

# **OPERATION MANUAL**

**A-16X**

**AUTOMATIC AUTOCLAVE STERILIZER**



# OPERATION MANUAL

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### AUTOMATIC AUTOCLAVE STERILIZER

Please read this manual carefully prior to using your new Autoclave. Following the 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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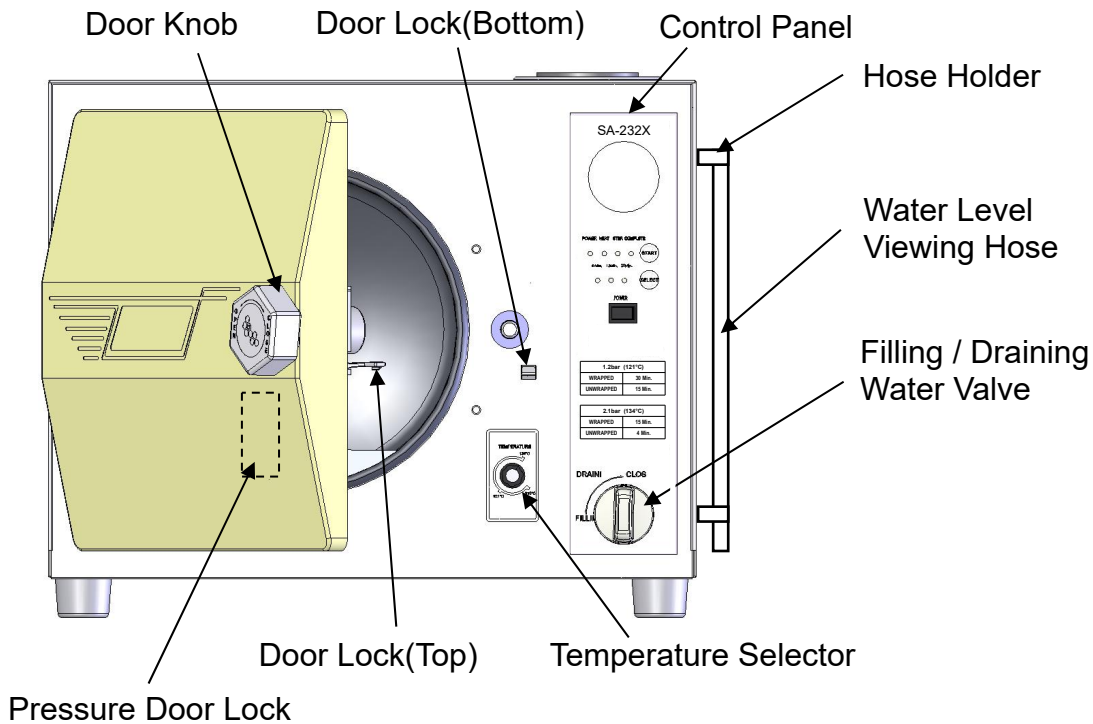
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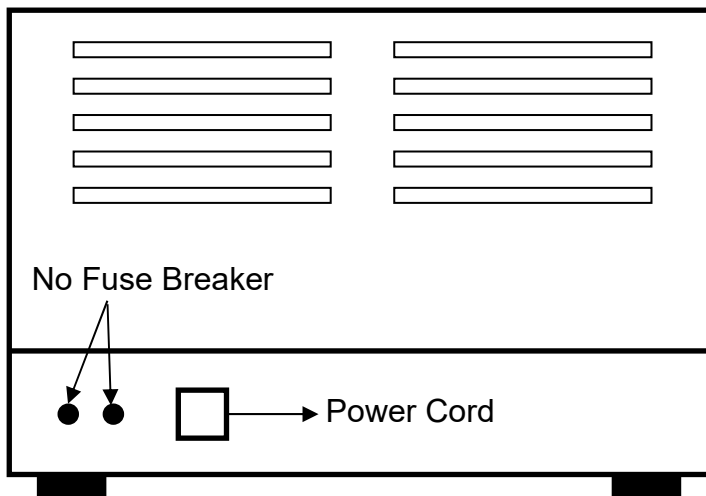
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# CHAPTER 1 LOCATION OF CONTROLS

