



“Sturdy” Autoclave Sterilizer

SA-300VL

Instruction Manual

Please read manual carefully before using and keep it well.

CE₂₄₆₀

OPERATION INSTRUCTION

SA-300VL

LAB-SERIES

FULLY AUTOMATIC AUTOCLAVE STERILIZER
FOR LABORATORY & LIQUID STERILIZATION

CONTENTS

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

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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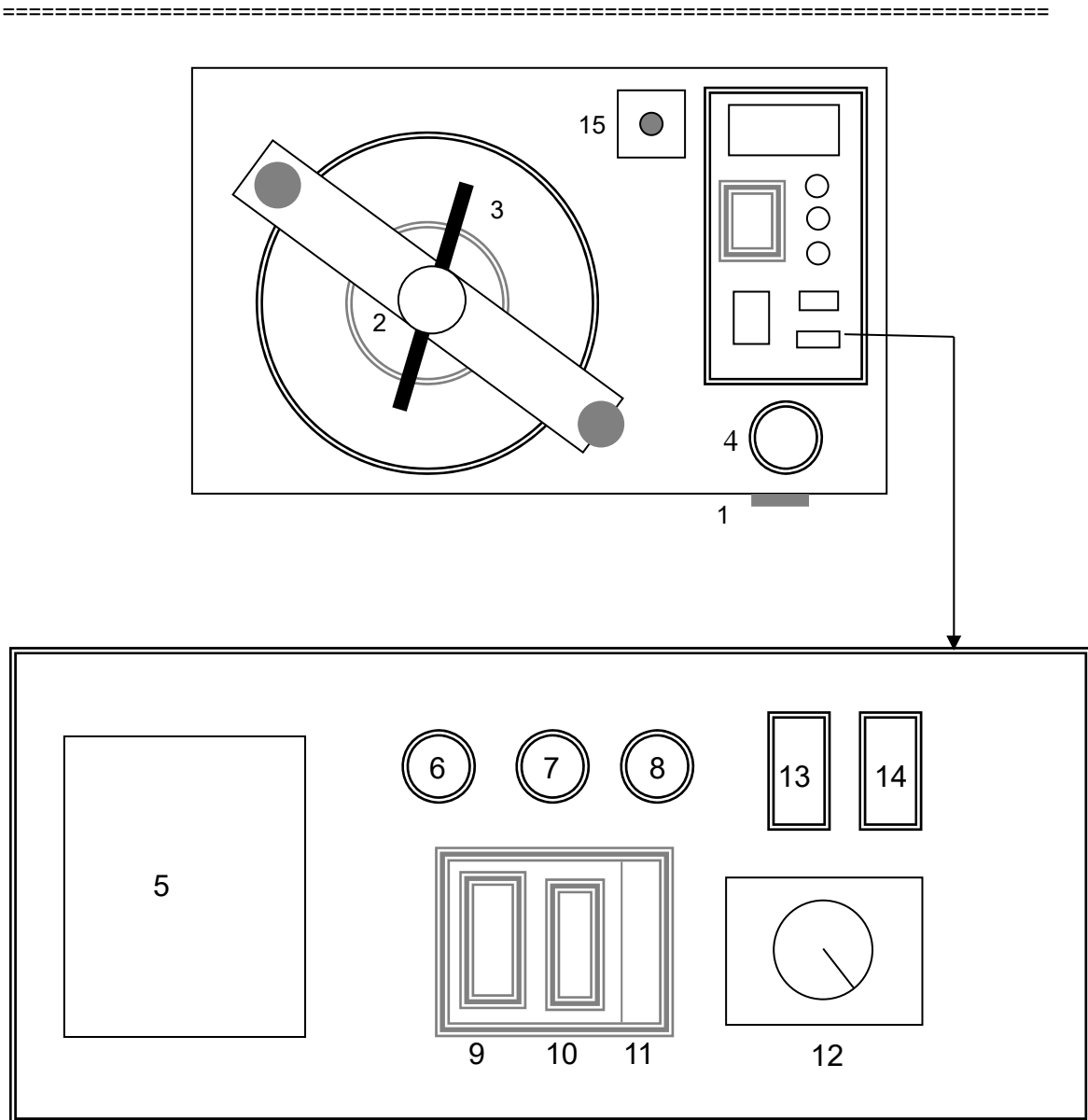
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STURDY INDUSTRIAL CO., LTD.

