Sturdy
Wellell Group

Autoclave Sterilizer

SA-300MB / SA-302MB
Instruction Manual

Please read manual carefully before using and keep it well for future reference.

CE 2460

422-03044 v.03 16 September 2022

Contents

1. Important Safety Instructions

In order to clearly indicate the extent of the harm, loss or damage which may result from falling to heed these precautions and the degree of their urgency, the precaution have been classified into the three categories of Danger, Warning and Caution.

⚠**Danger:** This indicates an imminently hazardous situation arising from the mishandling or mis-operation of the unit which, if not avoided, might cause the death or serious injury of the operator or other persons.

⚠**WARNING:** This indicates a potentially hazardous situation arising form the mishandling or mis-operation of the unit which, if not avoided, might cause the death or serious injury of the operator or other persons.

⚠**CAUTION:** This indicates a potentially hazardous situation arising form the mishandling or mis-operation of the unit which, if not avoided, may cause the minor injury of the operator or other persons and property damage.

⚠**WARNING:** 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.

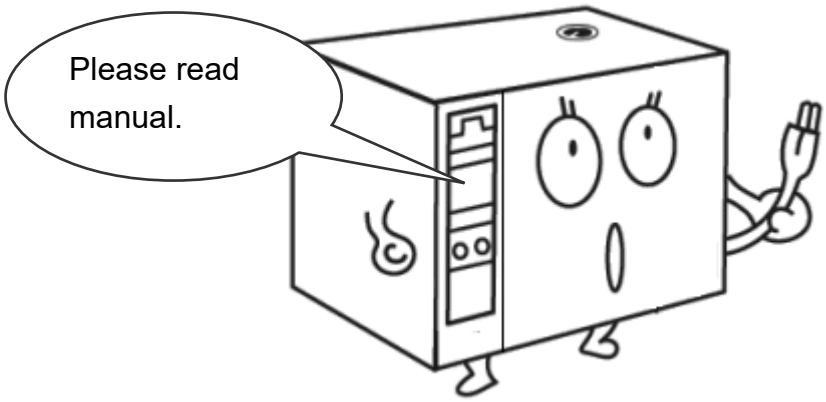


Figure 1

⚠**WARNING:** DO NOT place alcohol or other flammable items in the sterilizer. An explosion could occur, causing personal injury.

Gasoline
Alcohol
Gas
Chemical……

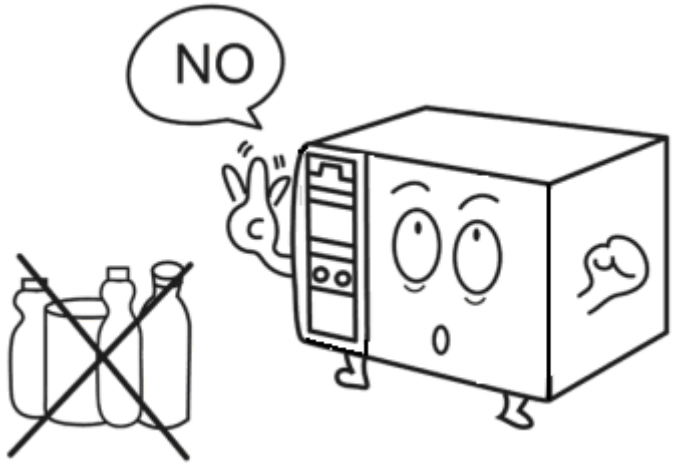


Figure 2

⚠**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.

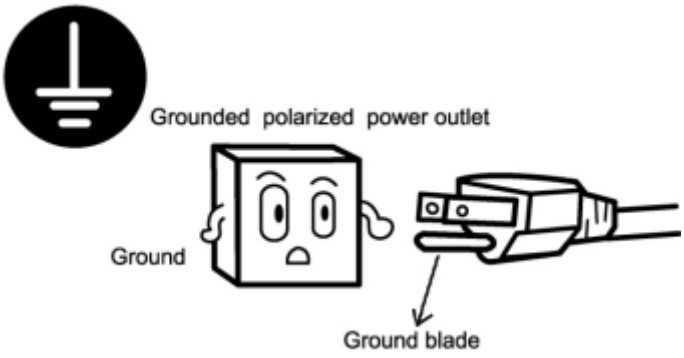


Figure 3

⚠**WARNING:** Always check the status of the electric wire; unplug the power cord if breakage comes up. Contact your supplier for service support.

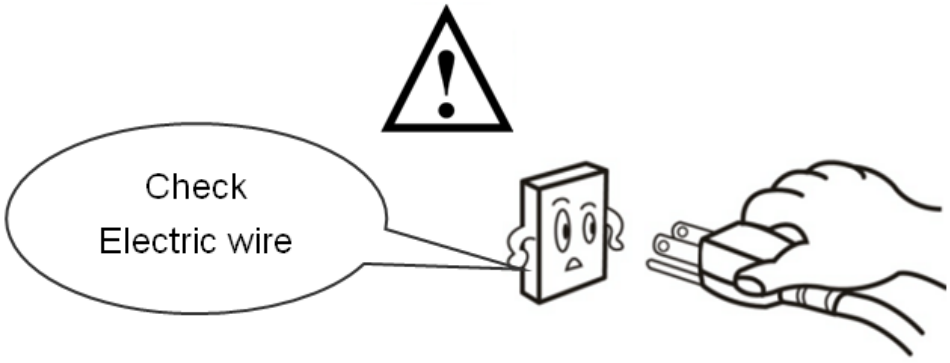


Figure 4

⚠**WARNING:** Children are not allowed to use or play with the unit.

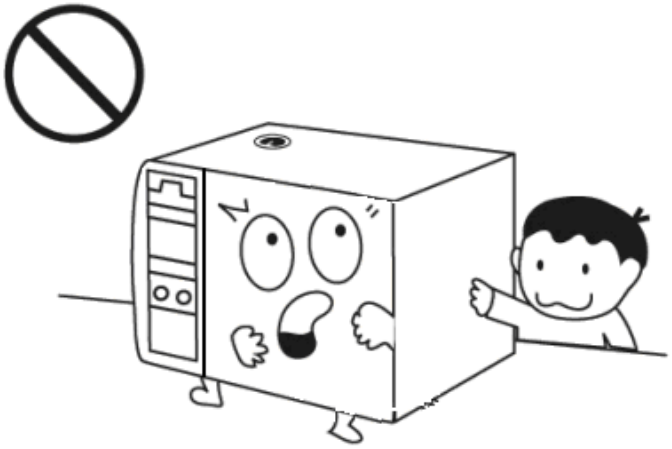


Figure 5

⚠**WARNING:** Do not put your fingers into the gap on the hinged side of the door.

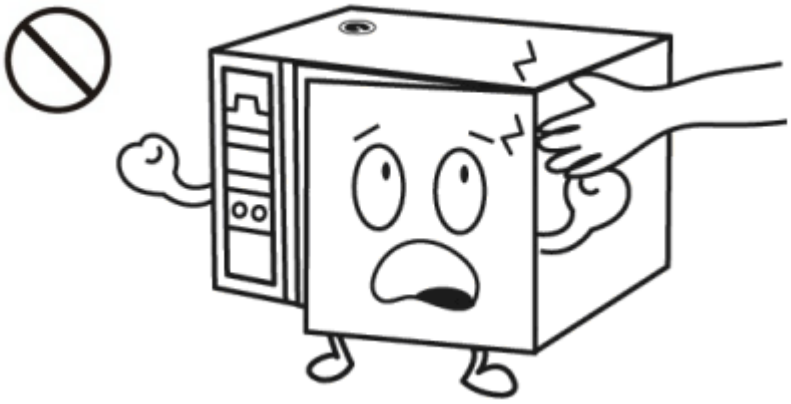


Figure 6

⚠**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).

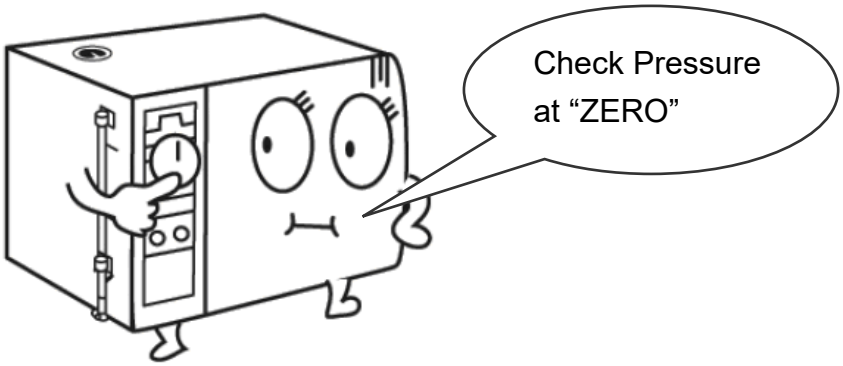


Figure 7

WARNING: In an emergency, or before carrying out any maintenance, always disconnect the power cord from the outlet.

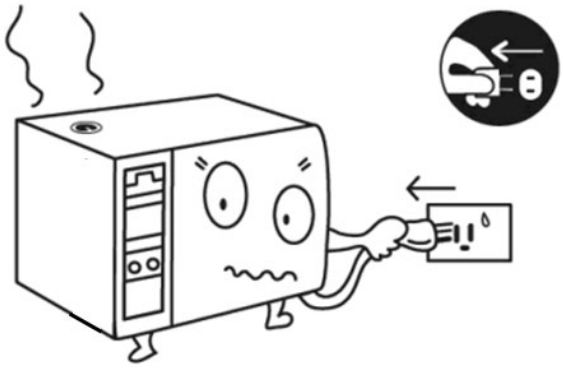


Figure 8

WARNING: Use sterilization indicator test strips to check that sterilization has been successful.

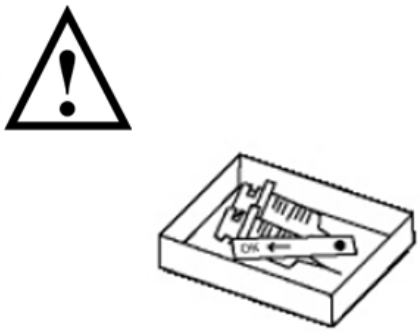


Figure 9

WARNING: If the ALARM indicator light illuminates, the machine is over-pressure or overheated. The sterilizer will shut down automatically. Contact your supplier for service support.

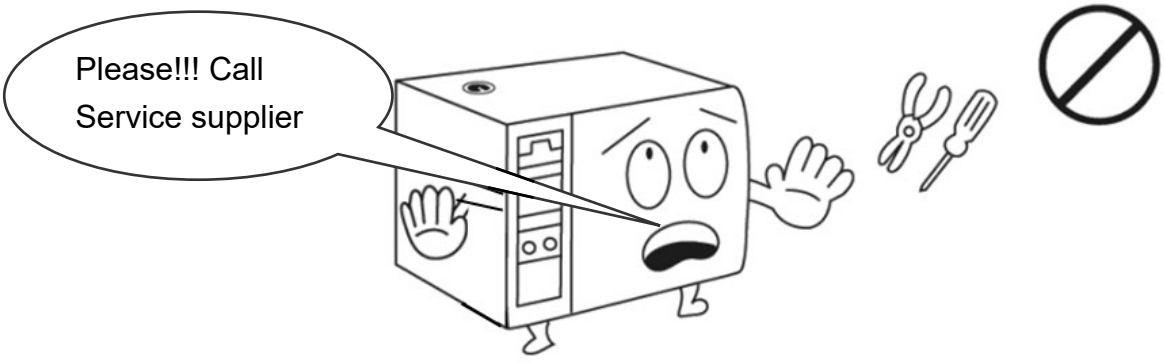
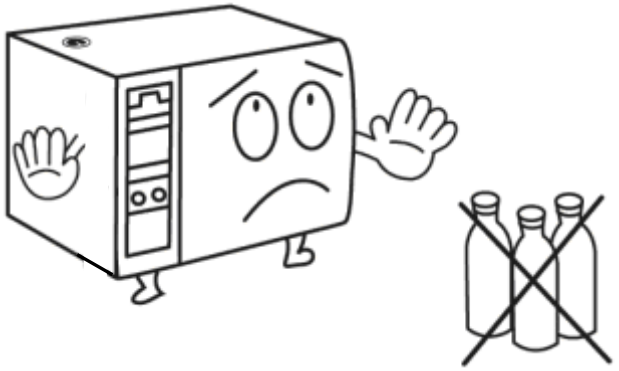


Figure 10

⚠**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.



Pure Water
City Water
Groundwater
……

Figure 11

⚠**CAUTION:** Do not put objects on the power plug or power cord.

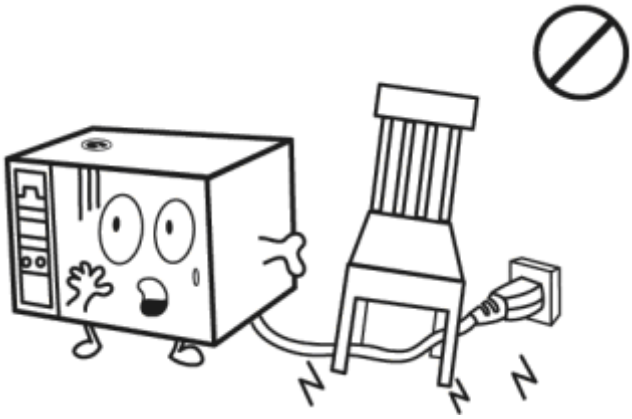


Figure 12

⚠**CAUTION:** The outer casing and metal surfaces of the sterilizer will be hot during operation, please do not touch it.

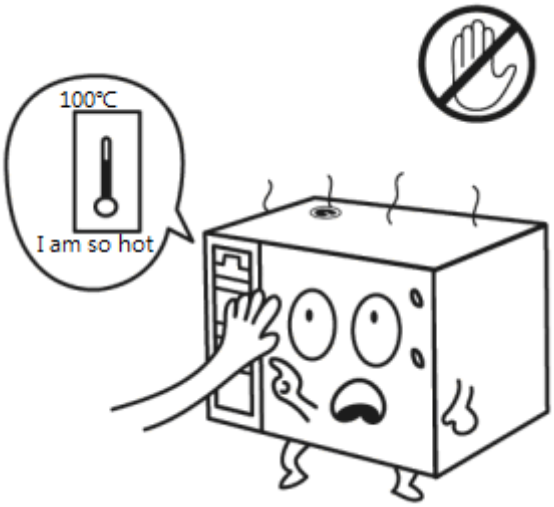


Figure 13

⚠**CAUTION:** Do not place objects on top of the water intake cap.