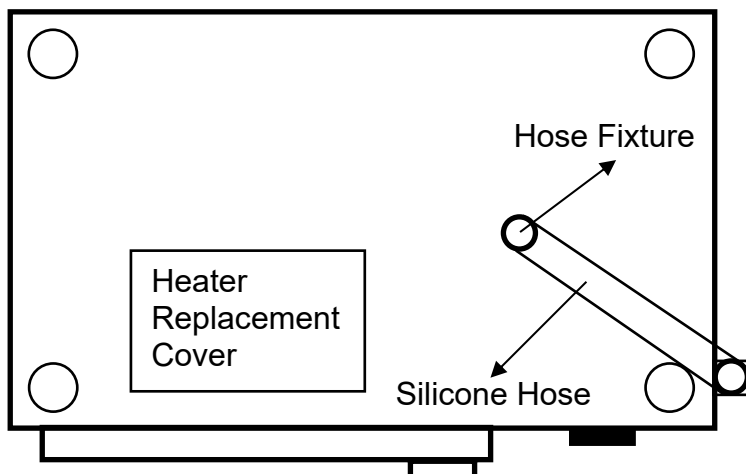
## Front View:



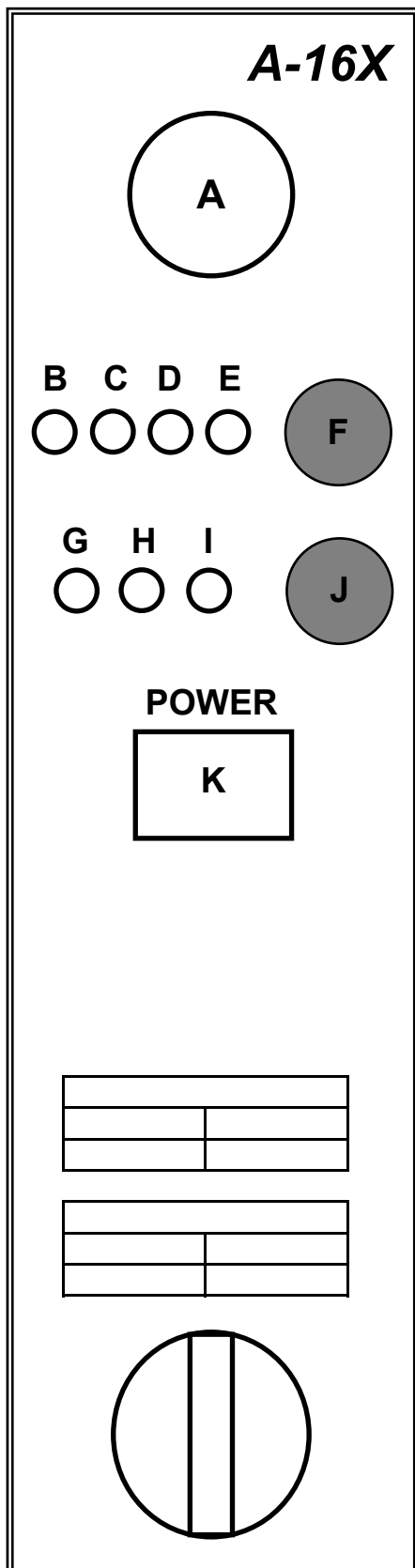
## Backside View:



## Underside View:




## CHAPTER 1-1 CONTROL PANEL DESCRIPTION



- A. PRESSURE GAUGE
- B. **POWER** INDICATOR
- C. **HEATING** INDICATOR
- D. **STERILIZATION** INDICATOR
- E. **COMPLETE** INDICATOR
- F. **START** BUTTON
- G. INDICATOR of **4 Min.** STERILIZATION TIME
- H. INDICATOR of **15 Min.** STERILIZATION TIME
- I. INDICATOR of **30 Min.** STERILIZATION TIME
- J. **SELECT** BUTTON (STERI. TIME)
- K. **POWER** SWITCH