ISO 13485 Certificated Firm

CHAPTER 1. LOCATION

- | | |
|--|---|
| 1) PRESSURE EXHAUST NEEDLE VALVE
FOR LIQUID PROGRAM | 9) ACTUAL CHAMBER TEMPERATURE
DISPLAY |
| 2) DOOR CLOSED SCREW RING | 10) SET-UP STERILIZATION
TEMPERATURE DISPLAY |
| 3) DOOR HANDLE | 11) TEMPERATURE SET-UP FUNCTION
KEY |
| 4) PRESSURE / TEMPERATURE GAUGE | 12) STERILIZATION TIMER |
| 5) ABS COVER OF CONTROL BOX | 13) START SWITCH |
| 6) POWER LAMP (INDICATION LAMP) | 14) POWER SWITCH |
| 7) HEATING, STERILIZATION LAMP
(INDICATION LAMP) | 15) ADJUSTABLE SWITCH FOR EXHAUST |
| 8) COMPLETE LAMP (INDICATION LAMP) | |



CHAPTER 2. SPECIFICATION

MODEL NO	SA-300VL
CHAMBER SIZE (mm)	Ø300 × 710 (D) Stainless Steel #304
CHAMBER CAPACITY (L)	50
OVERALL (mm)	450 (D) × 600 (W) × 1090(H)
POWER CONSUMPTION	230VAC / 2300W / 10A
CONTROL SYSTEM	Digital temperature control system Liquid sterilization function: Pressure release, adjustable needle valve. Chamber water exhausted by exhaust valve.
USING PRESSURE AND TEMPERATURE	UNWRAPPED / WRAPPED / LIQUIDS: 105°C to 136°C
DESIGN TEMPERATURE	140°C
SAFETY DEVICE	Over heat (low water) cut-off switch Safety valve and release valve Emergency exhaust valve Door safety holder Pressure protection switch Temperature control system
ELECTRIC OVERLOAD PROTECTION	15AMP. NO FUSE BREAKER x 2
WORKING ENVIRONMENT	Indoor use only; Altitude less than 1,000 m; Ambient temperature between 5°C and 40°C; Humidity: 80% RH@31°C non-condensing to 50% RH@40°C; Voltage fluctuations up to ±10 %; Transient overvoltage 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 to 70%RH
SAFETY APPROVAL	CE-EMC, LVD approved CE-MDD approved Chamber designed by ASME / U.S.A. standard
LIFE TIME	7 YEARS
STANDARD ACCESSORIES	Stainless Steel #304 Basket x 2. Stainless Steel #304 heater covers x1. 2000 ml bottle x1 Clip x1 Exhaust hose x 2 Size basket : Ø250 ×251(D) (mm)
OPTIONAL ACCESSORIES	Stainless Steel #304 Basket

CHAPTER 3. PREPARATION & INSTALLATION

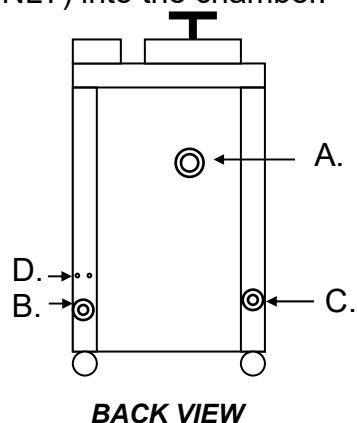
CHECKLIST BEFORE USEING THIS AUTOCLAVE

1. Place the autoclave on a flat floor, ensuring at least 10 cm clearance between the wall or other pieces of equipment and the sides of the unit.

NOTE: Press the stopper on the wheel to fix the autoclave when you are not moving it.

2. Check the power source must be 220 V to 240 V.
3. Take out the power cord, and plug the male end into the standard grounded AC outlet.
4. Pouring about 3000 ml water (DISTILLED WATER ONLY) into the chamber.