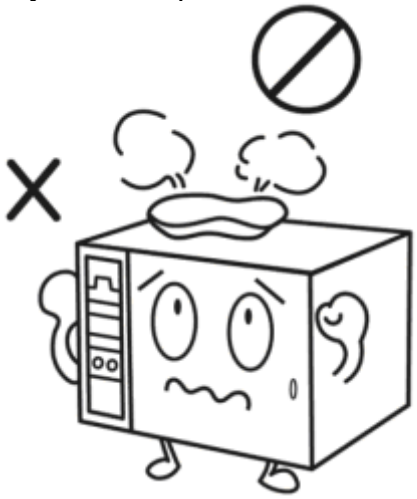


Figure 14

⚠**CAUTION:** Steam and hot water will be present when opening the door after a sterilizer cycle. Avoid contact.

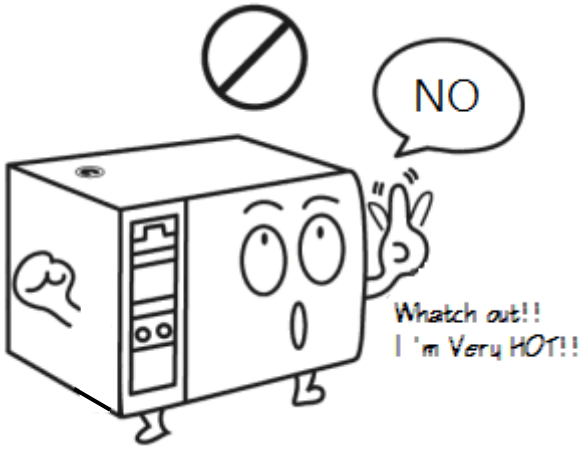


Figure 15

⚠**CAUTION:** DO NOT place any objects on the top of the sterilizer.

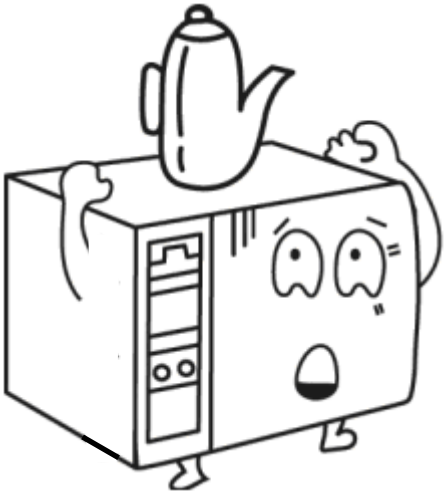


Figure 16

⚠**CAUTION:** Do not tip over the unit or allow it to fall on the power plug.

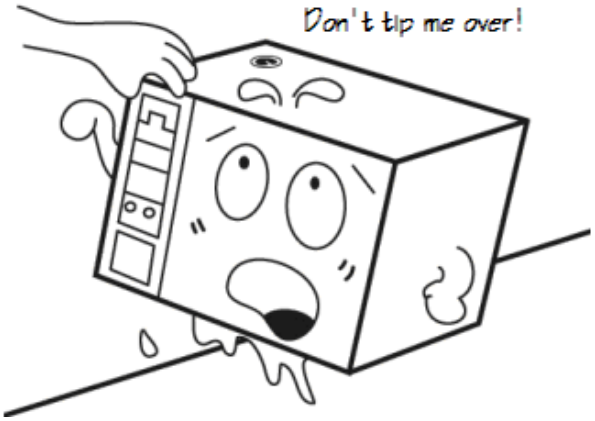


Figure 17

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

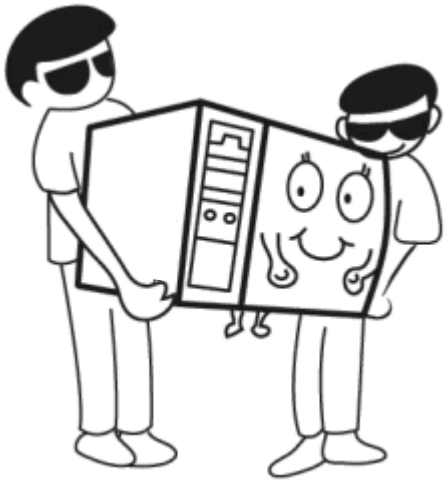


Figure 18

⚠**CAUTION:** Always allow a minimum of 20 min. between each sterilization cycle.

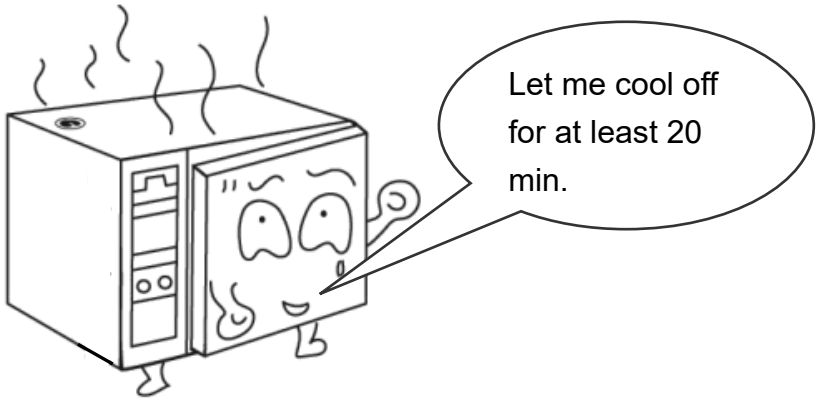


Figure 19

⚠**CAUTION:** Please unplug the power cord and drain off water from the reservoir if the sterilizer will not be used regularly.

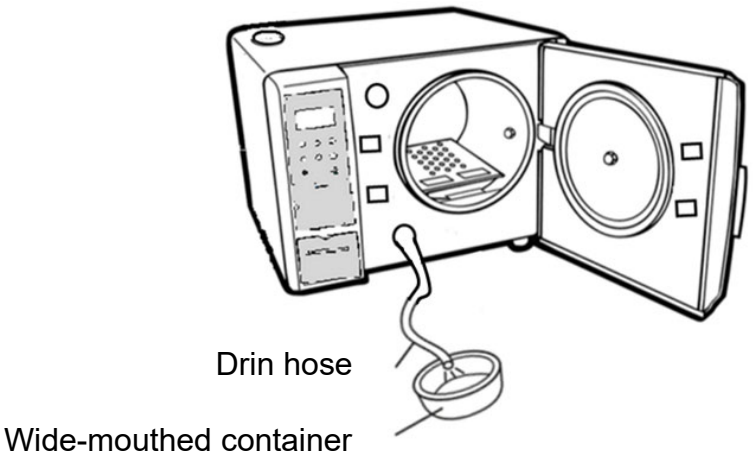


Figure 20

⚠**CAUTION:** Always keep the sterilizer clean.

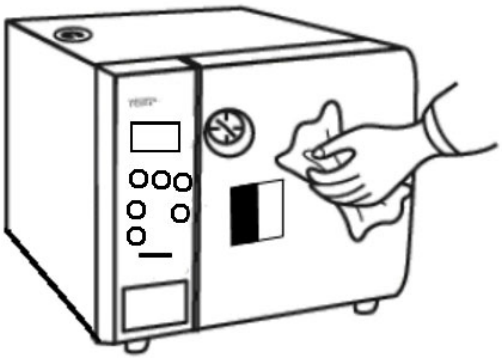


Figure 21

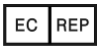
⚠**WARNING:** The door must be closed completely during operation of the unit. If the “Door open” displayed, it means that the door is not closed properly.

⚠**WARNING:** Always check the water level in the reservoir before running a sterilization cycle. If the “Low water in the tank” displayed, it means that the water in the reservoir is not sufficient. Please fill the water for sterilization or distilled water as shown in “9 Water Quality”.

⚠**WARNING:** Clean the water filter located at the back of the unit at least once per month. Refer to Maintenance Instructions.

⚠**WARNING:** Failure to follow the Maintenance Instructions will adversely affect performance and lifespan of the sterilizer, and may invalidate the warranty.

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)
	Authorised representative in the European community
	Manufacturer
	Date of manufacture It is a 6-digit number. The first 4 digits represent the year, followed by 2 digits of 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.

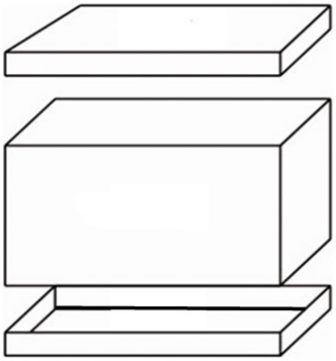


Figure 22 – Unpacking

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
- Tray Set ×1 (With tray ×3) (Standard)
- Holder ×1 (Standard)
- Silicone Hose（2m）x1 (Standard)
- Silicone Hose（2m）x1 (With connecter ×1) (Standard)
- Printer paper ×1 set (5 pcs) (Standard)
- Sterilization Box × 1 (Optional)*
- Spring Holder (Optional)*
- Exhaust Tank (Optional)*

*The accessories will be different according to the order request.

NOTE: The manufacturer recommends that all packaging material is retained for possible re-use.

NOTE: The packing material is made by corrugating medium-catalogue AA for the purpose of Reduce, Reuse and Recycle.

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 "11. Specifications".

4.2 Set up

⚠**CAUTION:** Please read and follow "5.2" in order to understand the operation of the sterilizer.

⚠**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.

⚠**WARNING:** Be sure to install the sterilizer on a flat surface, otherwise it may not defect the water level correctly.

⚠**CAUTION:** The optional Exhaust Tank is capable of draining water; you should then drain out the water according to the local national law.

A. 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 "11. Specifications".
B. Position the sterilizer on a stable 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.

4.2.1 Waste out draining

Heating water is drained from the chamber through this outlet located at the back of the sterilizer. Connect the exhaust hose to the “WASTE OUT” as shown in Figure 23 to drain heating water according to the local national law.

⚠**WARNING:** Examine that pipelines connected from “waste outlet” is not obstructed by the over-bending as shown in Figure 24.

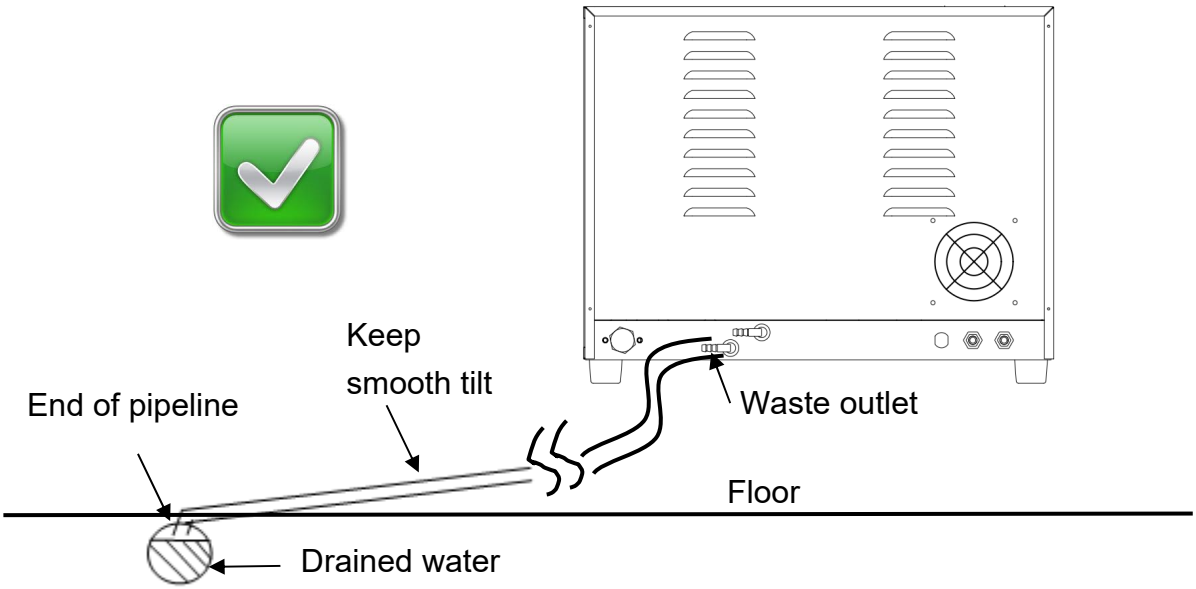


Figure 23

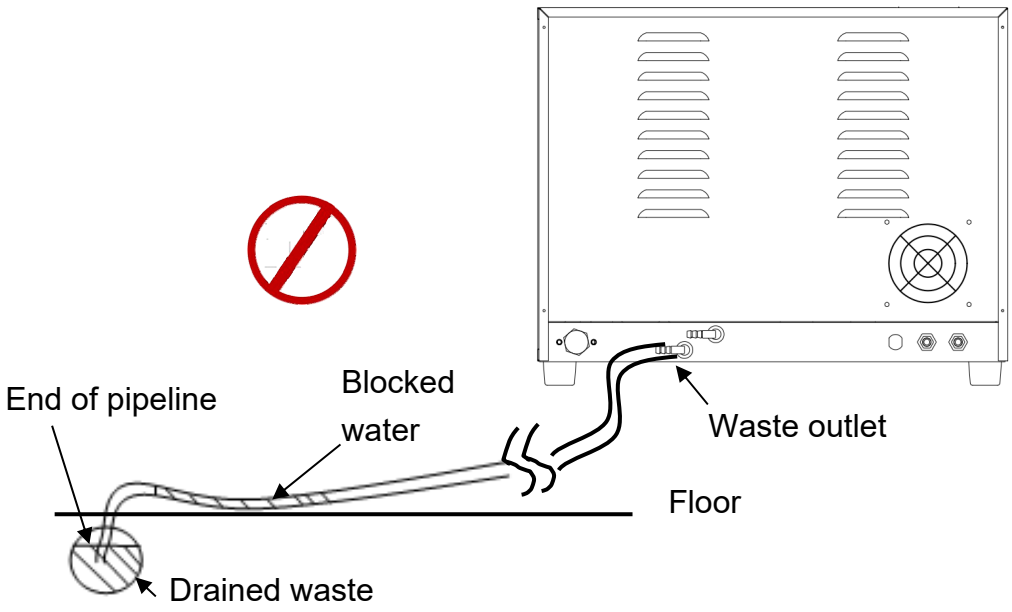


Figure 24

4.2.2 Manual water

Open the water reservoir cap; pour water for sterilization or distilled water into the water reservoir as shown in Figure 25