## CHAPTER 2      SPECIFICATION

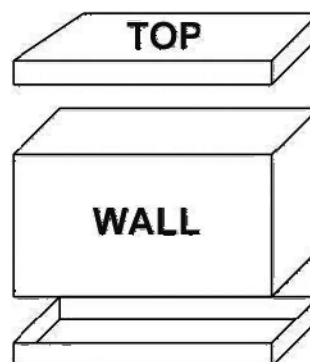
❖ Chamber Size	230mm $\varnothing$ × 400mm (Depth) - A-16X Made of ST. ST. #304
❖ Overall Size	510mm (W) × 400mm (H) × 540mm (D)
Power Consumption	110V / 1.2 KW (MAX.) / 7.3A - A-16X 230V / 1.4 KW (MAX.) / 3.9A - A-16X
❖ Safety Device	① Safety Valve ② Low Water (Overheated) Power Cut ③ Temperature Protection Switch ④ Pressure Control Switch
❖ Lifetime	7 years
❖ Quality Approval	 Approved By DNV
❖ QA System	<b>ISO-13485</b> Approved By DNV
❖ Standard Accessories	Sterilization Box × 1 (ST. ST. #304)
❖ Optional Accessories (Made of ST. ST. #304)	① Tray Set (Tray × 3, Frame × 1, Pulling Holder × 1) ② Spring Holder (Pouch Rack)

## CHAPTER 3 PREPARATIONS & 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 foam.



### CHECKLIST BEFORE USE THIS AUTOCLAVE

**NOTE:** Please check the enclosed accessories at first.

1. Place the autoclave 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.

2. Keep the autoclave in level condition.

3. Check the Power source is 110V or 230V.

**110V Power Cord: 14 AWG × 3C**

**230V Power Cord: 1.5 mm<sup>2</sup> × 3C**

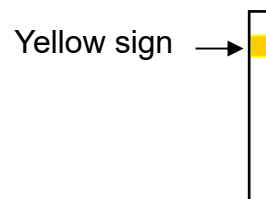


Figure 1

4. Pouring water (**DISTILLED WATER ONLY**) into the water reservoir until the water level reaches the YELLOW “FULL LEVEL” mark. (See Figure 1)



**CAUTION:** Please **DO NOT** pour water over the YELLOW signs.

5. Ensure the Power Switch is in the OFF position. Plugging the power cord into an earthed single AC mains socket of the correct type and rating.

**POWER SOCKET: 110V / 15A, 230V / 15A**



**CAUTION:** Ensure the “Power Switch” is in the OFF position before plug the power cord into the socket outlet.

6. Switch the Power Switch on, and the power light will illuminate, indicating that the autoclave is now in standby mode.

## CHAPTER 4      OPERATION

PLEASE CHECK **CHAPTER 3** AT FIRST.

1. Open the door and take out the heater cover.
2. Turn the Filling / Draining Water Valve to “**FILLING**” position to fill water. (Visually inspect that the water is covering the heater.) Then turn the valve to “**CLOSE**” to stop filling water.
3. Reposition heater covers back to the chamber. Place the instruments to be sterilized in the trays or sterilization box as required.

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

4. Select **Sterilization Temperature**. (118°C to 134°C by Temperature Selector)
5. Switch on the **POWER** switch. (Power switch lamp should be lightened.)
6. Select **Sterilization Time**. (4, 15, or 30 Min. by “**SELECT**” button)
7. Close the door. Then press “**START**” button.
8. Start Heating with the heater. The “HEAT” indicator should be lit up. In the meantime, the cold air will be exhausted by the steam trap.
9. Pressure should be increased to the preset value, ready to start a Sterilization process.
10. Complete the Sterilization cycle, and the buzzer will sound. Before you take out the sterilization items:



**CAUTION:** If water is intended to be retained in the chamber, wait for the pressure gauge back to atmospheric pressure.