5. Install the exhaust hose: One end to be fixed on the pipe connector "B." And another end must be fixed on the connector of the water exhaust piping system.
 - A. Steam exhaust hose from safety valve.
 - B. Pressure / water exhaust connector.
 - C. Power cord.
 - D. No Fuse Breaker



CAUTION: Waste water should be brought into the sewerage system following the local rules or requirements.

6. Switch on the power switch, and the power light will illuminate, indicating that the autoclave is now in standby mode.
7. Please do not forget to check the **#15 AND #1 exhaust valve** (in chapter 1) must be closed, before starting the function.

CHAPTER 4. OPERATION

CHECK CHAPTER 3. FIRST

1. Pouring about 3000 ml DISTILLED WATER into the chamber (3000 ml per cycle). Place the instruments to be sterilized in the basket. The Individual instruments must NOT be touching each other or the chamber wall. Failure to follow these instructions may cause the autoclave to malfunction and result in an unsuccessful sterilization cycle.



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

2. Place the baskets into the chamber is as following figure 4-1:

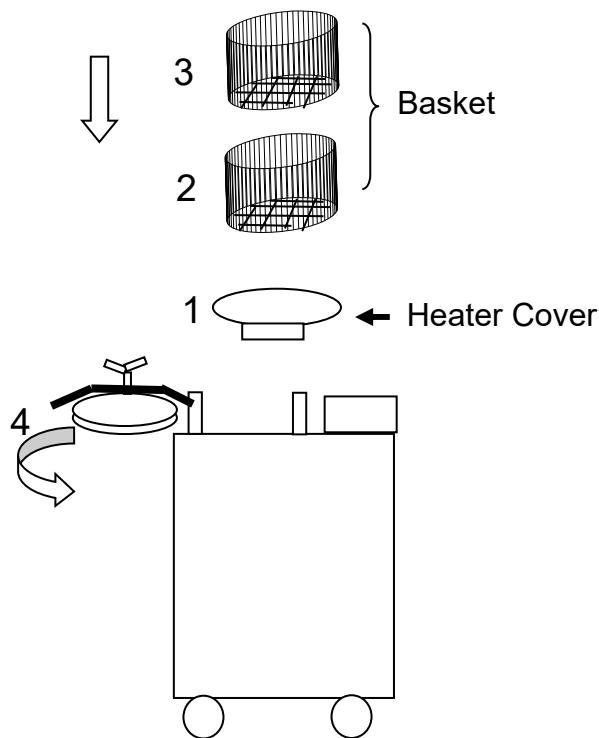


Figure 4-1

3. Closed the door and turn the door handle tight.



CAUTION: Door handle must be tightened.



CAUTION: Make sure the water exhaust valve and pressure release are turned off.

4. Switch on the power switch, wait about 5 seconds until the temperature digital display is in standby condition, and set up the sterilization temperature. See "CHAPTER 4-2 TEMPERATURE CONTROL" for operating the temperature control.
5. Set up the sterilization time. The sterilization time parameter refers to chapter 6-A.
6. Switch "START SWITCH" on to start the sterilization program.
7. Complete the Sterilization program, and the buzzer will sound. Before you take out the sterilization items:
 - Turn the pressure release needle valve open, program switch to the liquid sterilization program to release pressure to zero (0). or
 - Turn "ADJUSTABLE EXHAUST SWITCH" to exhaust water of the chamber.



CAUTION: When the pressure gauge is reading ZERO (0), make sure "PRESSURE EXHAUST NEEDLE VALVE", "ADJUSTABLE SWITCH FOR EXHAUST", and "START SWITCH" all turn off.

