET** key. The display is PV ... SL 4  
SP ... 0001



16. Press **SET** key. The display is PV ... SL 5  
SP ... 0000



17. Press **SET** key. The display is PV ... SL 6  
SP ... 0001



18. Press **SET** key. The display is PV ... SL 7  
SP ... 0000



19. Press **SET** key. The display is PV ... SL 8  
SP ... 0000



20. Press **SET** key. The display is PV ... SL 9  
SP ... 0000



21. Press **SET** key. The display is PV ... SL10  
SP ... 1000



22. Press **SET** key. The display is PV ... SL11  
SP ... 0000



23. Press **SET** key. The display is PV ... Cod  
SP ... 0001



24. Press **SET** key. The display is PV ... SLH  
SP ... 136



25. Press **SET** key. The display is PV ... SLL  
SP ... 0



26. Press **SET** key. The display is PV ... oH  
SP ... 2.0



27. Press **SET** key. The display is PV ... AH1  
SP ... 2.0



28. Press **SET** key. The display is PV ... dF  
SP ... 1



29. Press **SET** key. The display is PV ... STTn  
SP ... 100



30. Press **SET** key. The display is PV ... STPK  
SP ... 67



31. Press **SET** key. The display is PV ... STIK  
SP ... 16



32. Press "SET" and "<R/S" Key at the same time  
for about 3 seconds and return to the operating  
mode.....setting complete.

**CAUTION:**

1. Turn on the power switch, wait about 5 seconds until the temperature digital display is in standby condition, and set up the sterilization temperature.
2. Press the "SET" bottom over 3 seconds, the display would transfer to other modes. Press the "SET" bottom over 3 seconds again, the display would back to operating mode.

PLEASE CHECK **CHAPTER 3**. AT FIRST.

1. Open the door and put the sterilized instruments into sterilization basket, switch the Power on.

**NOTE:** Use sterilization indicator test strips to check if sterilization has been successful.

2. Press the door to closed it.

3. Select the program.

3-1. 121°C or 134°C / WRAPPED or UNWRAPPED

3-2. Special program "LIQUID PROGRAM", for liquid sterilization use only.

AS TO THE PROGRAMS SELECTION, PLEASE REFER THE ENCLOSED APPENDIX.

4. Push-on the START switch to start the selected program.
5. Heating up step is start when add water is finished.
6. Sterilization time is count down when the temperature arrived you set up.
7. Exhaust step is start when sterilization timer is finished.
8. Complete the program, and the buzzer will sound (about 40 seconds). If the light not illuminated, means the selected program failed.



**CAUTION:** ALWAYS CHECK THE PRESSURE GAUGE IS READING ZERO (0) BEFORE OPENING THE DOOR. DO NOT ATTEMPT TO OPEN THE DOOR IF THE PRESSURE IS NOT ZERO (0).



**CAUTION:** CHECK THE STERILIZATION INDICATOR, AFTER STERILIZATION CYCLE.

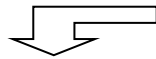


**CAUTION:** TO USE THE UNIT CONTINUOUSLY, PLEASE TURN OFF THE POWER SWITCH, BE ABSOLUTELY SURE TO OPEN THE DOOR AND ALLOW THE UNIT TO COOL OFF FOR AT LEAST 20 MINUTES.



**CAUTION:** DO NOT PRESS ANY SWITCH AFTER YOU PRESS "START" SWITCH EXCEPT THE "EMERGENCY" SWITCH.

PUT THE STERILIZED INSTRUMENTS INTO STERILIZATION BASKET



**STEP OF LIQUID FUNCTION:**

- 1.PUT THE LIQUID SENSOR INTO INSTRUMENTS
- 2.PRESS THE “SENSOR SELECT SWITCH” ON
- 3.SET MAIN TEMP. CONTROL TO **121.5°C**
- 4.SET LIQUID TEMP. CONTROL TO **121°C**
- 5.SET STERILIZATION TIME 30 MINUTES.

**NOTE:** The set temperature of the MAIN TEMP. CONTROL shall be 0.5°C higher than the LIQUID TEMP. CONTROL.

SELECT THE STERILIZATION TEMPERATURE



SELECT STERILIZATION TIME

PUSH START SWITCH-ON (START WORKING)



ADD WATE FIRST THEN MAIN HEATER-ON



STERILIZATION TIMER WILL BE STARTED WHEN REACHES THE PRESET TEMPERATURE



STERILIZATION PROGRAM FINISH (ABOUT 40 SECOND), BUZZER ALARMS



THE COMPLETE INDICATION LAMP WILL LIGHT-ON, IF NOT LIGHT-ON, PLEASE RE-CYCLE AGAIN

**THE DOOR CAN NOT OPEN IF THE CHAMBER IS IN A VACUUM CONDITION.**


1. PUSH THE “EMERGENCY SWITCH” TO RELEASE THE CHAMBER VACUUM.
2. AFTER THE CHAMBER VACUUM IS RELEASED, THE DOOR CAN BE OPENED.



