

# OPERATION MANUAL

## SA-232



## **CONTENTS**

Please read this manual carefully prior using your new Autoclave. Following simple instructions contained in this manual will help to ensure ease of use, trouble free operation, and a longer working life for your Autoclave.

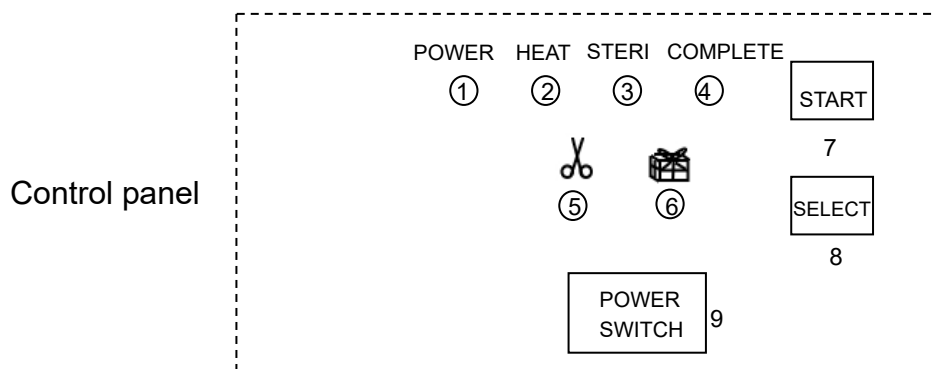
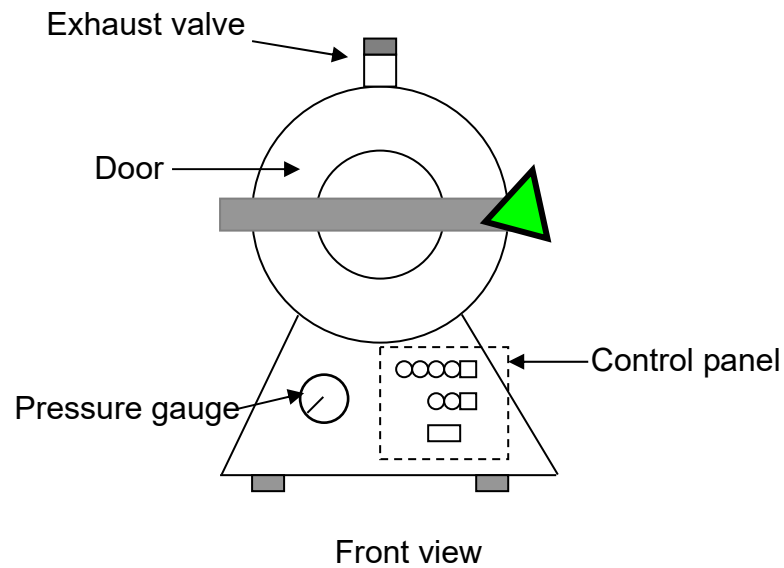
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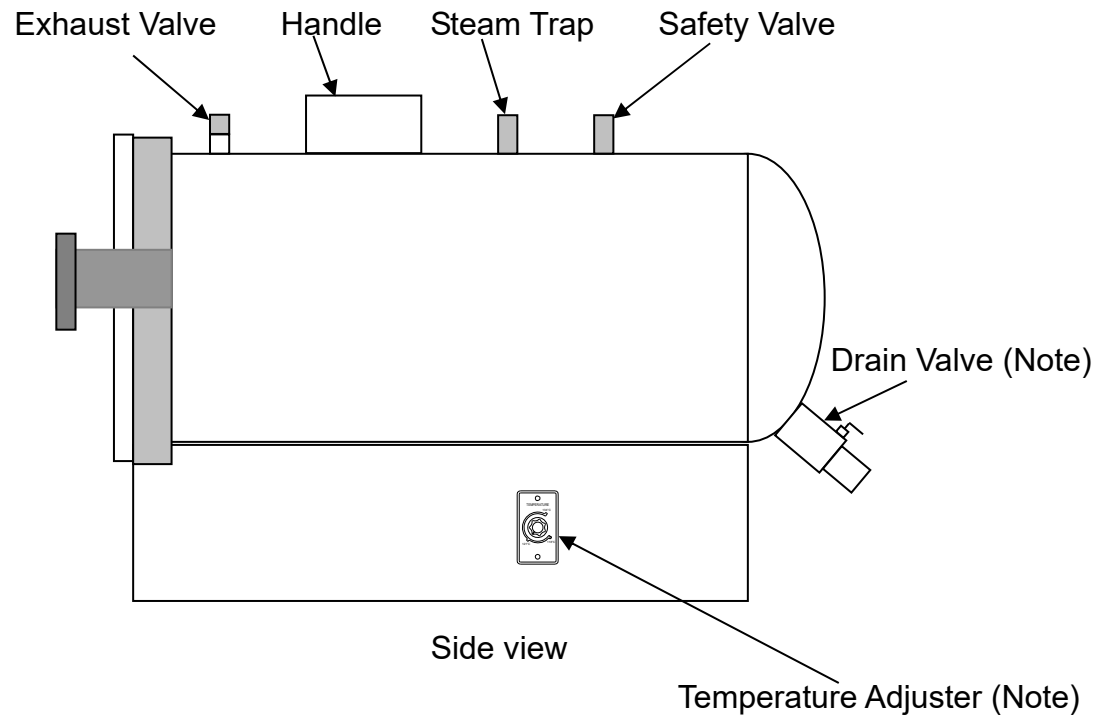
**STURDY INDUSTRIAL CO., LTD.**