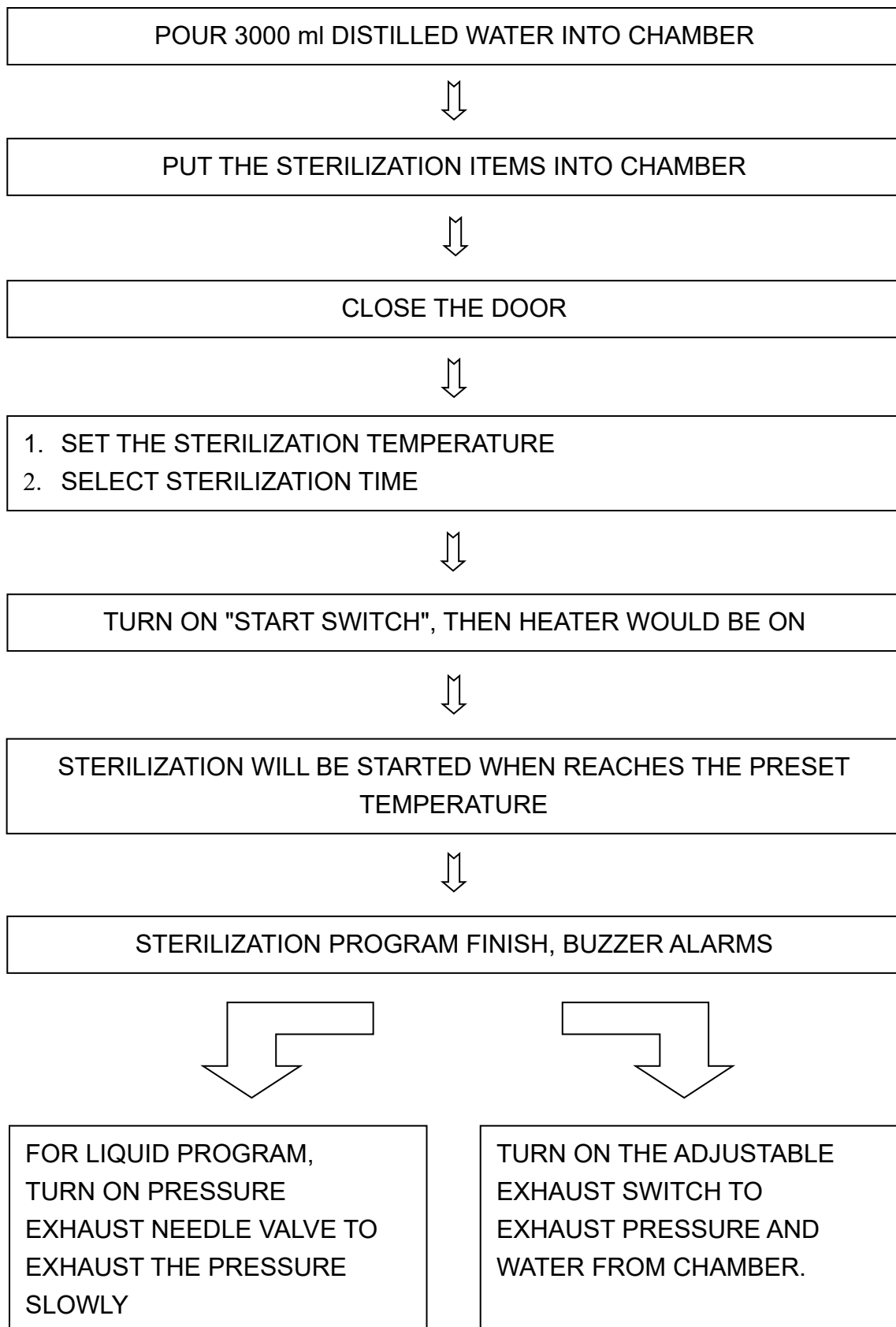


CAUTION: If using the sterilizer continuously, it is suggested to have a 20 min. interval between each sterilization cycle to allow it to cool down.






CAUTION: Before continuing to the next sterilization program, turn off "POWER SWITCH" and turn it on again to reset the system.