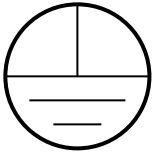


**CAUTION**

1. Check the pressure gauge is reading ZERO (0) before opening the door. DO NOT attempt to open the door if the pressure is not ZERO (0).
2. To use the unit continuously, be absolutely sure to open the door and allow the unit to cool odd for at least 20 minutes.

## CHAPTER 5. WARNING & CAUTION

### PLEASE READ IT CAREFULLY

1. ALWAYS check the pressure gauge is reading ZERO (0) before opening the door. DO NOT attempt to open the door if the pressure is not zero (0).
2. Use only distilled water. Regular tap water contains minerals, especially chlorides, which have corrosive effects on stainless steel. Failure to use distilled water will invalidate the warranty.
3. Pay attention to the high temperature on the door cover during operation.
4. The water filter is at rear side of machine should be cleaned at least every month.
5. Use Sterilization Indicator Test Strips to check that sterilization has been successful. These strips also are kept as a record of sterilization.
6. In the event of an emergency, or maintenance, please turn-off the main power switch immediately.
7. The **ADD WATER** indicator light on, that means the filling water function working.
8. The  **DANGER (OVER-HEAT)** indicator light-on, that means the main heater over heat or over pressure and out of control. Please call the engineer to check it. Of course, at the same time all the power in the machine will be cut-off immediately.
9. Keep the chamber and gasket clean.
10. **DO NOT press any switch after the program starts, except the "EMERGENCY" switch.**
11. THE SIGN OF CAUTION AND INDICATION :

				
CAUTION: Please check our Operation manual.	CAUTION: Hot, Please don't Touch it.	INDICATION: Electricity earth protection.	INDICATION: POWER-OFF	INDICATION: POWER-ON

## CHAPTER 6. APPENDIX – A

### PROGRAM DETAILS AS FOLLOWS:

#### TEMPERATURE PROGRAM:

121°C / 250°F	↔	Approx.	1.1 bar (kgf/cm <sup>2</sup> )
134°C / 274°F	↔	Approx.	2.1 bar (kgf/cm <sup>2</sup> )

#### WRAPPED / UNWRAPPED PROGRAM:

WRAPPED sterilization time	15 minutes for 134°C / 274°F
	30 minutes for 121°C / 250°F
UNWRAPPED sterilization time	04 minutes for 134°C / 274°F
	22 minutes for 121°C / 250°F

### STEP OF LIQUID STERILIZATION PROGRAM:

1. PUT THE LIQUID SENSOR INTO INSTRUMENTS
2. PRESS THE “SENSOR SELECT SWITCH” ON
3. SET MAIN TEMP. CONTROL TO **121.5°C**
4. SET LIQUID TEMP. CONTROL TO **121°C**
5. SET STERILIZATION TIME 30 MINUTES.
6. PRESS THE “START” KEY.

- *FOR REFERENCE : 1 kgf/cm<sup>2</sup> = 0.98 bar = 14.2 psi.*
- Sterilization instruments must be made of metal without plate, autoclavable material.

**NOTE:** The set temperature of the main temperature controller shall be 0.5°C higher than the set temperature of the liquid temperature controller.



## CHAPTER 6. APPENDIX – B

### RE-PACKING INSTRUCTIONS: TO PACK AUTOCLAVE INTO CARTON (PLEASE REFER CHAPTER 1. LOCATION.)

1. Drain the water from the chamber.
2. Remove power cord and place all items into the chamber. Close door secure firmly.
3. Cover the autoclave with the a plastic bag.
4. Put the bottom of the carton containing the packing piece No.1 onto the floor. And put on the foam set in the bottom case.
5. Place the autoclave into bottom case and fixed in bottom foam set.
6. Put 4 pieces angle hard paper on each corner of the carton.
7. Put the top carton piece on.
8. Put top foam on around the top of the autoclave.
9. Close the top of the carton, and seal with tape.
10. Binding with binder to concrete the top carton and bottom carton.

**IMPORTANT:**

We strongly recommend that all packing material, including the carton to be kept for re-use in the event that the unit needs to be transported at any time.