**ISO 13485 Certificated Firm**

## CHAPTER 1. LOCATION



- |                  |   |  |
|------------------|---|--|
| 1. POWER         | : | POWER ON LAMP                                  |
| 2. HEAT          | : | HEATING LAMP                                   |
| 3. STER.         | : | STERILIZATION LAMP                             |
| 4. COMPLETE      | : | COMPLETE LAMP                                  |
| 5. “ ✂ ”         | : | 18 MINUTES STERILIZATION TIME                  |
| 6. “ 📦 ”         | : | 33 MINUTES STERILIZATION TIME                  |
| 7. POWER SWITCH  | : | POWER ON SWITCH                                |
| 8. START BUTTON  | : | PRESS TO START PROGRAM                         |
| 9. SELECT BUTTON | : | TO SELECT STERILIZATION TIME 18 OR 33 MINUTES. |



**Note:** It is optional Part. Skip this section if not applicable.

## CHAPTER 2. SPECIFICATION

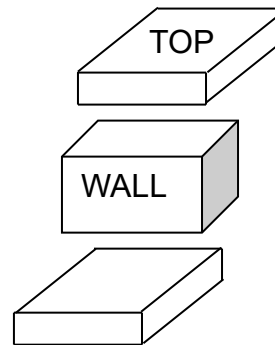
MODEL NO.	SA-232	SA-232(20L)
CHAMBER SIZE	Ø 230 x 410 mm(D)	Ø 230 x 495 mm(D)
CHAMBER CAPACITY	APPROX. 16 LITERS	APPROX. 20 LITERS
OVERALL	335(W) x 430(H) x 510(D)	335(W) x 430(H) x 605(D)
POWER CONSUMPTION	220V ~ 240V/ 1.4KW(MAX) 110V / 1.2KW(MAX.)	220V ~ 240V / 1.8KW(MAX)
USING PRESSURE AND TEMPERATURE	UNWRAPPED / WRAPPED / LIQUID: 121 / 134°C APPROX.1.2 /2.1 bar (kgf/cm <sup>2</sup> )	
DESIGN TEMPERATURE	140°C	
SAFETY DEVICE	1. PRESSURE SAFETY VALVE 2. TEMPERATURE PROTECTION SWITCH 3. LOW WATER PROTECTION SWITCH 4. TIME AND COMPLETE ALARM 5. EMERGENCY EXHAUST VALVE 6. PRESSURE CONTROL SWITCH	
SAFETY APPROVAL	CHAMBER DESIGN BY ASME / USA STANDARD	
LIFE TIME	7 YEARS	
STANDARD ACCESSORIES	1. STERILIZATION BOX / 1PCS (STAINLESS STEEL #304) 2. HEATER COVER / 1PCS	
OPTIONAL ACCESSORIES	1. TRAY FRAME × 1pcs +TRAY × 3 pcs+ TRAY HOLDER × 1pcs(STAINLESS STEEL #304) 2. SPRING HOLD × 2pcs(STAINLESS STEEL #304)	

## CHAPTER 3. PREPARATION

### CHECKLIST FOR UNPACKING INSTRUCTIONS:

#### TO UNPACK AUTOCLAVE FROM CARTON

1. Remove Straps.
2. Remove top of carton.
3. Remove wall-piece of the carton.
4. Remove foam-packing pieces.



### CHECKLIST BEFORE USE THIS AUTOCLAVE

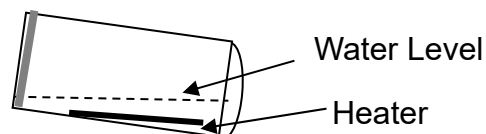
PS: PLEASE CHECK THE ACCESSORIES ENCLOSED, AT FIRST.