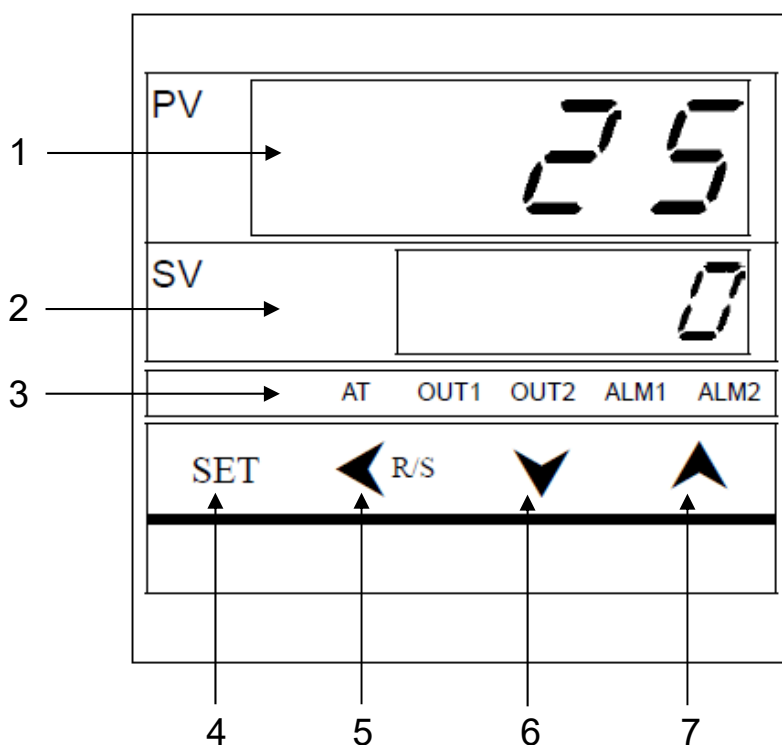
CHAPTER 4-1. BASE STEP OF STERILIZATION



CHAPTER 4-2. TEMPERATURE CONTROL

※The description of button function for CB-100 temperature controller:

1. PV: Actual temperature display for chamber (green color)
2. SP: Temperature display for sterilization temperature setting (Orange color)
3. Indication Lamps:
 - “AT”: Auto-tuning Lamp (green): Flashes during auto-tuning execution.
 - “OUT1” : Control Output Lamp (green): Lights is on means control output is in operation.
 - “ALM 1”: Control Output Lamp (red): Lights is on means the detect temperature reaches the set temperature.
4. **SET** key: Used for parameter modification and set sterilization temperature.
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 the parameters.
7.  Up-key: increase the parameters.



How to operation the CB-100 temperature control.

Turn on the power, and wait 5 second 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