## **CHAPTER 7. TROUBLE SHOOTING**

### **POWER LAMP IS NOT ILLUMINATE:**

1. Power supply is not properly connected.  
Try to connect power supply until power indicator goes on.
2. No Fuse breaker broken.  
Replace the No Fuse Break. (Please check CHAPTER 1.)
3. Bulb or switch broken.  
Replace the bulb or the switch.

### **TWO INDICATION LAMPS ILLUMINATE AND ALARM:**

1. Water is not enough.  
Pull the water into the chamber. (Using the bottle we provided and pour 3000 ml of water) and check if the exhaust valve is closed completely, or the valve might be broken.
- NOTE:** WHEN YOU SET THE STERILIZATION TIME OVER 40 MINUTES, MAKE SURE TO POUR 3000 ML OF WATER.

### **PRESSURE NOT INCREASE:**

1. Steam solenoid valve unclean.  
Replace clean the steam solenoid valve.
2. Heater is broken.  
Replace the heater.
3. Temperature protection switch is broken.  
Replace the switch.
4. Pressure gauge is broken.  
Replace the gauge.
5. Needle valve is in the open state.  
Close the needle valve.

### **THE STERILIZATION INDICATOR COLOR UNCHANGED:**

1. The temperature does not increase.  
Please follow the above mention to check through it.
2. The steam trap is broken.  
Replace the steam trap.

### **THE INDICATION LAMPS DO NOT ILLUMINATE:**

1. The indicator lamps are not light up but the sterilization program is successfully finished.  
Replace the bulbs.

**THE PROGRAM DOES NOT START WHEN PRESS “START” BUTTON.**

1. Chamber door is not closed.  
Close the door again.
2. Type STC-400 temperature control damage.  
Please replace a new one.

**NOTE: ANY PROBLEMS, CHECK THE WIRE CONNECTION AND MAKE SURE IS WELL CONNECTED AT FIRST.**

## CHAPTER 8. MAINTENANCE REQUIREMENTS

### DAILY:

- WIPE THE INSIDE SURFACE OF THE CHAMBER AND THE DOOR WITH NON-LINT CLOTH SUCH AS A WETTEX.

### WEEKLY:

- CLEAN THE STERILIZATION BASKET, AND DOWN TRAY.
- CLEAN THE FILTER IN THE CHAMBER.
- CLEAN THE CHAMBER.

### MONTHLY:

- CHECK THE ELECTRICITY POWER CORD IN GOOD CONDITION. IF NOT, CALL THE ENGINEER.
- PUSH ON THE POWER SWITCH, AND CHECK THE FAN (BEHIND THE CONTROL BOX) IS WORKING. IF NOT, CALL THE ENGINEER. THE FAN IS TEMPERATURE CONTROL, IF THE CONTROL BOX TEMPERATURE IS OVER THAN 40 °C, THE FAN WILL AUTO-WORKING.
- CLEAN THE CHAMBER AND PIPING SYSTEM WITH “**CHAM-MATE**”.

### YEARLY: (CHECK BY ENGINEER)

- CHECK THE WELDING LINE OF THE CHAMBER.
- CHECK THE DOOR LOCK SCREW, DOOR HOLDER SCREW AND HOLDER BODY.
- CHECK THE ELECTRIC WIRE SYSTEM, BREAKER, AND CONNECTORS.
- CHECK THE TUBING SYSTEM.
- CHECK THE VALVES
- CHECK THE INDICATION LAMPS, AND ALL CYCLE FUNCTION.
- CHECK THE DOOR GASKET. (SUGGESTION: REPLACING THE DOOR GASKET ONCE A YEAR.)

## **WARRANTY**

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"**STURDY**" product has one (1) year warranty from the date of purchase that covers any defects in materials and quality under regular use.

This warranty does not apply to any product damaged by accident, misuse, abuse, neglect, improper line voltage, drop, fire, flood or alteration/ repair by non-qualified service personnel.

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

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

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User's Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Country: \_\_\_\_\_ Tel: \_\_\_\_\_ Fax: \_\_\_\_\_

Date of Purchase: \_\_\_\_\_ Model No.: \_\_\_\_\_



Series No.: \_\_\_\_\_

Distributor: \_\_\_\_\_

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





<b>Name</b>	Sturdy Autoclave Sterilizer
<b>Model</b>	SA-300VLA
<b>Manufacturer</b> 	Sturdy Industrial Co. Ltd.
<b>Address</b>	168, Sec. 1, Zhongxing Rd., Wugu District, New Taipei City, 24872, Taiwan
<b>EC Representative</b> 	APEX MEDICAL S.L. Elcano 9, 6 <sup>a</sup> planta 48008 Bilbao. Vizcaya SPAIN

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