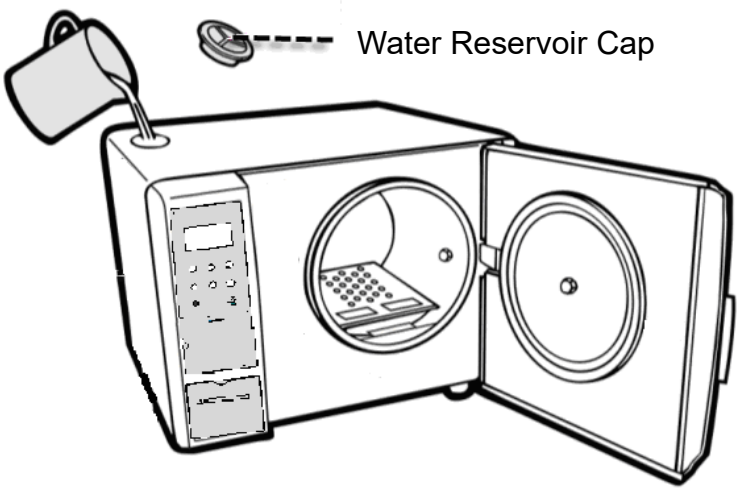


Figure 25

⚠**WARNING:** Do NOT fill water into the reservoir during the sterilization process to avoid overflow. After each sterilization cycle is completed, any remaining water in the chamber will be drained automatically.

4.2.3 Connecting an external water supply system

Connect an external water supply to the “WATER IN” on the rear side of the sterilizer by using the 2 m silicon hose for the “Auto add water” function as shown in Figure 26.

⚠**CAUTION:** Refer to “9 Water Quality”.

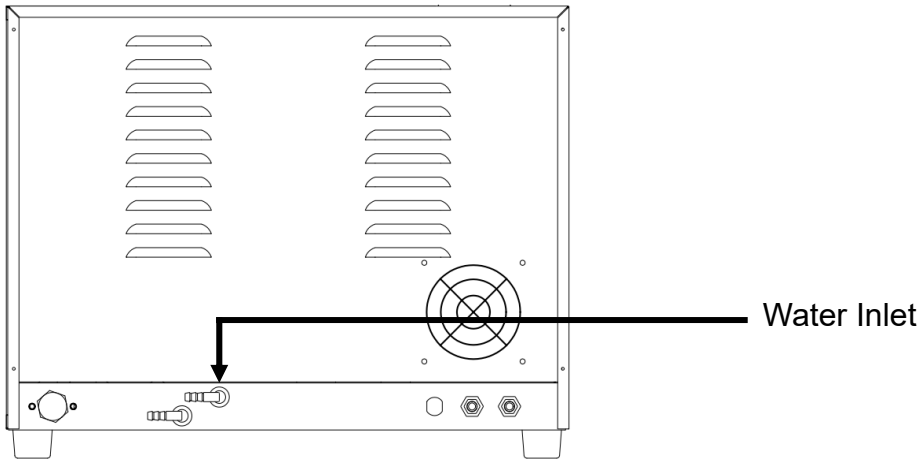


Figure 26

How to set the” Auto add water”:

Select ”system setting” as shown in Figure 27 (Refer to “6.8.4” for detail operation.)

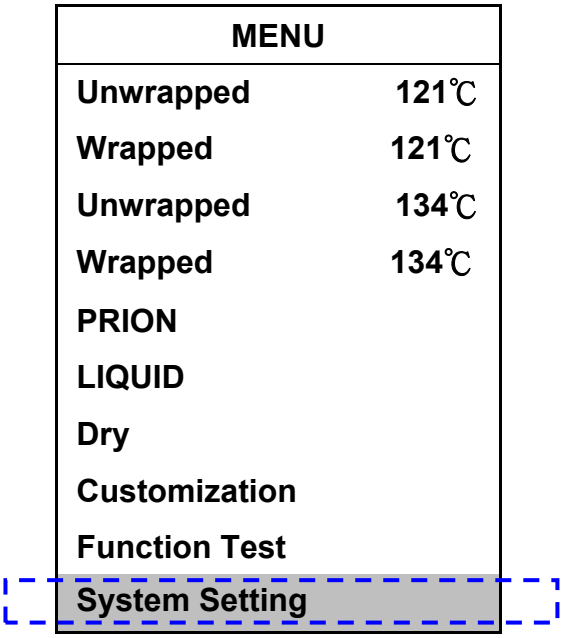


Figure 27

and then select ” Auto add water” as shown in Figure 28.

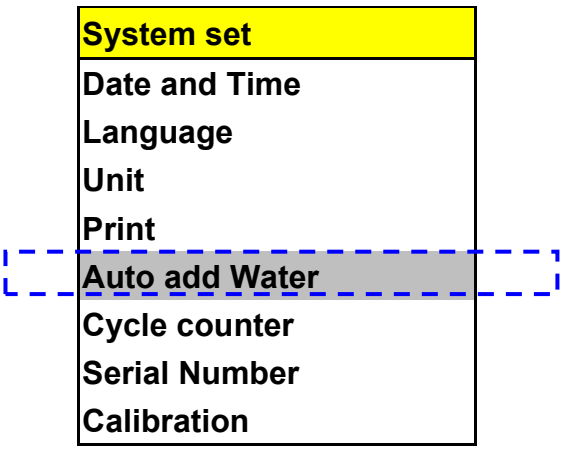


Figure 28

set to ”ON” as shown in Figure 29.

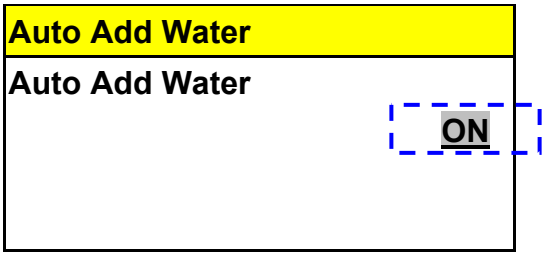


Figure 29

4.3 Installation

A. Install the heater cover to the chamber as shown in Figure 30 (standard accessory) Ensure the rounded edge is towards the back and the vertical front edge of the cover locates securely into the corresponding slots in the lower part of the chamber opening.

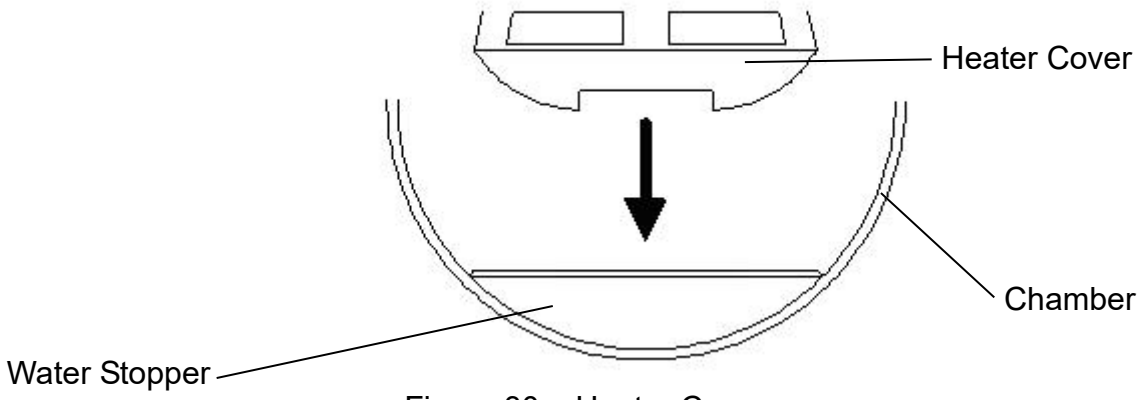


Figure 30 – Heater Cover

B. Install the tray frame as shown in Figure 31 (standard accessory)

⚠**CAUTION:** The frame should be installed as in Figure 31 below. The indention of the frame will pass the bushing in the chamber.

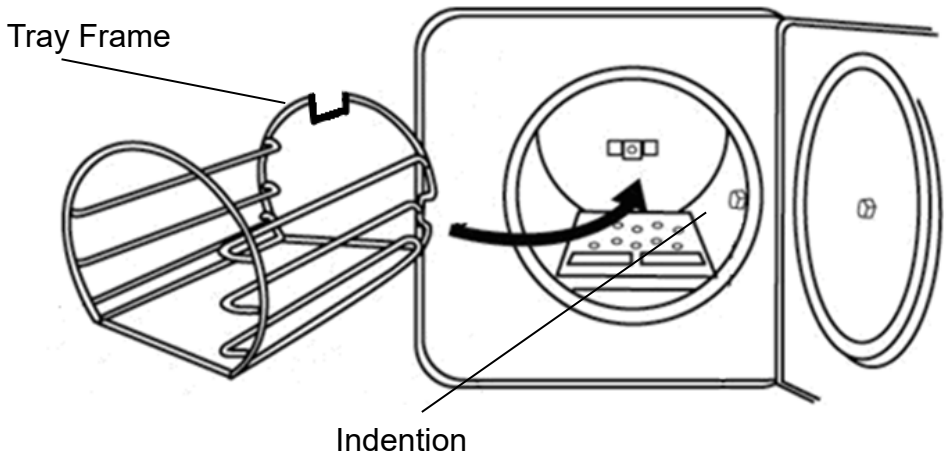


Figure 31

C. Install the tray as shown in Figure 32. (standard accessory)

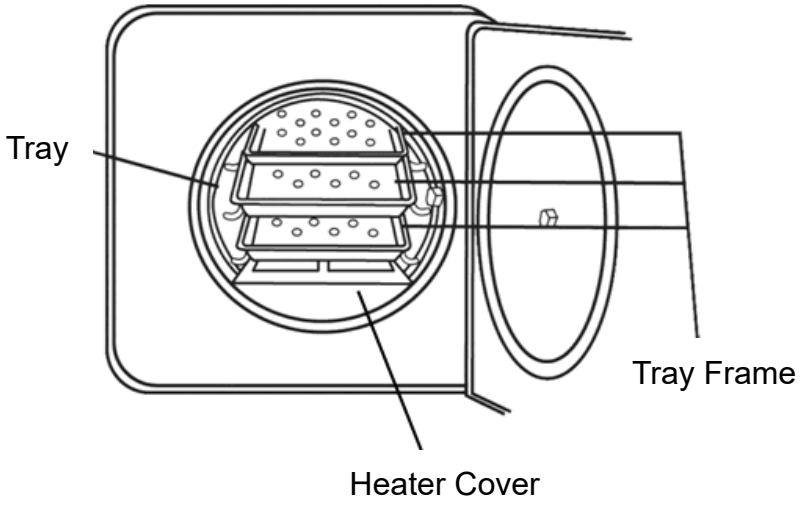


Figure 32 – Tray

D. Install the Sterilization Box as shown in Figure 33. (optional accessory)

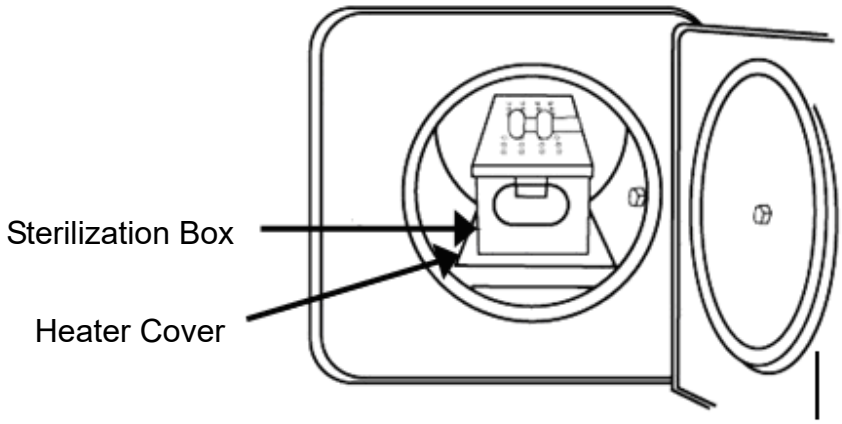


Figure 33 – Sterilization Box

E. Usable space in the chamber

The chamber usable space is the maximum volume of the chamber for accommodating a sterilization load. This volume is equivalent to a pipe with the following dimensions:

※ SA-300MB

206 x 203 x 500 mm (W x H x D); equal to the volume of 20.9 liters

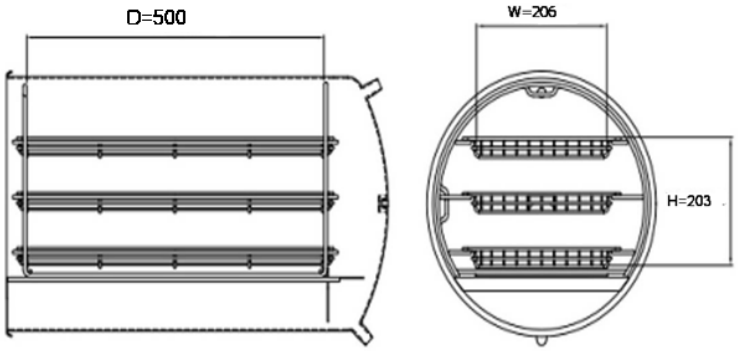
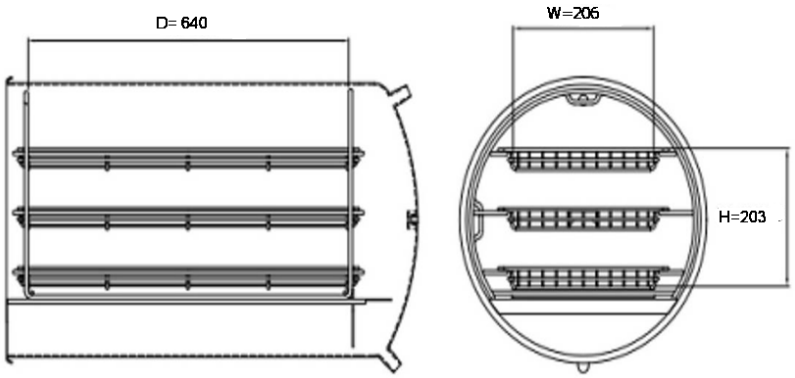


Figure 34

※ SA-302MB

206 x 203 x 640 mm (W x H x D); equal to the volume of 26.7 liters



F. 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 20 A / 230V AC.

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

G. Press the “POWER” switch to ON “I” position, the LCM should illuminate. If the sterilizer does not perform as mentioned above, please turn off the power and unplug the sterilizer, and then follow the “trouble shooting”. 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 wrapped and unwrapped items.