1. Place the autoclave on plane table. Keep a distance of more than 5cm from the wall and keep this autoclave in horizontal.

**⚠ CAUTION :** Do not install the autoclave subject to splashing of liquid.

2. Check the elec. power source must be 110V, 220V or 240V.
3. Pouring the water (DISTILLED WATER ONLY) into chamber, until the water level near the door side.

**CAUTION :** THE WATER LEVEL MUST COVER THE HEATER.



4. You are now, ready to take the power cord, and plug into a standard grounded AC outlet.

PS: POWER SOCKET 240VAC / 10A    220VAC / 10A    110VAC / 15A

**CAUTION :** Before plug the power cord, please turn-off the power switch.

5. Check the power lamp, if it is on, that means the power is already stand-by now.

## CHAPTER 4. OPERATION

PLEASE CHECK CHAPTER 3. AT FIRST.

1. Open the door and pouring water until the water level fully covers the heater. Then turn to close the exhaust valve.
2. Put the sterilized instruments on trays or in sterilization box. Or spring holder as you need.
3. Then put the box (or tray, or spring holder) into the chamber.

PLEASE DON'T FORGET TO PUT THE STERILIZATION INDICATOR IN CHAMBER.

4. Close the door, turning the handle to tight. Then turn power on.
5. Press the "SELECT" to choose the sterilization time. And press the "START" button to work.

Please note : the sterilization time was set up in the program : 18 minutes / 33 minutes. So the user can select the sterilization time by "SELECT" button. And then push the "START" button, the heating lamp will be on.

AS TO THE TIME SET, PLEASE REFER THE ENCLOSED APPENDIX.

6. After the chamber pressure reaches up to the pressure you set up, the sterilization lamp lights on. Meanwhile the sterilization timer starts working. When the sterilization lamp light off (and the "COMPLETE" lamp lights on) that mean the sterilization cycle is completed.
7. Buzzer will report you, "MY DEAR MASTER! YOUR COMMAND HAVE BEEN COMPLETED."

**PS: Please don't open the door immediately, after completion. Because the chamber still with pressure.**

8. Turn the exhaust valve to open, in order to release the chamber pressure, until the pressure returns to "0" (zero) and then open the door.

PS: If the door can't be opened, chamber is in vacuum condition. Please exhaust valve to release the vacuum in chamber.