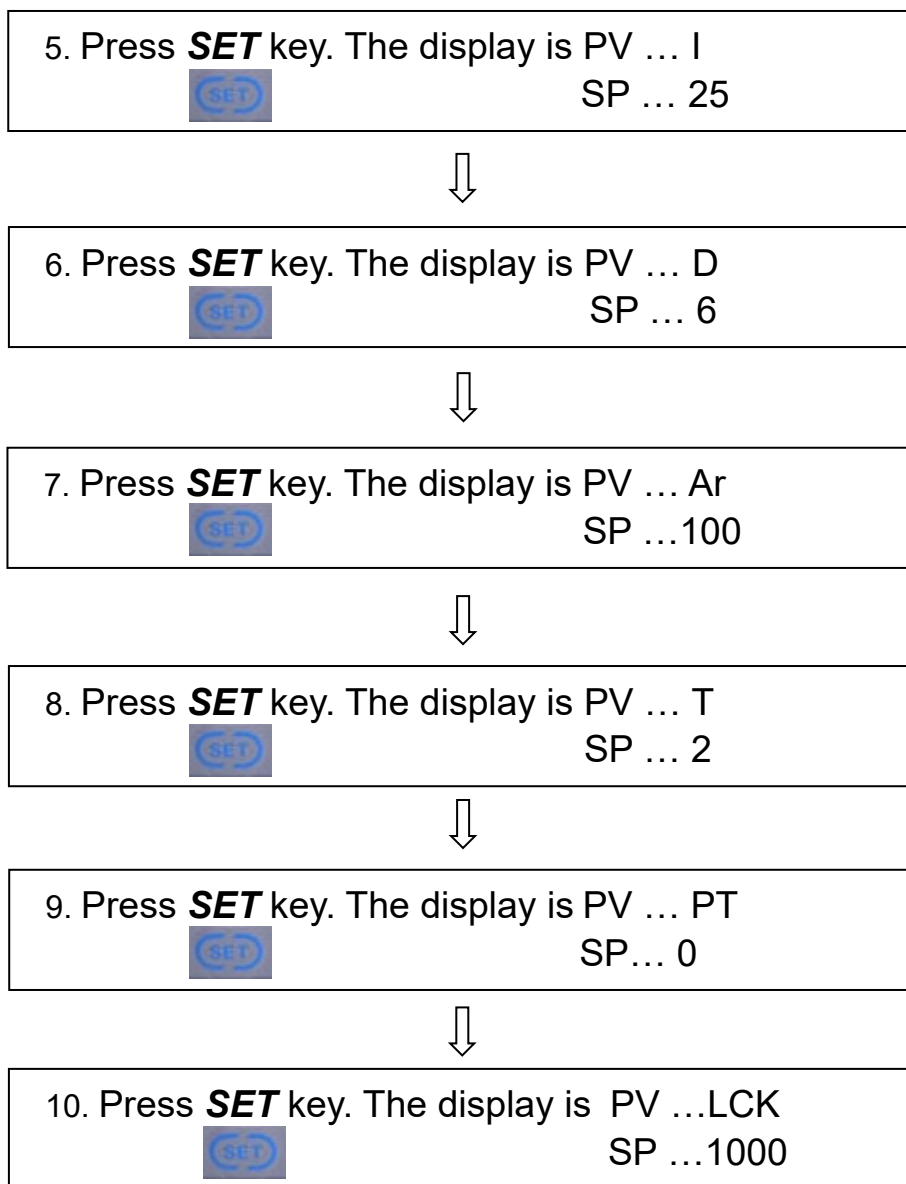


3. Press **SET** key. The display is PV ... STU
 SP ... 0



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



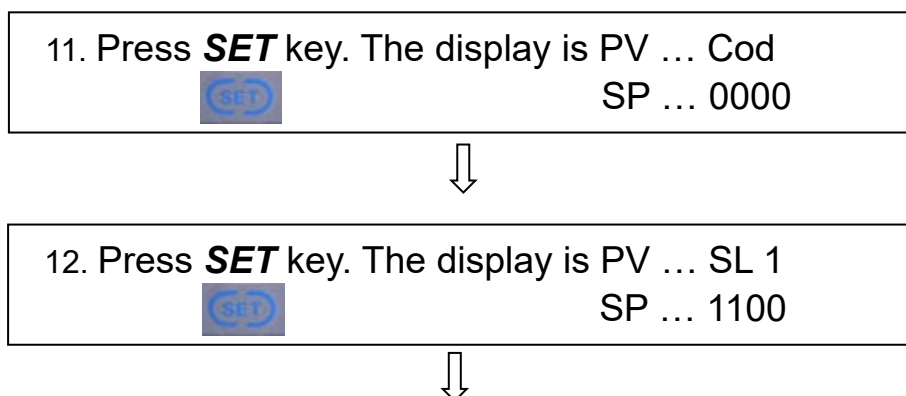


0011 To lock the data

Press **SET** key for about 3 second, 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



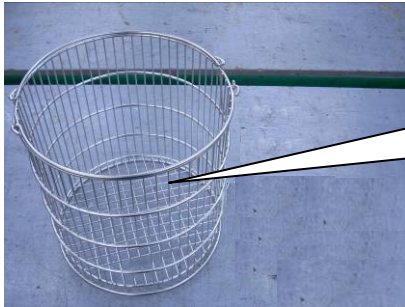
32. Press "**SET**" and "**<R/S**" Key at the same time
for about 3 seconds and return to the operating
mode.....setting complete.

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.

CHAPTER 4-3. CONCERNING THE STERILIZATION ITEMS

STEP 1



Open door of the autoclave. Take out the baskets from the chamber.

STEP 2



Put the sterilization items into baskets, and the sterilization items do not over the basket.










STEP 3



Put baskets into the chamber. Please do not forget to put the sterilization indicators into chamber. Now close the door and tighten it.

CHAPTER 5. WARNING

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. DO NOT forget to pour the water into chamber, before the sterilization program started. Or else the temperature protection switch will cut –off the power and buzzer at the same time.
4. Pay attention to the high temperature on the door cover during operation.
5. Make sure the door is tight when closing the door.
6. Visually inspect that the water has covered the heater.
7. Use only a dedicated power supply with 20A No-Fuse-Breaker.
8. The silicon rubber gasket on the inner door at the front of the chamber should be kept clean.
9. The drain filter inside the bottom of chamber should be cleaned at least every week.
10. Use Sterilization Indicator Test Strips to check that sterilization has been successful.
11. Pouring 3000 ml of water with the bottle we provided into the chamber each time before the sterilization program started.