Suitable loads are those included in EN 13060 such as solid, porous, hollow loads type A, hollow loads type B; both single wrapped and double wrapped, and unwrapped loads.

5.2 Description of the Sterilizer

5.2.1 External View

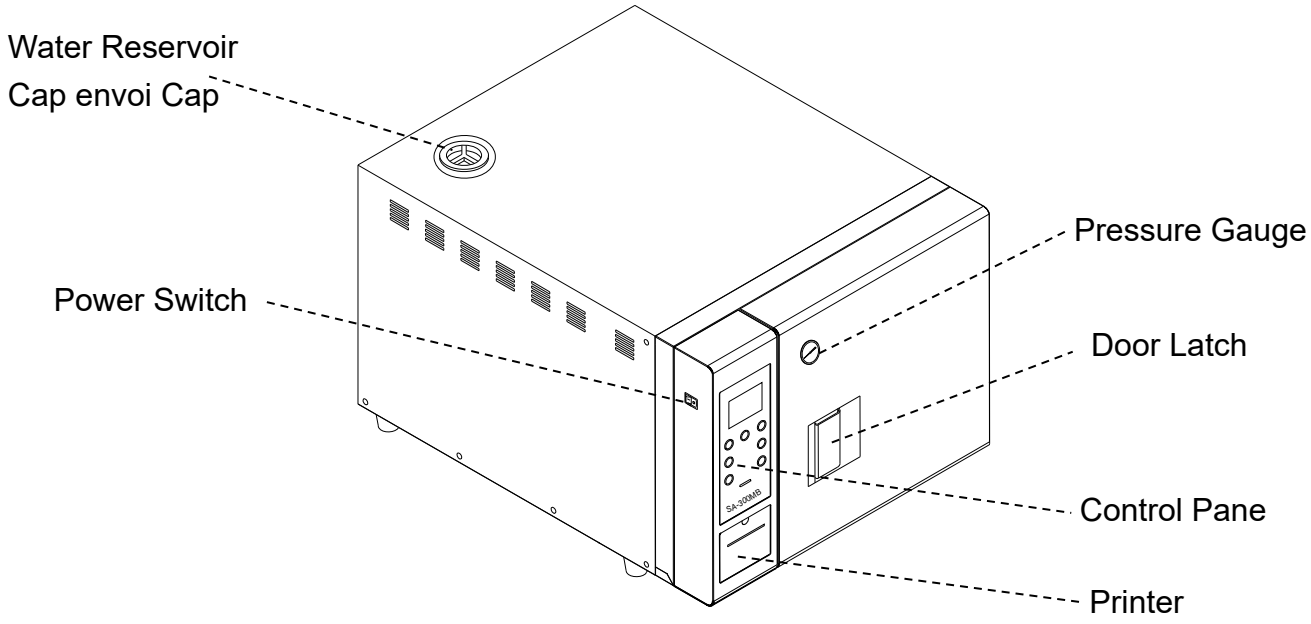


Figure 35 – Front View

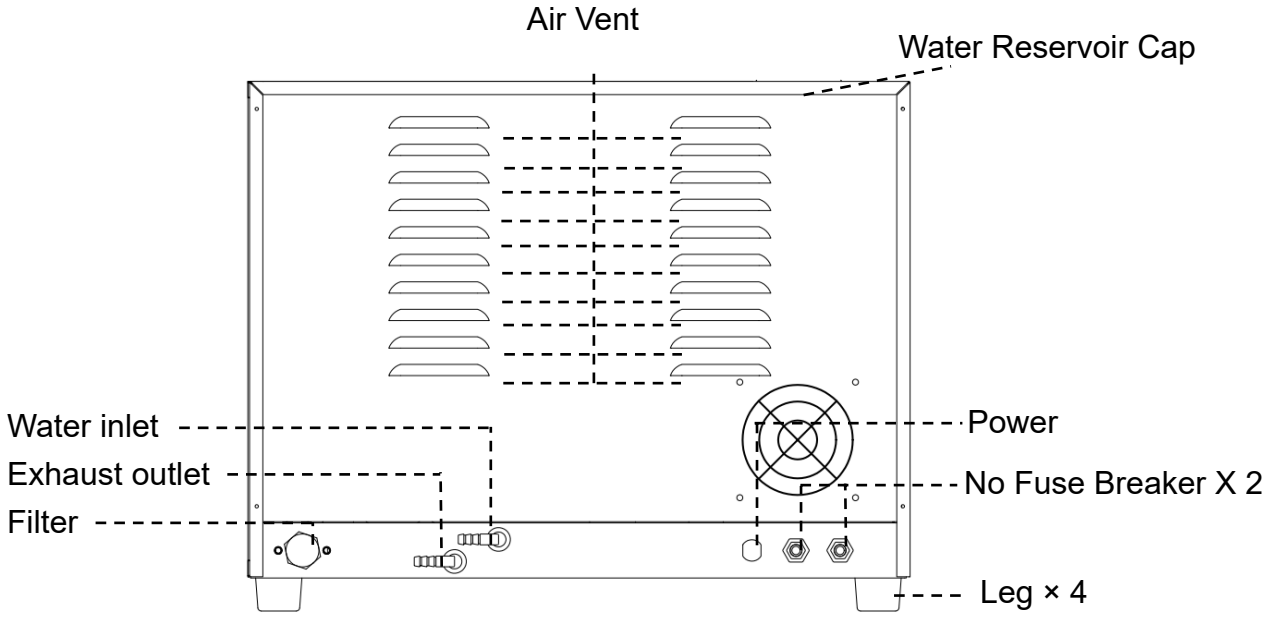


Figure 36 –Rear View

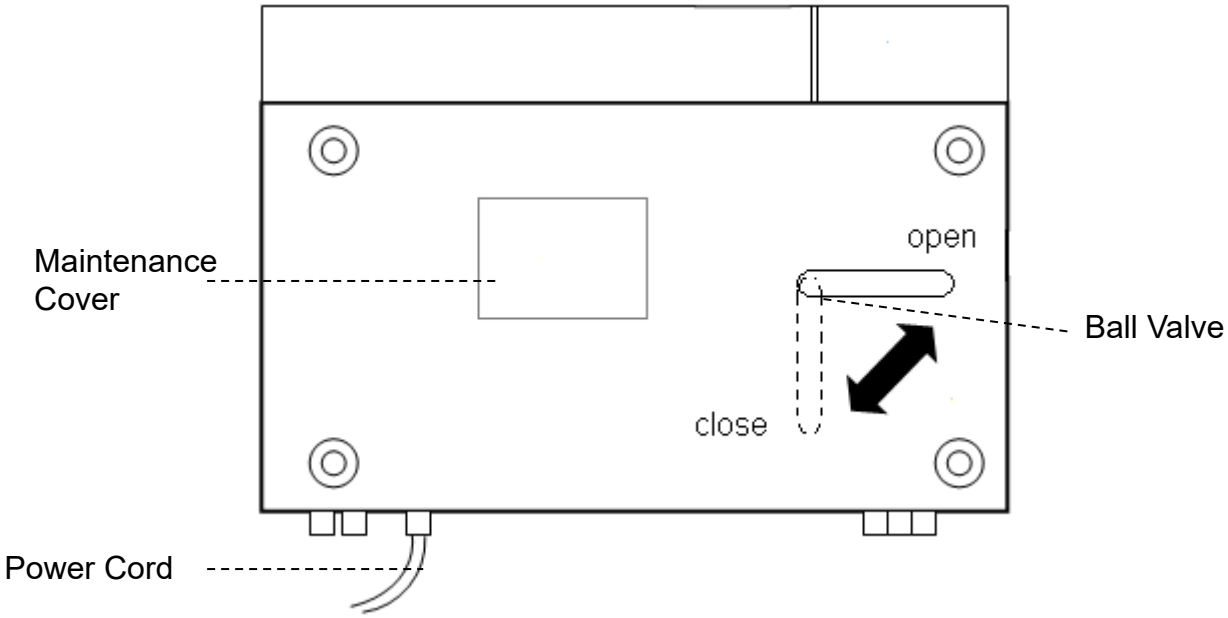


Figure 37 – Bottom View

5.2.2 Definition of two reservoir

The default position of this ball valve is set to “CLOSE” for separating of clean and waste water in the reservoir. Turn the valve to “OPEN” position if separation of clean and waste water is not required as shown in Figure 38.