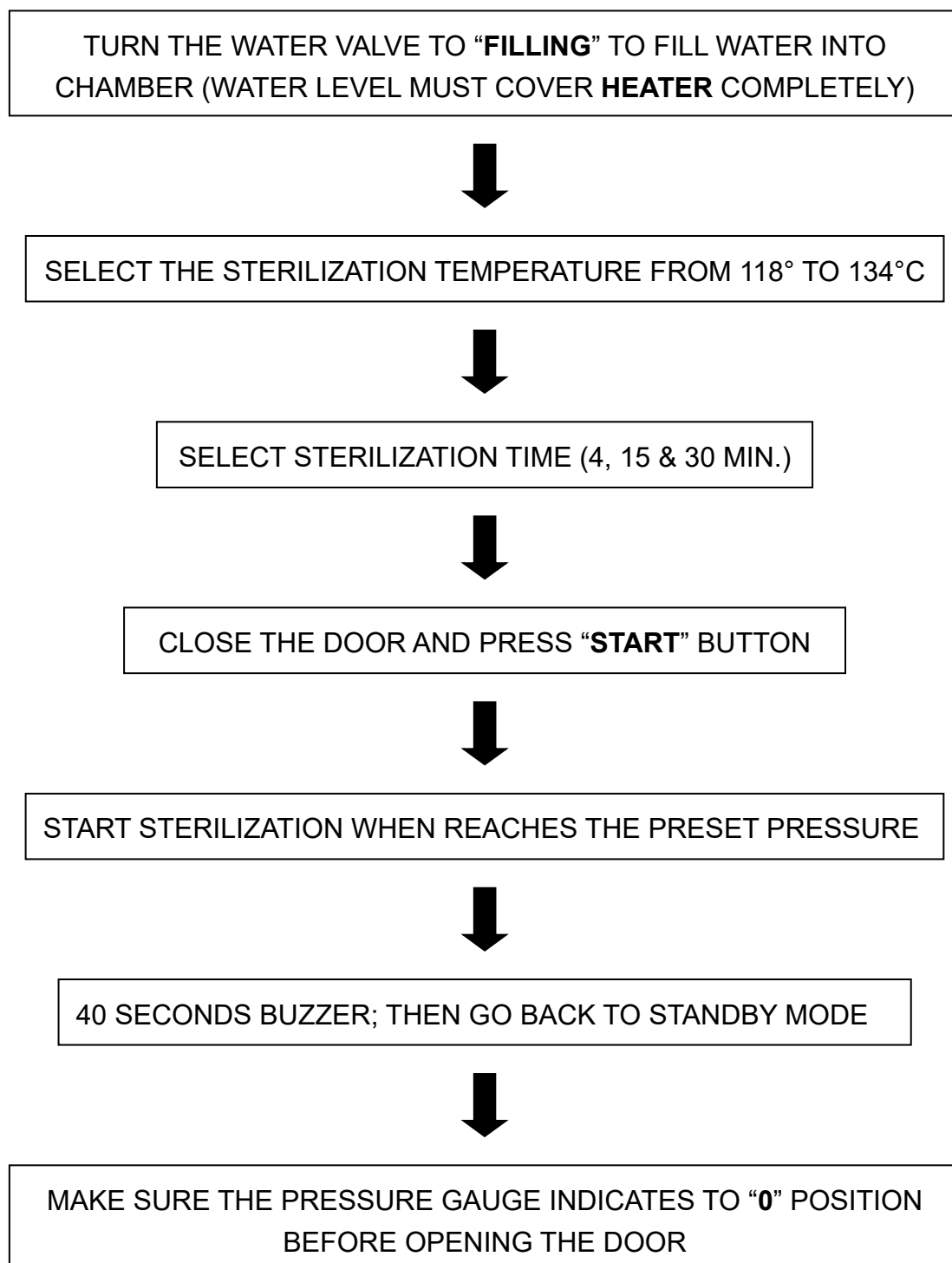
- A) Turn the Filling / Draining Water Valve to the “**FILLING**” position and the chamber pressure will be decreased. When the pressure gauge is reading ZERO (0), turn the Filling / Draining Water Valve to the “**CLOSE**” position.
- B) Check if the pressure gauge is back to atmospheric pressure.



**WARNING:** 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).

## CHAPTER 4-1 BASIC STEPS OF STERILIZATION

PLEASE CHECK **CHAPTER 4** AT FIRST.





## CHAPTER 4-2 CAUTION FOR STERILIZATION BOX

Figure 1



### Items to be sterilized

All items need to be put into the sterilization box. Do not let the sterilization items inside the box over the rim of the box. Or the sterilization box cannot be covered properly.