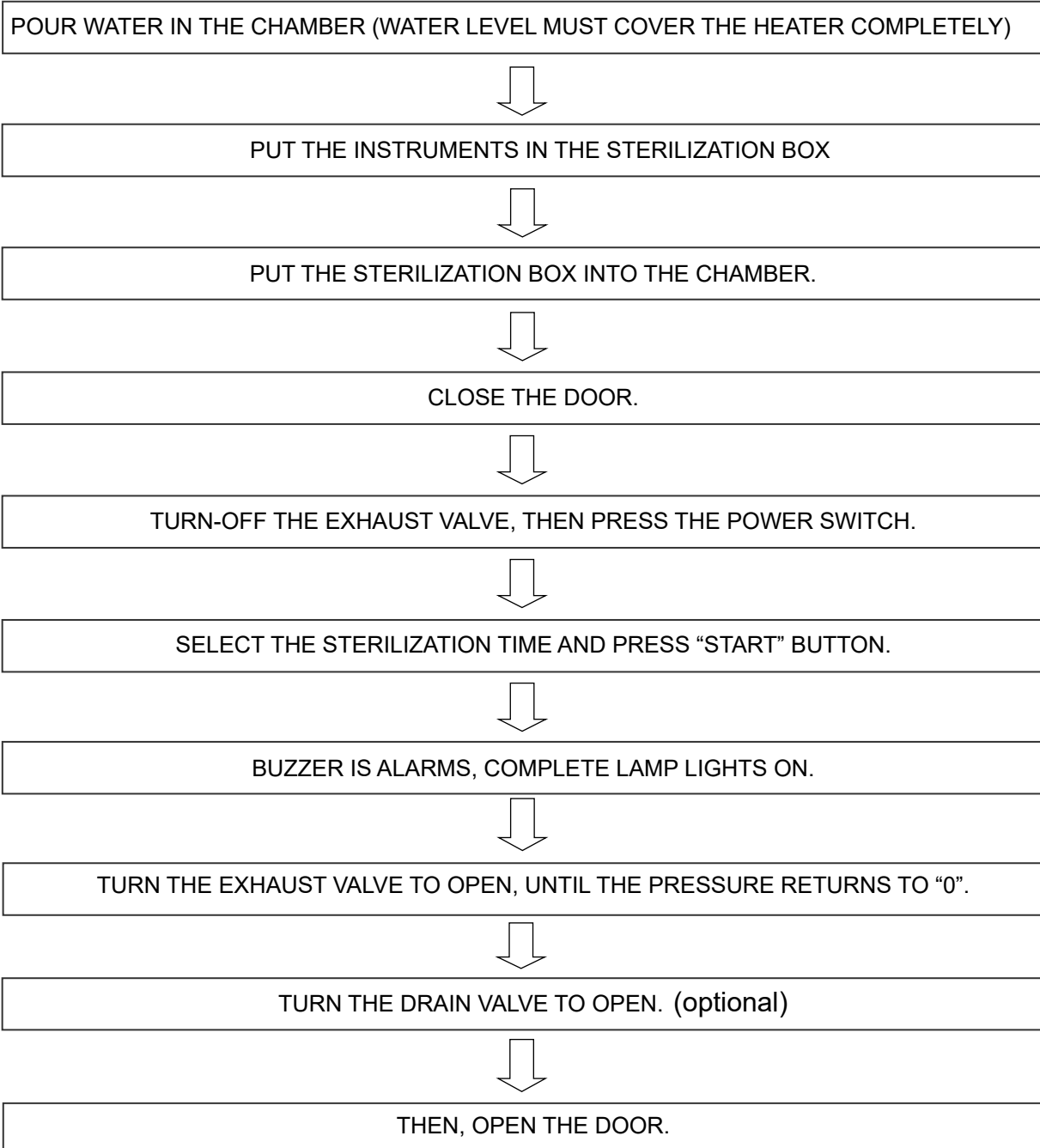
### CAUTION:

Before opening the door, ensure the pressure gauge is at "zero" position. Please don't forget to check the sterilization indicator after cycle complete.



## CHAPTER 4. BASIC STEP OF STERILIZING

PLEASE CHECK CHAPTER 4. OPERATION, AT FIRST.



## CHAPTER 4. CONCERNING THE STERILIZATION ITEMS

The caution of sterilization box:

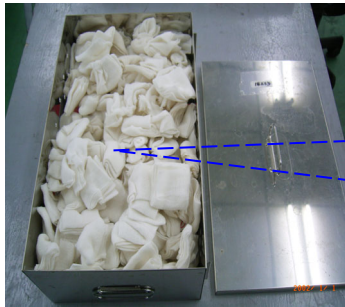


Figure 1

Items to be sterilized

All Items need put into sterilization box. If the sterilization item put to mach then the cover of sterilization box can not put on.

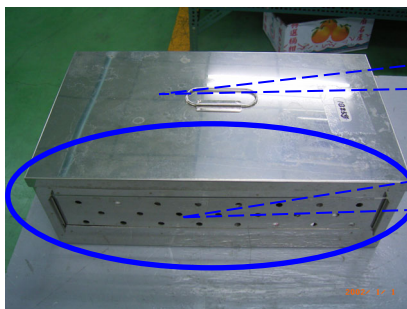


Figure 2

Close the cover when sterilization item was put into box.

By the way, don't forget open both side windows before put sterilization box into chamber.

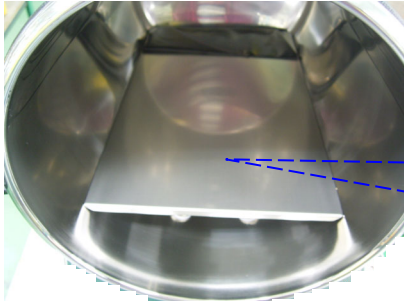


Figure 3

Please check the level of the heater cover when the heater cover was put into chamber. Please see figure 3.