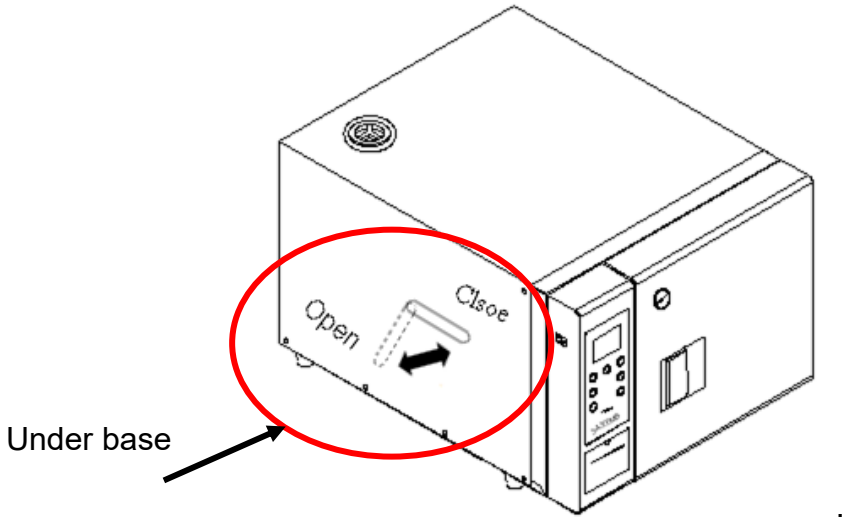


Figure 38

5.2.3 Internal Configuration

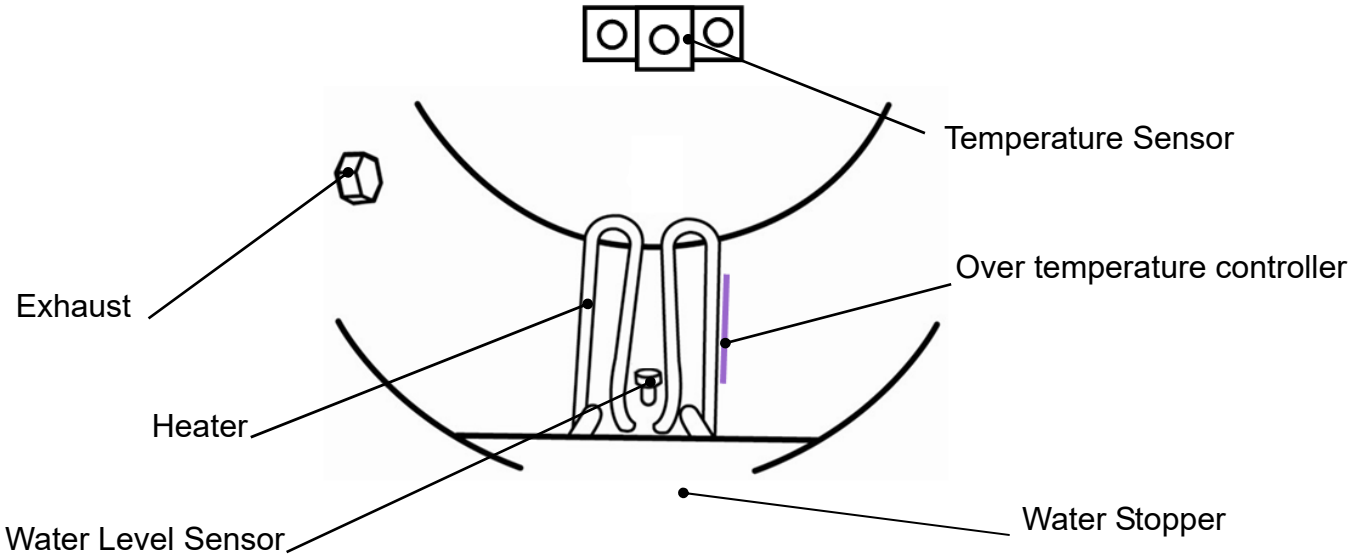


Figure 39 – Inside of Chamber

5.2.4 Control Panel

5.2.4.1 300MB / 302MB Control Panel

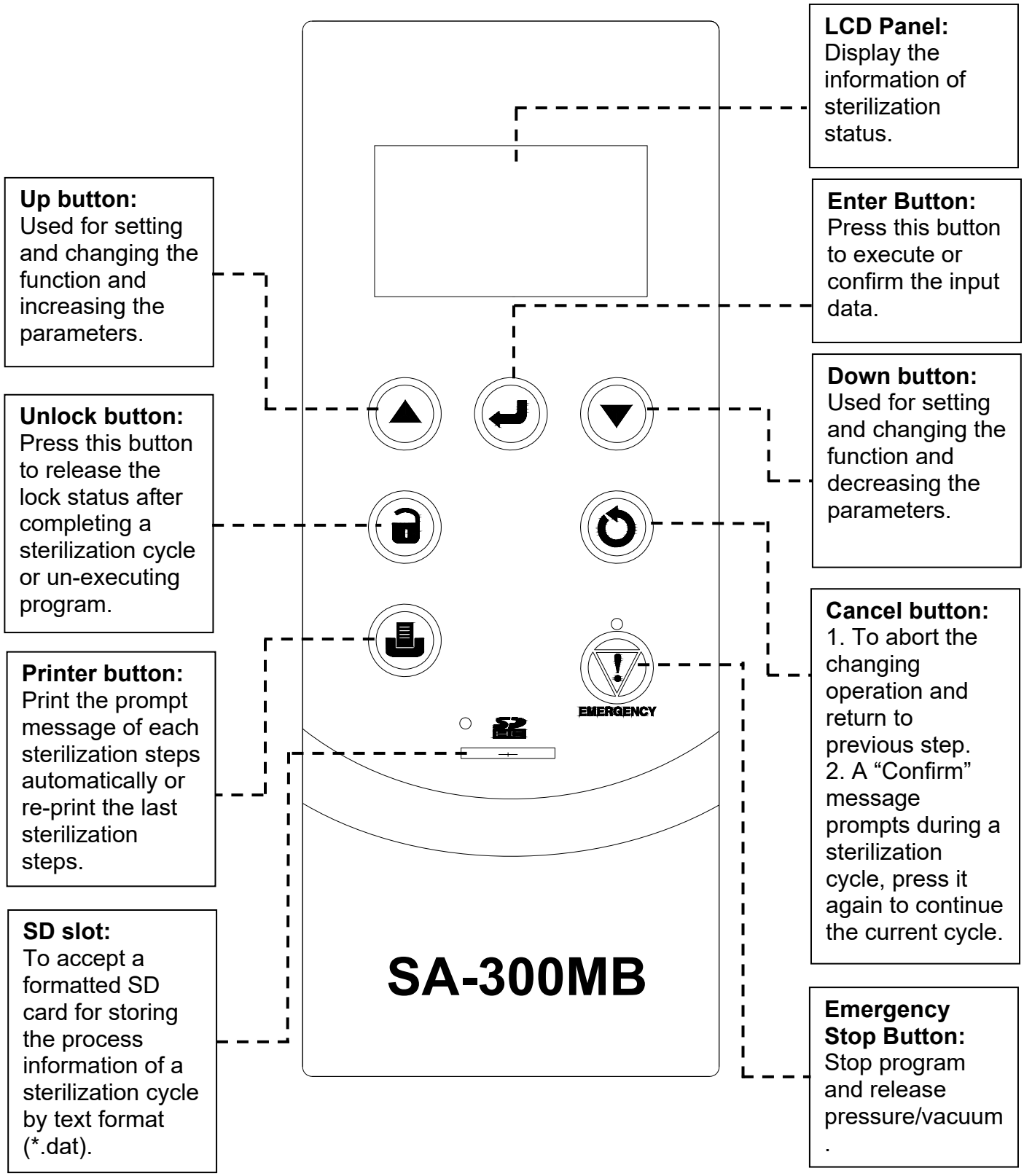


Figure 40 – Control Panel

6. Operation

The “Table 1” describes the build-in programs that can be used by the sterilizer model SA-300MB & SA-302MB.

<table>
<tr><th>Cycle Program</th><th>Description</th></tr>
<tr><td>UNWRAPPED 121ºC
WARAPPED 121ºC</td><td>Applicable to solid, porous, hollow loads type A, hollow loads type B; both single wrapped and double wrapped, and unwrapped loads.

<table>
<tr><th></th><th>UNWRAPPED</th><th>WARAPPED</th></tr>
<tr><td>Pre-Vacuum pulses(Times)</td><td colspan="2">5</td></tr>
<tr><td>Sterilization temp (ºC)</td><td colspan="2">121</td></tr>
<tr><td>Sterilization time (Minutes)</td><td>15</td><td>30</td></tr>
<tr><td>Dry time (Minutes)</td><td>15</td><td>30</td></tr>
</table>

Refer to “6.4” for detail operations.</td></tr>
<tr><td>UNWRAPPED 134ºC
WARAPPED 134ºC</td><td>Applicable to solid, porous, hollow loads type A, hollow loads type B; both single wrapped and double wrapped, and unwrapped loads.

<table>
<tr><th></th><th>UNWRAPPED</th><th>WARAPPED</th></tr>
<tr><td>Pre-Vacuum pulses(Times)</td><td colspan="2">5</td></tr>
<tr><td>Sterilization temp (ºC)</td><td colspan="2">134</td></tr>
<tr><td>Sterilization time (Minutes)</td><td>4</td><td>15</td></tr>
<tr><td>Dry time (Minutes)</td><td>15</td><td>30</td></tr>
</table>

Refer to “6.4” for detail operations.</td></tr>
<tr><td>PRION</td><td>Applicable to solid, porous, hollow loads type A, hollow loads type B; both single wrapped and double wrapped, and unwrapped loads.

<table>
<tr><th></th><th>PRION</th></tr>
<tr><td>Pre-Vacuum pulses(Times)</td><td>5</td></tr>
<tr><td>Sterilization temp (ºC)</td><td>134</td></tr>
<tr><td>Sterilization time (Minutes)</td><td>18</td></tr>
<tr><td>Dry time (Minutes)</td><td>30</td></tr>
</table>

Refer to “6.5” for detail operations.</td></tr>
</table>

<table>
<tr><th>Cycle Program</th><th>Description</th></tr>
<tr><td>LIQUID(Optional)</td><td>Applicable to LIQUID load.

This function allows the operator to define special sterilization cycle (such as temperature and time) within the specification of this autoclave.

Sterilization temp: 105-135℃,
Sterilization time: 1-60 minutes

⚠WARNING: Users who define the parameters should take their own responsibilities and obligations to undertaken the risk of sterilization uncertainty.</td></tr>
<tr><td>Dry</td><td>This dry program is designed for the following purpose:
1) To re-dry the loads, or
2) To pre-dry the loads for 10 to 30 minutes prior to perform a sterilization cycle, in case of the loads may store in a humidity and cold environment. This program is useful especially to the double wrapped loads.
Dry time 1 to 60 minutes.
Refer to “6.6” for detail operations.</td></tr>
<tr><td>Customization</td><td>This function allows the operator to define special sterilization cycle (such as temperature and time) within the specification of this autoclave.

<table>
<tr><th></th><th colspan="2">Customization</th></tr>
<tr><td>Pre-Vacuum pulses(Times)</td><td>No</td><td>Yes</td></tr>
<tr><td>Sterilization temp (°C)</td><td>105-135</td><td>119-135</td></tr>
<tr><td>Sterilization time (Minutes)</td><td colspan="2">0-60 minutes 59 seconds</td></tr>
<tr><td>Dry time (Minutes)</td><td colspan="2">0-60 minutes.</td></tr>
</table>

Refer to “6.7” for detail operations.

⚠WARNING: Users who define the parameters should take their own responsibilities and obligations to undertaken the risk of sterilization uncertainty.</td></tr>
</table>

Table 1 - Sterilization cycle

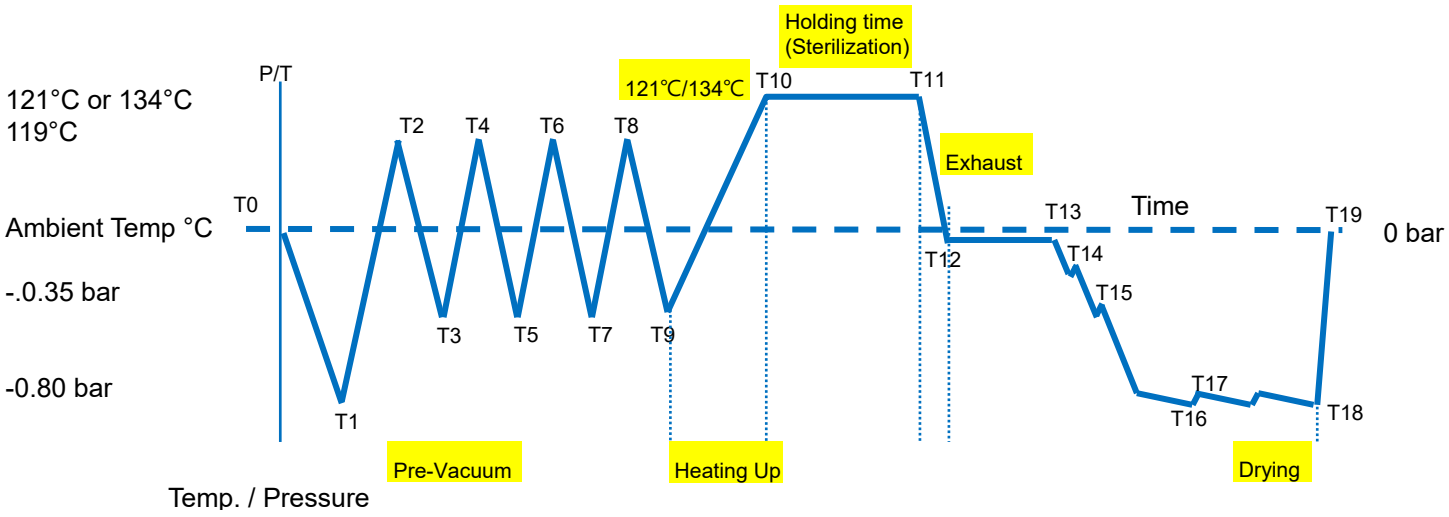


Figure 41

Legend of each cycle:

Table 2

PV1- PV4	Vacuum stage (Air removal stage)	T0-T1，T2-T3，T4-T5，T6-T7，T8-T9
H1-H4	Heating stage	T1-T2，T3-T4，T5-T6，T7-T8，T9-T10
S0-S60	Sterilizing stage (Holding stage)	T10-T11
EX	Exhaust stage	T11-T12
D0-D1	Drying stage	T12-T18
VR	Vacuum release stage	T18-T19

SA-300MB Maximum load of each build-in program:

Table 3

		Program								
		Unwrapped 121ºC	Unwrapped 134ºC	Wrapped 121ºC	Wrapped 134ºC	PRION	LIQUID	Dry	Customization	
									Pre-Vacuum	No-Vacuum
Temperature (ºC)		121	134	121	134	134	105-135	-	119-135	105-135
Pressure (bar)		1.1	2.1	1.1	2.1	2.1	-	-0.8	-	
Sterilization time(minutes)		15	4	30	15	18	1-60	-	-	
Dry time (minutes)		15	15	30	30	30	-	1-60	-	
Total time (minutes)		91	90	126	121	125	137-182	1-60	60-200	20-200
Max. load(g)	Solid Unwrapped	8,200					NA			
	Porous Unwrapped	2,500								
	Solid Wrapped	NA	NA	Single wrapped 2,400			NA			
				Double wrapped 2,000						
	Porous Wrapped	NA	NA	Single wrapped 1,800			NA			
				Double wrapped 1,600						
	LIQUID(Bottle)	NA		NA			250ml × 10 500ml × 8			
	Hollow A&B	2,000		Single wrapped 1,800			NA			
				Double wrapped 1,600						

SA-302MB Maximum load of each build-in program:

Table 4

<table>
<tr><td colspan="2" rowspan="2"></td><td colspan="9">Program</td></tr>
<tr><td>Unwrapped 121ºC</td><td>Unwrapped 134ºC</td><td>Wrapped 121ºC</td><td>Wrapped 134ºC</td><td>PRION</td><td>LIQUID</td><td>Dry</td><td>Customization</td><td></td></tr>
<tr><td colspan="2"></td><td colspan="6"></td><td></td><td>Pre-Vacuum</td><td>No-Vacuum</td></tr>
<tr><td colspan="2">Temperature (ºC)</td><td>121</td><td>134</td><td>121</td><td>134</td><td>134</td><td>105-135</td><td>-</td><td>119-135</td><td>105-135</td></tr>
<tr><td colspan="2">Pressure (bar)</td><td>1.1</td><td>2.1</td><td>1.1</td><td>2.1</td><td>2.1</td><td>-</td><td>-0.8</td><td>-</td><td></td></tr>
<tr><td colspan="2">Sterilization time(minutes)</td><td>15</td><td>4</td><td>30</td><td>15</td><td>18</td><td>1-60</td><td>-</td><td>-</td><td></td></tr>
<tr><td colspan="2">Dry time (minutes)</td><td>15</td><td>15</td><td>30</td><td>30</td><td>30</td><td>-</td><td>1-60</td><td>-</td><td></td></tr>
<tr><td colspan="2">Total time (minutes)</td><td>101</td><td>100</td><td>136</td><td>131</td><td>135</td><td>137-182</td><td>1-60</td><td>70-210</td><td>20-210</td></tr>
<tr><td rowspan="7">Max. load(g)</td><td>Solid Unwrapped</td><td colspan="5" rowspan="2">10,000</td><td rowspan="2">NA</td><td></td><td></td><td></td></tr>
<tr><td>Porous Unwrapped</td><td></td><td></td><td></td></tr>
<tr><td rowspan="2">Solid Wrapped</td><td rowspan="2">NA</td><td rowspan="2">NA</td><td colspan="2">Single wrapped 3,000</td><td rowspan="2">NA</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td></tr>
<tr><td colspan="2">Double wrapped 2,600</td></tr>
<tr><td rowspan="2">Porous Wrapped</td><td rowspan="2">NA</td><td rowspan="2">NA</td><td colspan="2">Single wrapped 2,000</td><td rowspan="2">NA</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td></tr>
<tr><td colspan="2">Double wrapped 1,800</td></tr>
<tr><td>LIQUID(Bottle)</td><td colspan="2">NA</td><td colspan="2">NA</td><td>250ml × 10
500ml × 8</td><td></td><td></td><td></td></tr>
<tr><td rowspan="2">Hollow A&B</td><td colspan="2" rowspan="2">2,200</td><td colspan="2">Single wrapped 2,000</td><td rowspan="2">NA</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td></tr>
<tr><td colspan="2">Double wrapped 1,800</td></tr>
</table>