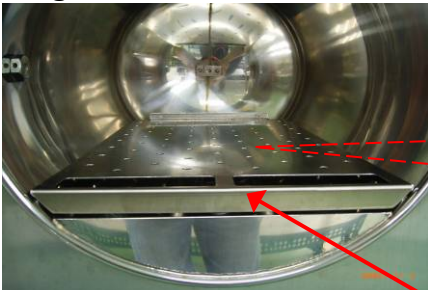
Figure 2



Put on the cover when sterilization item was put into box.

Do not forget to open both side windows before putting the sterilization box into the chamber.

Figure 3



Make sure that the heater cover is positioned correctly and is flat.

Heater cover

Figure 4

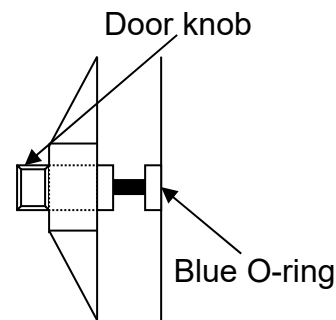


Please check heater cover and sterilization box are not in oblique position when the sterilization box was put into chamber.

## CHAPTER 5      WARNING

PLEASE CHECK THE FOLLOWING ARTICLES 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. Remember to fill water into the chamber before every cycle.
4. Check the water valve is at the "CLOSE" position after filling the water if not the pressure inside of the chamber could not increase.
5. The doorknob must be turned tightly. Make sure that it touches the blue O-ring can help the door closed completely.
6. Do not overfill the water reservoir. The water level must be maintained between YELLOW Full and Minimum labels on the right-hand side of the autoclave.
7. The filter inside the chamber and piping system should be cleaned at least once every season.
8. Use Sterilization Indicator Test Strips to check that sterilization has been successful.
9. Attention to the high temperature on the top of the housing when the autoclave working.
10. In an emergency, or before carrying out any maintenance, always disconnect the power cord from the socket outlet.
11. Symbol of CAUTION and INDICATION:



<b>CAUTION</b> Please check OP manual.	<b>CAUTION</b> Hot! Please <b>DO</b> <b>NOT</b> touch it.	<b>INDICATION</b> Electricity earth protection	<b>INDICATION</b> Power <b>OFF</b>	<b>INDICATION</b> Power <b>ON</b>

## CHAPTER 6      APPENDIX - A

### Program Details:

\*\*Temperature at 134°C / 273°F (Approx. 2.1 kg / cm<sup>2</sup>)

UNWRAPPED	Select <b>4 Min.</b> sterilization time
WRAPPED	Select <b>15 Min.</b> sterilization time

\*\*Temperature at 121°C / 250°F (Approx. 1.2 kg / cm<sup>2</sup>)

UNWRAPPED	Select <b>15 Min.</b> sterilization time
WRAPPED	Select <b>30 Min.</b> sterilization time
LIQUIDS	Select <b>30 Min.</b> sterilization time

# *FOR REFERENCE: 1 kg / cm<sup>2</sup> = 0.98bar = 14.2psi*

# The sterilization items must be marked as AUTOCLAVEABLE or STEAM STERILIZABLE.



**CAUTION:** AFTER RUNNING LIQUID STERILIZATION PROGRAM, **DO NOT** USE THE WATER VALVE TO RELEASE THE PRESSURE MANUALLY. CHAMBER PRESSURE QUICK-RELEASING MAY CAUSE THE GLASS CONTAINER TO CRACK.

## CHAPTER 6      APPENDIX - B

### RE-PACKING INSTRUCTIONS: TO PACK AUTOCLAVE INTO CARTON

1. Draining off all water from the autoclave, including chamber, water reservoir and hose.
2. Turn off the **POWER** and unplug the power cord.
3. Place all accessories into the chamber. Close the door firmly.
4. Cover the autoclave with a plastic bag.
5. Put the base carton containing the packing bottom-foam onto the floor.
6. Place the autoclave into the base carton and fix it in the bottom-foam set.
7. Place the wall piece of the carton into the base carton.
8. Put 4 pieces of angle paper fixing in each corner of the carton.
9. Put the top carton piece on.
10. Put top foam (4 pcs) on around the top of the autoclave.
11. Close the top of the carton and seal with tape.
12. Binding with a binder to concrete the top carton and base carton.
13. The carton was already designed with 2 holes on each side. It is convenience for carriers.