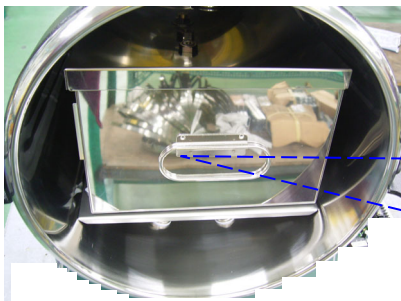


Figure 4

Please check heater cover and sterilization box are not oblique position when the sterilization box was put into chamber. Please see figure 4. So you can operator the autoclave.

## CHAPTER 5. WARNING

1. Please check the pressure gauge, if the pressure over than 0 kgf/cm<sup>2</sup>. Please don't open door.
2. **“USE ONLY DISTILLED WATER”** for this autoclave. Or not, we can't offer the quality guarantee service.
3. Please pour the water into the chamber, before sterilization. Or not, the low water protector will cut-off the elec. power.

PS: Please TURN OFF the power switch, and pour water in the chamber.

Then close the door and TURN ON the power switch again.

4. Please attend the high temperature around the chamber. When she is working.
5. The door handle must touching the stop metal, which on the screw of the handle, when you close the door.
6. Ensure the heater inside the chamber is covered with water prior to commencement of the sterilization cycle.
7. Use only a indicated power supply as per plug.
8. The silicon gasket inside inner door and the front plate of the chamber should be kept clean to maintain maximum life.
9. We recommend use of chemical indicator strips as a check for sterility. These strips may also be kept as a record of sterilization.
10. In the event of an emergency immediately turn the power off. Then, turn open the exhaust valve.
11. The sign of caution and indication:



Caution! Hot surface.



Grounding terminal.



This label is meaning that indicator for power off.



This label is meaning that indicator for power on.



Consult instructions for use



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.



2008-01 Date of Manufacture. EX: 2008-01 is mean January / 2008.



Authorized Representative at europe.



Manufacturer.

12. Storage environment: temperature:  $-10^{\circ}\text{C} \sim + 50^{\circ}\text{C}$  / humidity  $\leq 80\%$
13. Working environment: temperature:  $1^{\circ}\text{C} \sim + 40^{\circ}\text{C}$  / humidity  $\leq 80\%$
14. Transportation environment: temperature:  $-10^{\circ}\text{C} \sim + 50^{\circ}\text{C}$  / humidity  $\leq 80\%$

## CHAPTER 6. APPENDIX

### 6-1 PROGRAM DETAILS AS FOLLOWS:

#### ※SELECT THE STERILIZATION TIME:

Standard	PRESSURE ON	1.4 bar(kgf/cm <sup>2</sup> ) (APPROX. 126°C / 258°F)
Temperature	PRESSURE ON	1.2 bar(kgf/cm <sup>2</sup> ) (APPROX. 121°C / 250°F)
Adjuster (Note)		2.1 bar(kgf/cm <sup>2</sup> ) (APPROX. 134°C / 274°F)
UNWRAPPED	Select 18 minutes sterilization time.	
WRAPPED	Select 33 minutes sterilization time.	
LIQUIDS	Select 33 minutes sterilization time.	

# FOR REFERENCE :  $1 \text{ kgf/cm}^2 = 0.98 \text{ bar} = 14.2 \text{ psi}$ .

# Sterilization instruments must be made by metal without plate, or autoclave plastic or rubber material.

# Liquid sterilization is available, but it must adjust the exhaust valve limited and arrange the pressure down to 0 in 5 minutes.

## 6-2 PACKING INSTRUCTIONS:

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

1. Drain off water from the autoclave.
2. Remove power cord and place all items into the chamber. Close door secure firmly.
3. Cover the autoclave with the plastic bag.
4. Place the bottom of the carton containing the packing bottom foam on the floor.
5. Place the autoclave into the packing bottom foam ensuring that the door of the autoclave is in the position.
6. Place the wall piece of carton into the bottom of the carton.
7. Place the packing fix foam into the back and front of door.
8. Place the packing foam on the top of the autoclave.
9. Check all pieces foam is fixing the autoclave well.
10. Place top of carton to cover the wall piece of carton.
11. The carton together with heavy twine or a similar strong material.