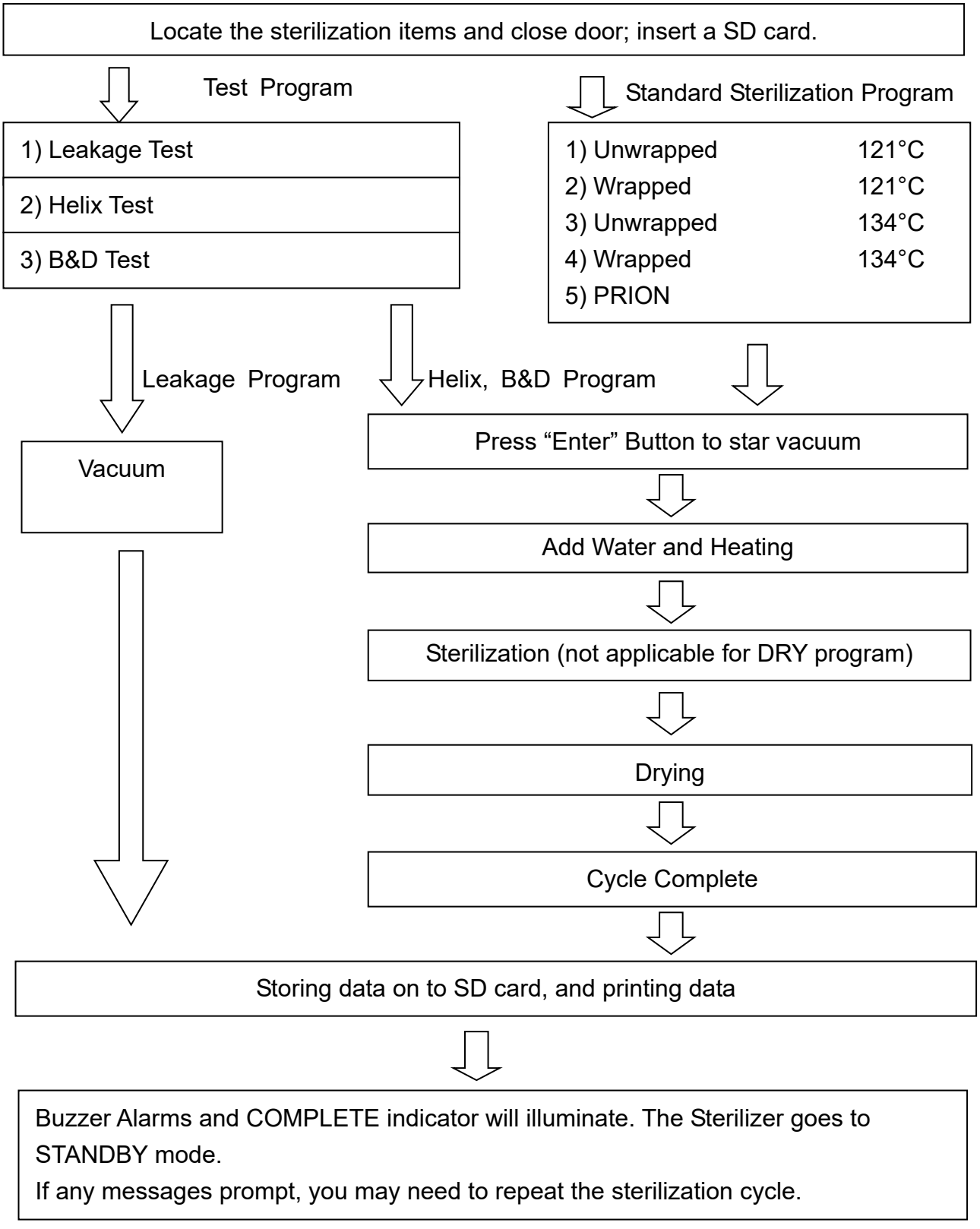
⚠**CAUTION:** The manufacturer does not guarantee any sterilization loads that exceed the above specifications.

Function test program:

Table 5

	Test program		
	Air leakage TEST	Helix TEST	B&D TEST
Temperature (ºC)	-	134	134
Pressure (bar)	-0.8	2.1	2.1
Sterilization time (minutes)	-	3.5	4
Dry time (minutes)	-	-	-
Total time (minutes)	16	83	84
Type of load	Empty chamber	Test tool	

6.1 Flow Chart with Build-in Program



6.2 Flow Chart with LIQUID Program (Optional)

Locate the sterilization items and close door; insert a SD card.

⇩

LIQUID(Optional) Setting

⇩

Sterilization Temp: 105-135 ºC
Sterilization time:1- 60 min

⇩

Press “Enter” Button to star vacuum

⇩

Add Water and Heating

⇩

Equilibrium Time

⇩

Sterilization

⇩

Cooling Down

⇩

Cycle Complete

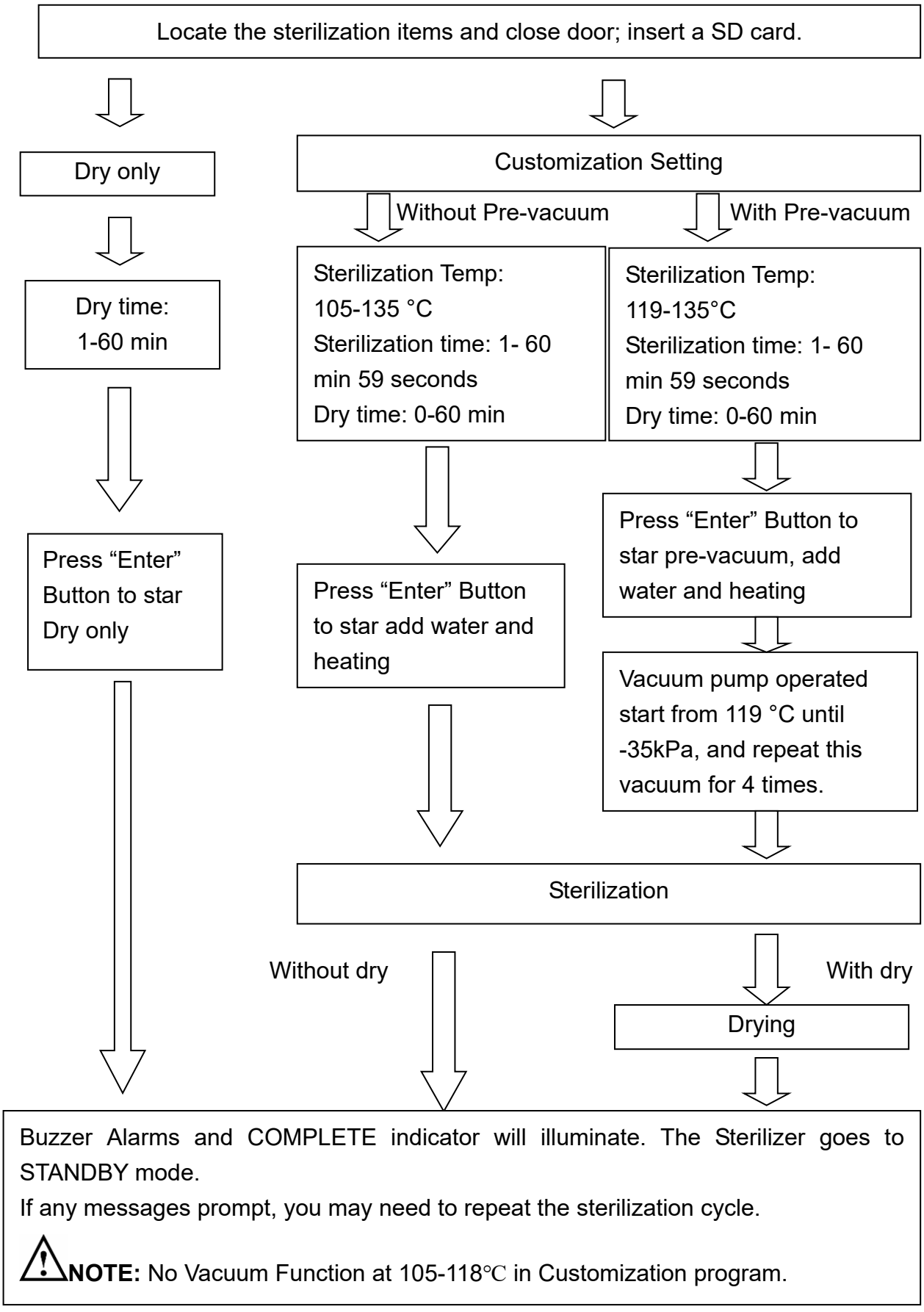
⇩

Storing data on to SD card, and printing data

⇩

Buzzer Alarms and COMPLETE indicator will illuminate. The Sterilizer goes to STANDBY mode.
If any messages prompt, you may need to repeat the sterilization cycle.

6.3 Flow Chart with Customization Program



6.4 Prepare Sterilization

A. Follow “4.2 ” to finish installation first.

B. Follow “4.2 ” to make sure the water inside reservoir is sufficient.

C. Press the “POWER” switch to ON “I” position.

D. Check the Pressure Gauge is reading ZERO, and then press the “unlock button”  to open the door latch shown in Figure 42.

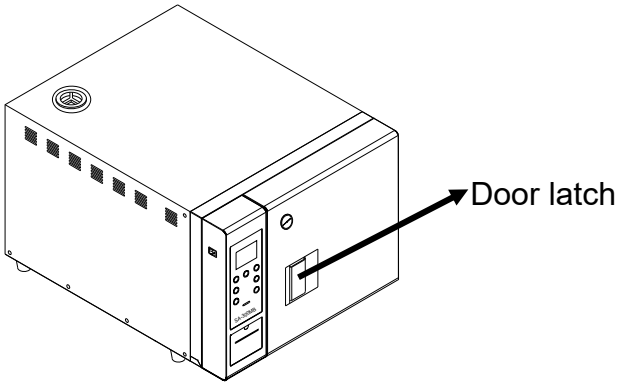


Figure 42

E. Place the items to be sterilized and the sterilization indicator strips （or biological indicator） into the box as required. Remember to open both side windows before placing the box into the sterilizer as shown in Figure 43. If use the sterilization box.

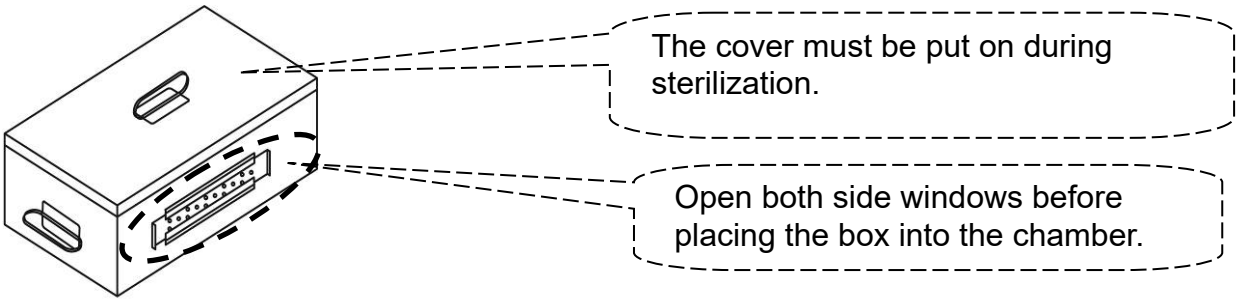


Figure 43

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

⚠**WARNING:** Refer to “Table 3” and “Table 4” for the maximum permissible load. Failure to follow these instructions may cause the sterilizer to malfunction and result in an unsuccessful sterilization cycle.

F. Close the door and make sure that the door latch is secured.

G. Select the suitable program cycle to start sterilization.

⚠**WARNING:** The door must be closed completely during operation of the unit. If the “Door open” displayed, it means that the door is not closed properly.

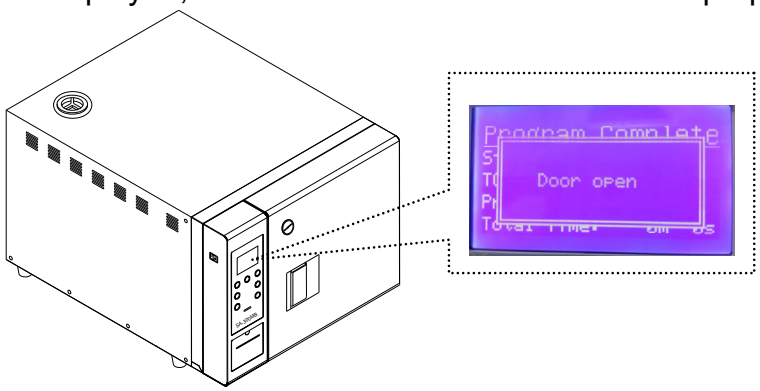


Figure 44

H. Insert a formatted SD card.

6.5 Standard Sterilization Program

A. Before start Sterilization program please refer to “6.3 Prepare Sterilization” section.

B. How to set the Standard Sterilization program:

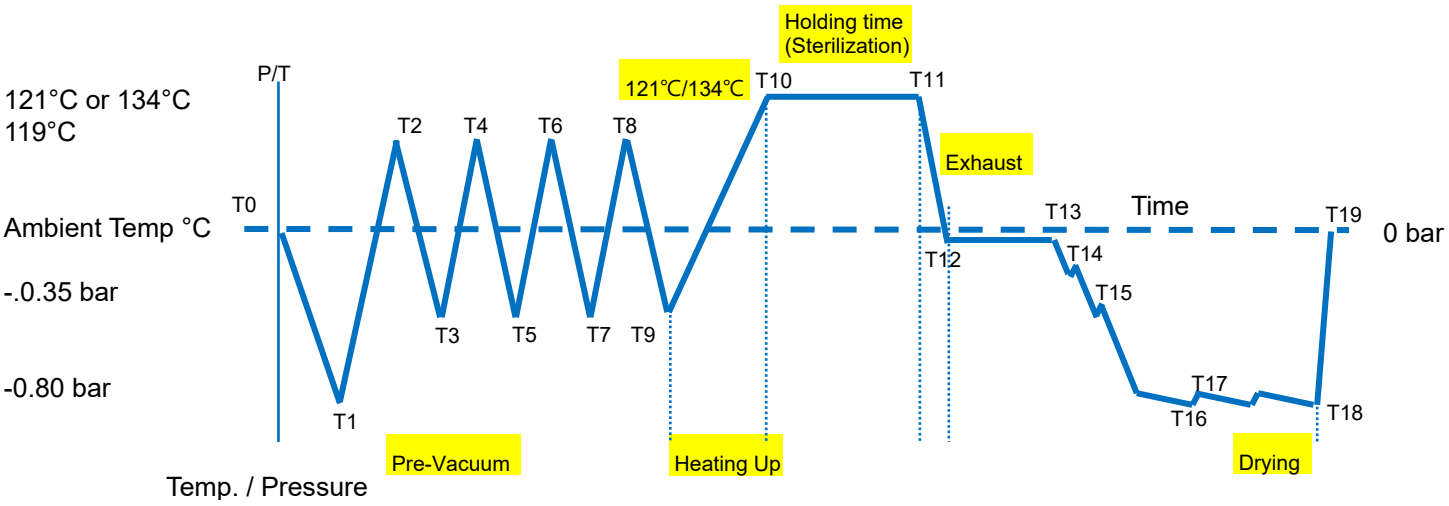
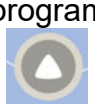


Figure 45

C. The built-in program have 4 standard sterilization program are 121ºC and 134ºC for wrapped and un-wrapped loads. Press  or  button to select the suitable program cycle such as “Unwrapped 121/134 ºC”(Figure 46) or ”Wrapped 121/134ºC” (Figure 47), and then press  button to confirm sterilization program, as shown in Figure 48 or Figure 49 respectively.