12.  Caution! Hot Surface.
13.  Grounding terminal
14. “  ” Off, disconnection from the mains.
15.  On, connection to the mains
16.  Consult instruction manual for use
17.  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.
18.  2008-01 Date of manufacture
It is a 6-digit number. The first 4 digits represent the year and the last 2 digits represent the month.
19.  Manufacture
20.  Authorized Representative at Europe.

CHAPTER 6. APPENDIX - A

SETTING UP THE STERILIZATION TIME:

Temperature at 121°C / 250°F Approx. 1.2 bar(kgf/cm²)

WRAPPED	Select 30 Min. sterilization time
UNWRAPPED	Select 22 Min. sterilization time
LIQUID	Select 40 Min. sterilization time

Temperature at 134°C / 274°F Approx. 2.1 bar(kgf/cm²)

WRAPPED	Select 15 Min. sterilization time
UNWRAPPED	Select 4 Min. sterilization time

SPECIAL SELECTION RANGE:

TEMPERATURE SELECTION RANGE : 105°C to 136°C

STERILIZATION TIME SELECTION RANG : 0 to 60 MINUTES

- **FOR REFERENCE : 1 kgf/cm² = 0.98 bar = 14.2 psi.**
- Sterilization instruments must be made of metal without plate, autoclavable material.
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CHAPTER 6. APPENDIX - B

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

1. Turn off the POWER and unplug the power cord.
2. Drain the water from the autoclave.
3. Place all accessories into the chamber and close the door securely.
4. Cover the autoclave with a plastic bag.
5. Place the Wooden-case/Pallet onto the floor.
6. Move and place the autoclave on the Wooden-case/Pallet, and ensuring the four castors are fixed afterward.
7. Assemble wall pieces of the wooden case to connect the bottom part, one by one.
8. Place the heavy wooden bar on the top of the autoclave to secure it.
9. Put the top cover of the wooden –case.
10. Write down the shipping mark, products name and model number.

IMPORTANT : We strongly recommend that all packing materials including the carton should to be kept properly. It is for reuse in case the unit needs to be transported again anytime.

CHAPTER 7. TROUBLE SHOOTING

POWER LAMP IS NOT LIGHT UP:

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

POWER LAMP AND ALARM SOUND:

1. Water is not enough.
Solution: Pour 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.
Solution: Replace and clean the solenoid valve.
2. Heater is broken.
Solution: Replace the heater
3. Temperature protection switch is broken.
Solution: Replace the switch.
4. Pressure gauge is broken.
Solution: Replace the gauge.
5. Needle valve is in the open state.
Solution: Close needle valve.

THE STERILIZATION INDICATOR COLOR UNCHANGED:

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

THE INDICATION LAMPS, NOT LIGHT UP:

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

Solution: Replace the bulbs

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.

WEEKLY:

- CLEAN THE STERILIZATION BASKET, AND THE HEATER COVER.
- CLEAN THE DRAIN FILTER IN THE CHAMBER.
- CLEAN THE CHAMBER.

MONTHLY:

- CHECK THE ELECTRICAL POWER CORD AND PLUG SURFACE IN GOOD CONDITION. IF NOT, CALL THE ENGINEER.
- SWITCH ON THE POWER SWITCH, AND CHECK THE FAN ON REAR SIDE IS WORKING. IF NOT, CALL THE ENGINEER.
- FOLLOW THE INSTRUCTIONS ON THE “**CHAM-MATE**” PACKAGE AND CLEAN THE CHAMBER AND THE PIPING SYSTEM.

YEARLY: (CHECK BY ENGINEER)

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

WARRANTY

"**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 or replacement, and under no circumstances shall "**STURDY**" be liable for any collateral consequential damages or loss. This guarantee excludes explicitly the expendables and consumables.

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.

User's Name: _____

Address: _____


Country: _____ Tel: _____ Fax: _____

Date of Purchase: _____ Model No.: _____

Series No.: _____

Distributor: _____

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

Name	Sturdy Autoclave Sterilizer		
Model	SA-300VL		
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="276 1839 368 1877"> <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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