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

## CHAPTER 7. TROUBLE SHOOTING

### \* POWER INDICATOR LAMP IS NOT LIGHT ON:

1. **Cause:** Power supply is not properly connected.  
**Solution:** Try to connect power supply until power indicator goes on.
2. **Cause:** PCB broken.  
**Solution:** Replace PCB.
3. **Cause:** Transformer wire connection is not tight.  
**Solution:** Tighten it.
4. **Cause:** Transformer broken.  
**Solution:** Replace the transformer

### \* TEMPERATURE SWITCH CUT-OFF

1. **Cause:** Water is not enough.  
**Solution:** Pour water in the chamber to the full level.
2. **Cause:** Forget pouring water in the chamber  
**Solution:** Pouring water in the chamber, & try again.
3. **Cause:** Forget turn-closed the exhaust valve.  
**Solution:** Turn-off the valve, and try again.

### \* THE PRESSURE CAN'T UP TO 1.2kgf/cm<sup>2</sup> IN 20 MINUTES.

1. **Cause:** The steam trap over flowing  
**Solution:** Adjust the steam trap exhaust slowly. (Must be adjusted by engineer)
2. **Cause:** Forget turn-closed the exhaust valve.  
**Solution:** Turn-off the valve, and try again.
3. **Cause:** Water is not enough.  
**Solution:** Pour the water in the chamber to the full level.
4. **Cause:** Forget pouring water in the chamber  
**Solution:** Pouring water in the chamber, & try again

### \* "COMPLETE" Light is not light on, after cycle finished:

1. **Cause:** Have some electricity power source problem.  
**Solution:** Re-cycle again.
2. **Cause:** After re-cycle, still the same happened.  
**Solution:** Call to engineer.

*PS: ANY PROBLEMS PLEASE CHECK THE WIRE CONNECTION AT FIRST.*

## CHAPTER 8. MAINTENANCE REQUIREMENTS

### DAILY:

- WIPE THE INSIDE OF THE CHAMBER AND THE INSIDE OF THE DOOR WITH A NON-LINT CLOTHE SUCH AS A WETTED.
- CHECK AND KEEP THE DOWN SIDE (IN THE CHAMBER SIDE) OF THE SAFETY VALVE AND STEAM TRAP TO BE CLEAN.

### WEEKLY:

- EMPTY THE BALANCE WATER IN THE CHAMBER AND CLEAN THE RACK AND TRAYS.
- TRY TO PULL THE SAFETY VALVE WITH THE RINGLET. TO CHECK AND KEEP THE SAFETY VALVE IN WORKING CONDITION.

### MONTHLY:

- EMPTY THE BALANCE WATER IN THE CHAMBER, AND CLEAN THE SURFACE OF THE CHAMBER AND THE SURFACE OF THE HEATER, WITH "CHAM-MATE" OR A LITTER SOUP. THEN, WATER CLEANS AGAIN.

### YEARLY: (CHECK BY ENGINEER)

- REMOVE, CLEAN AND EXHAUST VALVE, AND REPLACE THE SAFETY VALVE & STEAM TRAP.
- CHECK THE ELECTRIC WIRE SYSTEM, FUSE, AND CONNECTORS.
- CHECK THE PRESSURE GAUGE, IN WORKING CYCLE.
- CHECK THE SPRING TIMER, IN WORKING CYCLE.
- CHECK THE FUSE AND FUSE SET.
- CHECK THE INDICATION LAMPS, AND ALL CYCLE FUNCTION.
- CHECK THE DOOR GASKET. (SUGGESTION: REPLACE IT PER YEAR.)



## **WARRANTY**

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You “**STURDY**” product are in guaranteed to be from the defects in materials and workmanship for one (1) year under normal use from the date of purpose.

This warranty does not apply to any product damaged by accident, misuse, abuse, neglect, improper line voltage, drop, fire, flood or if 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. Responsible for the sales of this instrument. 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 CERTIFICATE FIRM.)





<b>Name</b>	Sturdy Autoclave Sterilizer		
<b>Model</b>	SA-232 / SA-232(20L)		
<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> <table border="1" data-bbox="295 1787 391 1825"> <tr> <td>EC</td> <td>REP</td> </tr> </table>	EC	REP	APEX MEDICAL S.L. Elcano 9, 6 <sup>a</sup> planta 48008 Bilbao. Vizcaya SPAIN
EC	REP		

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