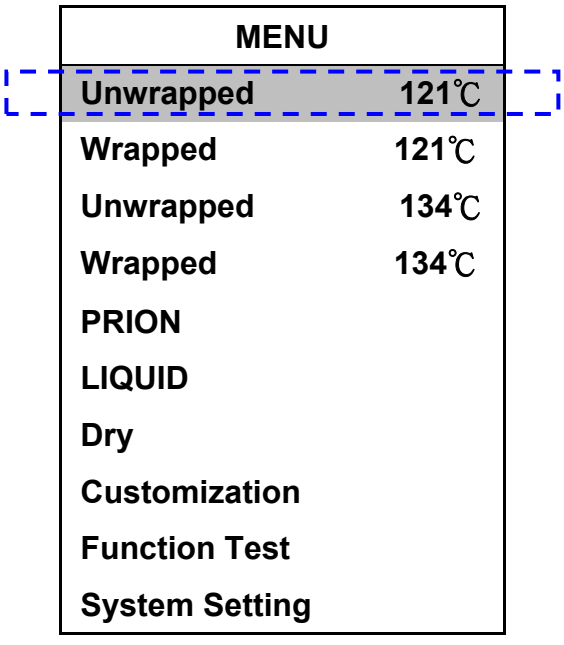


Figure 46

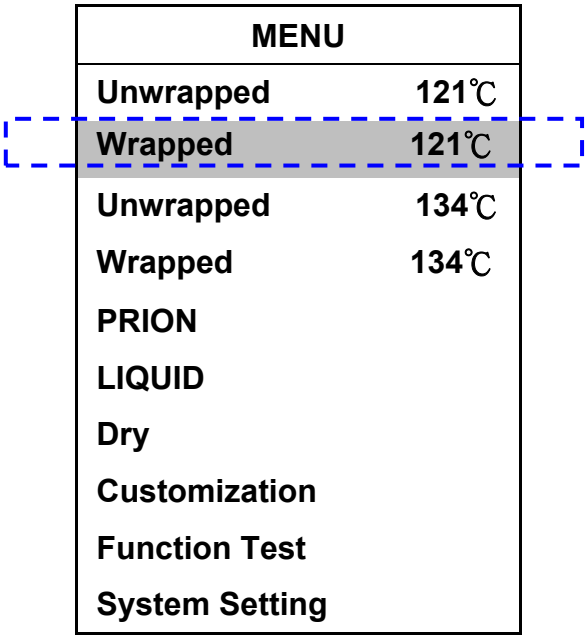


Figure 47

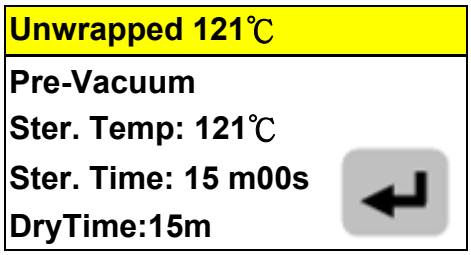


Figure 48

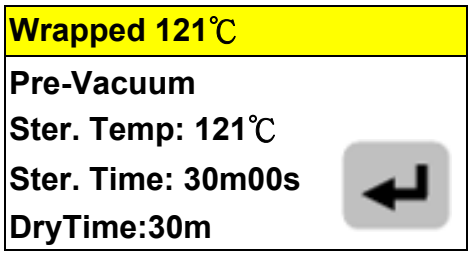


Figure 49

D. Parameters of the programs:

Table 6

	Unwrapped 121 ºC	Wrapped 121 ºC	Unwrapped 134 ºC	Wrapped 134 ºC
Sterilization Temperature (ºC)	121	121	134	134
Sterilization Time (min.)	15	30	4	15
Dry Time (min.)	15	30	15	30

E. Press  button again to star the selected program. The relative information such as program cycle, present process, temperature, pressure and time as shown in Figure 50 or Figure 51 will be displayed on the panel.

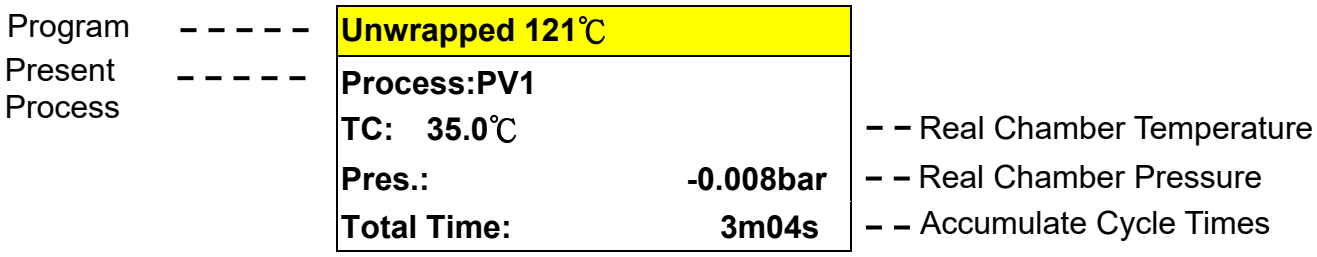


Figure 50 – Unwrapped 121 ºC

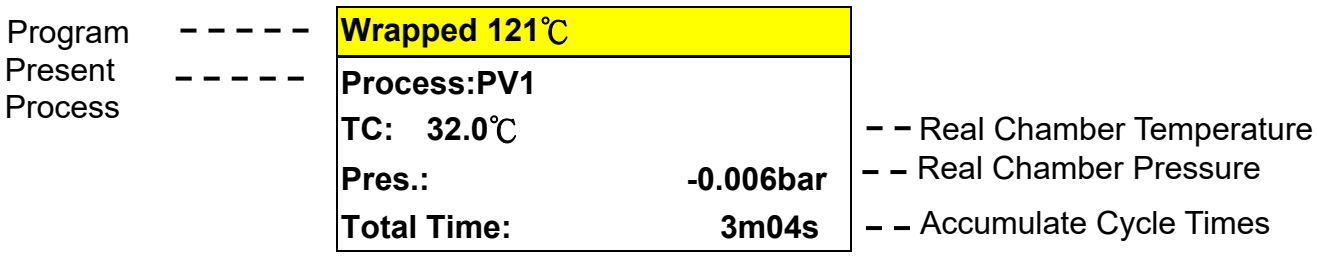


Figure 51 - Unwrapped 134 ºC

F. On completion, the buzzer will sound and the Program Complete message is displayed as shown in Figure 52.

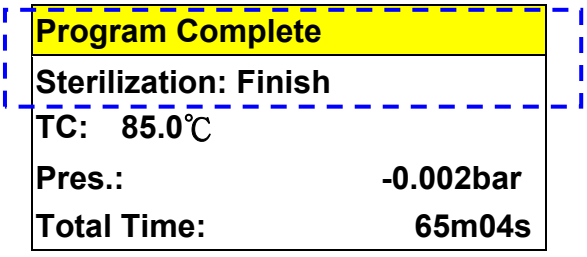


Figure 52 – Program Complete

⚠**WARNING:** If any messages prompt, you may need to repeat the sterilization cycle.

G. When press the  button to open the door, a “Mind the Steam” will be prompted and then followed by “Please Open Door.” message. 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 “Troubleshooting” for further information.

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 box or use the appropriate aids (tray holder) to lift the trays.

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

6.6 PRION Sterilization Program

A. Before start Sterilization program please refer to “6.4 Prepare Sterilization” section.

B. How to set the PRION Sterilization program:

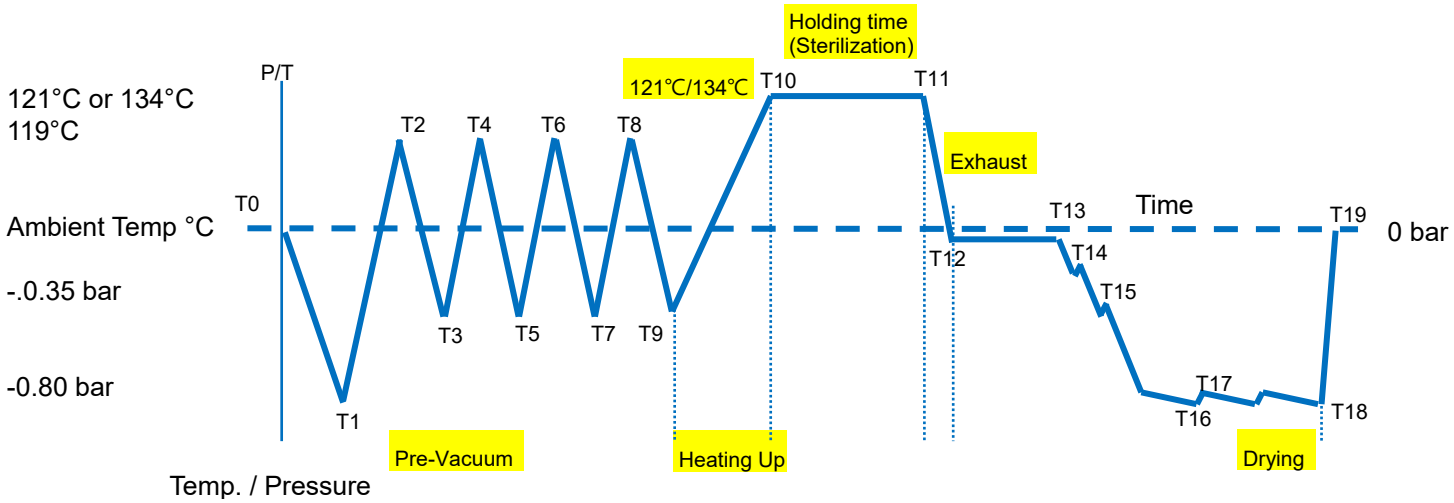


Figure 53

C. Press  or  button to select PRION program cycle (Figure 54), and then press  button to confirm sterilization program, as shown in Figure 55.

MENU	
Unwrapped	**121℃**
Wrapped	**121℃**
Unwrapped	**134℃**
Wrapped	**134℃**
PRION	
LIQUID	
Dry	
Customization	
Function Test	
System Setting	

Figure 54

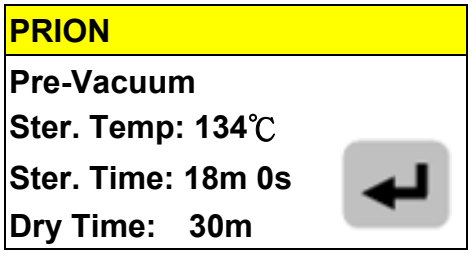


Figure 55

D. Parameters of the PRION programs:

Table 7

	PRION
Sterilization Temperature (ºC)	134
Sterilization Time (min.)	18
Dry Time (min.)	30

E. Press  button again to star the selected program. The relative information such as program cycle, present process, temperature, pressure and time as shown in Figure 56 will be displayed on the panel.

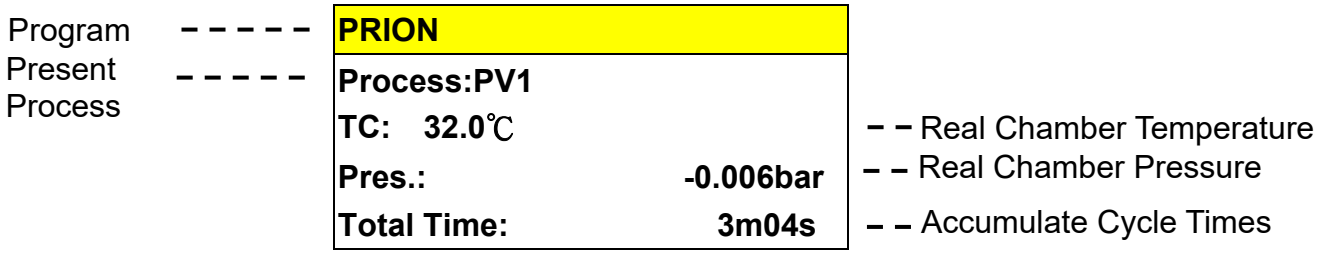


Figure 56 –PRION

F. On completion, the buzzer will sound and the Program Complete message is displayed as shown in Figure 57.

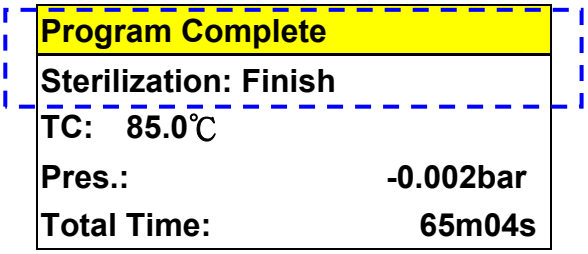


Figure 57 – Program Complete

⚠**WARNING:** If any messages prompt, you may need to repeat the sterilization cycle.