**IMPORTANT:** Recommend that all packing materials, including the carton be kept properly. This is for reuse whenever the unit needs to be transported again.

## CHAPTER 6      APPENDIX - C

No.	Part No.	Description
1	001-01001-01	POWER CORD (110V)
2	001-01004-01	POWER CORD (230V)
3	003-04004-01	POWER SWITCH
4	003-06002-01	TEMPERATURE SWITCH 130°C
5	003-08006-01	NO FUSE BREAKER 10A
6	003-09001-01	PRESSURE CONTROL SWITCH LTB-2200
7	004-05005-01	TRANSFORMER SA-2000E
8	009-01002-01	M-TYPE HEATER 1200W / 110V
9	009-01019-02	M-TYPE HEATER 1400W / 230V
10	409-02007-01	SILICONE DOOR GASKET (A-16X)
11	409-02010-01	SILICONE DOOR GASKET (SA-202X)
12	106-02002-01	1/4" SAFETY VALVE
13	217-01001-01	PRESSURE GAUGE
14	801-01003-01	PCB (Printed Circuit Board) W/ IC
15	805-05001-01	FILLING WATER VALVE SET
16	805-08001-01	TEMPERATURE SELECTOR SET
17	908-01004-01	STEAM TRAP
18	915-02014-03	DISPLAY BOARD

## **CHAPTER 7      SIMPLE TROUBLESHOOTING**

### **A. POWER INDICATOR IS NOT LIGHTENED**

- 1. Power supply is not connected properly.**  
➔ Re-connect power cord until power indicator light illuminates.
- 2. No Fuse Breaker flicked off.**  
➔ Please contact your distributor for help.
- 3. Over-heating protection is activated.**  
➔ Wait for 10 minutes and the autoclave will restart automatically.

### **B. AUTOCLAVE IS NOT OPERATING PROPERLY**

- 1. Unable to press buttons**  
➔ Please contact your distributor for help.
- 2. Unable to heat up**  
➔ Please contact your distributor for help.
- 3. Unable to enter sterilization step**  
➔ Please contact your distributor for help.
- 4. Unable to complete cycle**
  - 4-1 Forget to fill water or water is not enough.**  
➔ Please refill water and try again.
  - 4-2 Water valve is not closed.**  
➔ Please turn the water valve to “CLOSE” position and try again.

### **C. COLOR OF STEAM INDICATOR STRIP DOES NOT CHANGE**

**Select wrong sterilization time.**

- ➔ Please re-select proper sterilization time for the sterilization items and try again.

***Any other problems, please contact your distributor for help.***

## CHAPTER 8      MAINTENANCE INSTRUCTIONS

### DAILY:

- ❖ Wipe the inside of the chamber, door and the gasket with a damp, lint-free cloth.
- ❖ Check the water level. Fill up with distilled water only.
- ❖ Drain off the remaining water inside the chamber every time after running a cycle.

### WEEKLY:

- ❖ Drain off the water reservoir and refill with distilled water. (\*Please use the water level viewing hose to drain off water of water reservoir.)
- ❖ Remove the cap of water reservoir and find the safety valve. Pull the ringlet of the safety valve to check its working status.

### MONTHLY:

- ❖ Clean the chamber and piping system with “**CHAM-MATE**”.
- ❖ Use clean water and a sponge to scrub the water reservoir thoroughly. (It is to clean away the mineral residues of water.)

### ANNUALLY: (Please contact your distributor for maintenance.)

- ❖ Check the working status of silicone door gasket, steam trap, safety valve, and heater. (Recommendation: Replace the silicone door gasket every year.)
- ❖ Test the functions of PCB (Printed Circuit Board).
- ❖ Check the temperature during sterilization.
- ❖ Use biological indicators to test the validity of sterilization.

## **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 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.

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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)