G. When press the  button to open the door, a “Mind the Steam” will be prompted and then followed by “Please Open Door.” message. 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 “Troubleshooting” for further information.

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 box or use the appropriate aids (tray holder) to lift the trays.

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

6.7 LIQUID Program (Optional)

WARNING: This is not a CE declared program and validation of sterility when using this program is the responsibility of the user.

WARNING: Users who define the parameters should take their own responsibilities and obligations to undertaken the risk of sterilization uncertainty.

A. Before start Sterilization program please refer to “6.4 Prepare Sterilization” section.

B. How to set the LIQUID program:

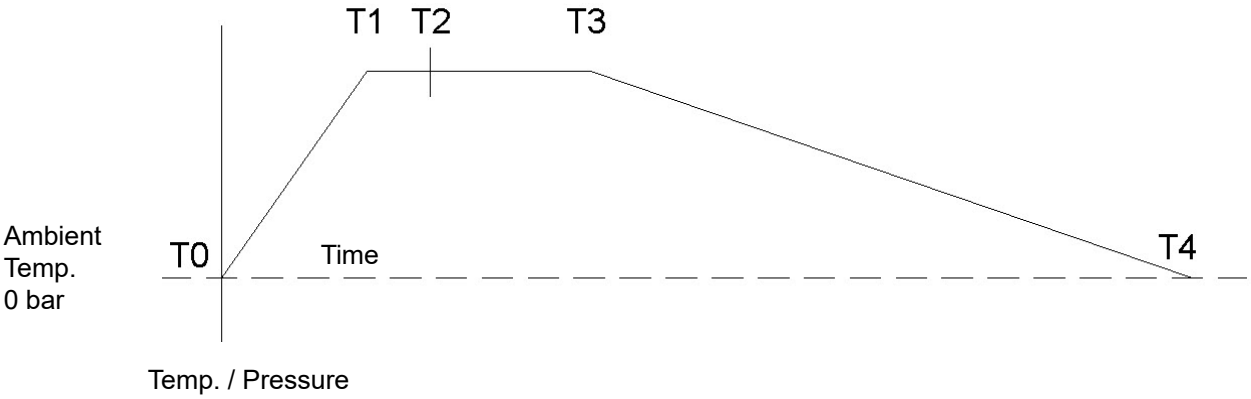


Figure 58

C. Press  or  button to select LIQUID program (Figure 59), and then press  button to select LIQUID program, as shown in Figure 60.

MENU	
Unwrapped	**121℃**
Wrapped	**121℃**
Unwrapped	**134℃**
Wrapped	**134℃**
PRION	
LIQUID	
Dry	
Customization	
Function Test	
System Setting	

Figure 59

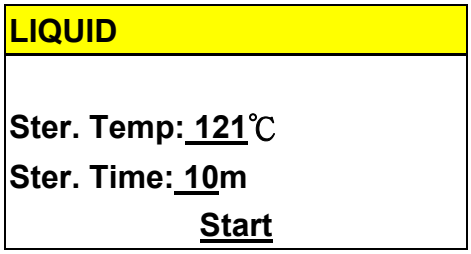


Figure 60

D. Press  or  button to move the cursor to the “Ster. Temp”.

Press  button to enter editing mode, and then press  or  button to change sterilization temperature.

Press  button to store sterilization temperature parameter as shown in Figure 61.

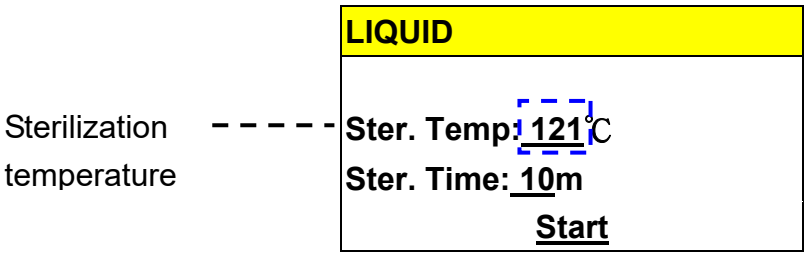


Figure 61

E. Press  or  button to move the cursor to the “Ster. Time”.

Press  button to enter editing mode, and then press  or  button to change sterilization time- minutes.

Press  button to store sterilization time parameter as shown in Figure 62.

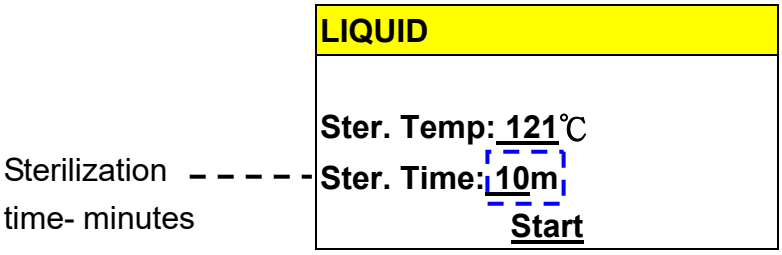


Figure 62

F. Parameters of the customization programs:

	LIQUID
Range of Sterilization Temperature	105 - 135 ℃
Range of Sterilization Time	1 - 60 minutes

Table 8

G. Press  or  button until as shown in Figure 63.

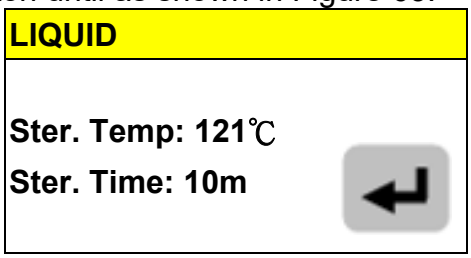


Figure 63

H. Press  button again to star the selected program. The relative information such as program cycle, present process, temperature, pressure and time as shown in Figure 64 will be displayed on the panel.

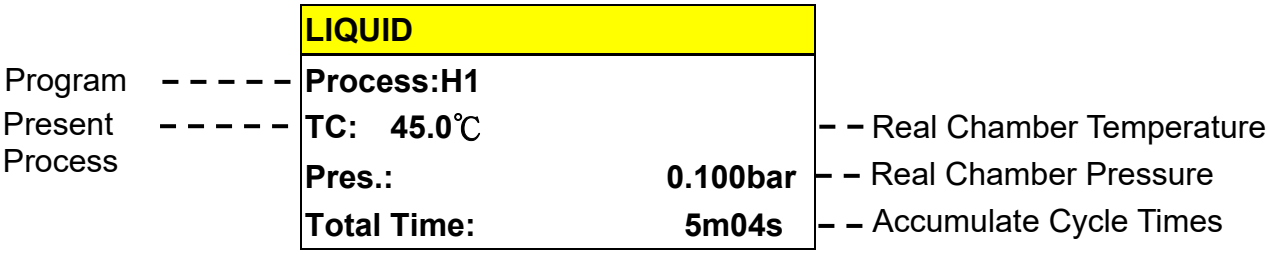


Figure 64

I. On completion, the buzzer will sound and the Program Complete message is displayed as shown in Figure 65.

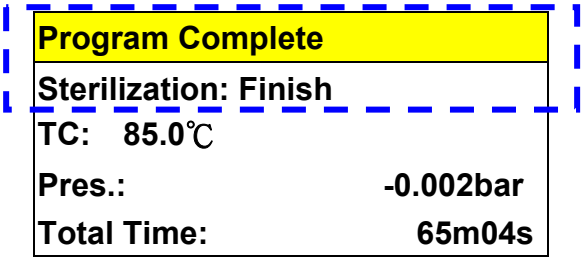


Figure 65– Program Complete

⚠**WARNING:** If any messages prompt, you may need to repeat the sterilization cycle.

J. When press the  button to open the door, a “Mind the Steam” will be prompted and then followed by “Please Open Door.” message. 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 “Troubleshooting” for further information.

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 box or use the appropriate aids (tray holder) to lift the trays.

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

6.8 Dry Program

A. Before start Sterilization program please refer to “6.4 Prepare Sterilization” section.

B. How to set the Dry program:

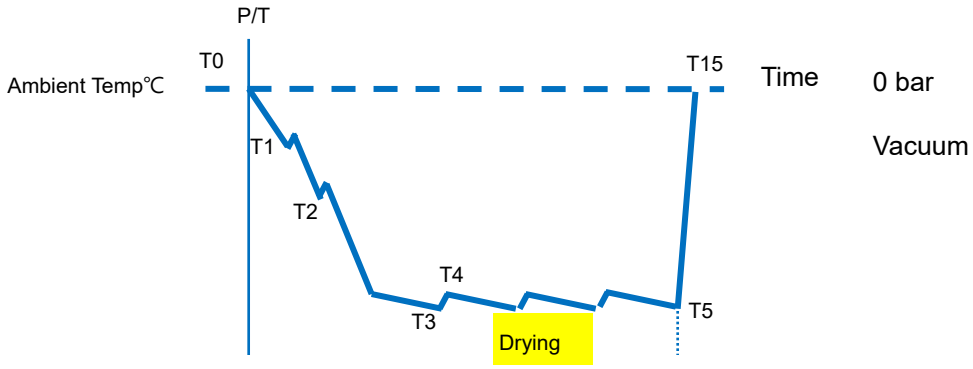


Figure 66

C. Press  or  button to select Dry program cycle (Figure 67).

MENU	
Unwrapped	**121℃**
Wrapped	**121℃**
Unwrapped	**134℃**
Wrapped	**134℃**
PRION	
LIQUID	
Dry	
Customization	
Function Test	
System Setting	

Figure 67

D. Press  button to enter the dry time mode, and press  or  button to change the dry time, and then press  button to confirm Dry time, as shown in Figure 68.

Dry
Dry Time : 10 m
Start

Figure 68

E. Press  or  button to move the cursor to the “Start” (Figure 69), change the dry time, and then press  button to confirm dry time, as shown in Figure 70.

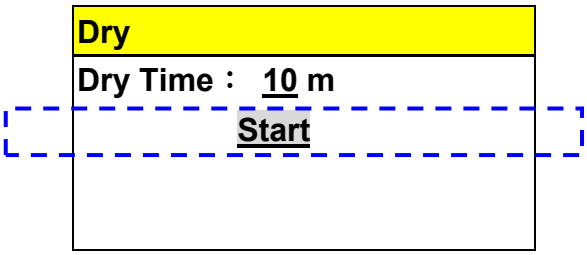


Figure 69

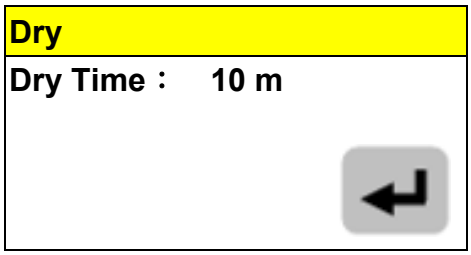


Figure 70

F. Parameters of the Dry programs:

Table 9

	Dry
Sterilization Temperature (ºC)	-
Sterilization Time (min.)	-
Dry Time (min.)	1- 60 min.

G. Press  button again to star the selected program. The relative information such as program cycle, present process, temperature, pressure and time as shown in Figure 71 will be displayed on the panel.

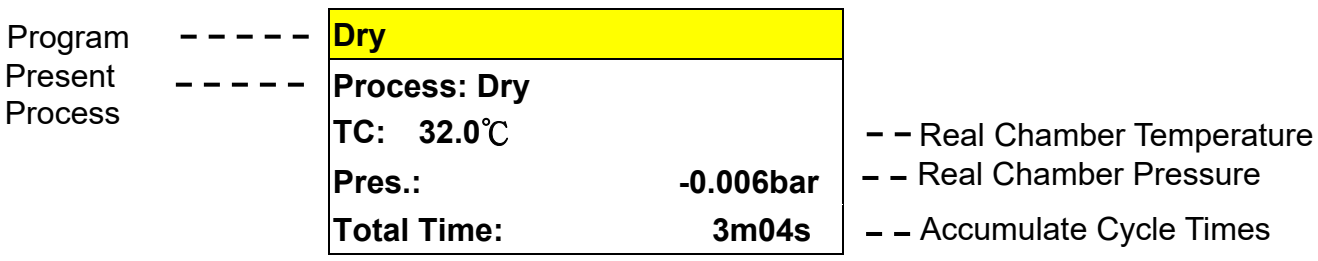


Figure 71-Dry

H. On completion, the buzzer will sound and the Program Complete message is displayed as shown in Figure 72.

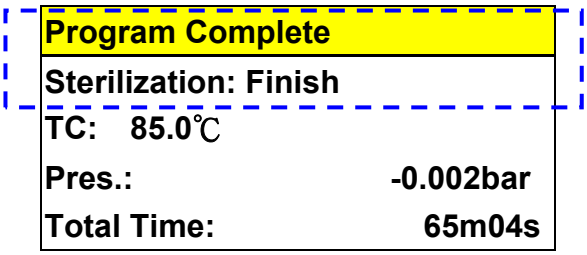


Figure 72 – Program Complete

⚠**WARNING:** If any messages prompt, you may need to repeat the dry cycle.

I. When press the  button to open the door, a “Mind the Steam” will be prompted and then followed by “Please Open Door.” message. 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 “Troubleshooting” for further information.

⚠**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 box or use the appropriate aids (tray holder) to lift the trays.

⚠**WARNING:** If using the sterilizer continuously, it’s required to have a 20 min. interval between each sterilization cycle to allow the unit to cool.

6.9 Customization Program

WARNING: This is not a CE declared program and validation of sterility when using this program is the responsibility of the user.

WARNING: Users who define the parameters should take their own responsibilities and obligations to undertaken the risk of sterilization uncertainty.

6.9.1 Customization with pre-vacuum

A. Before start Sterilization program please refer to “6.4 Prepare Sterilization” section.

B. How to set the customization with pre-vacuum program:

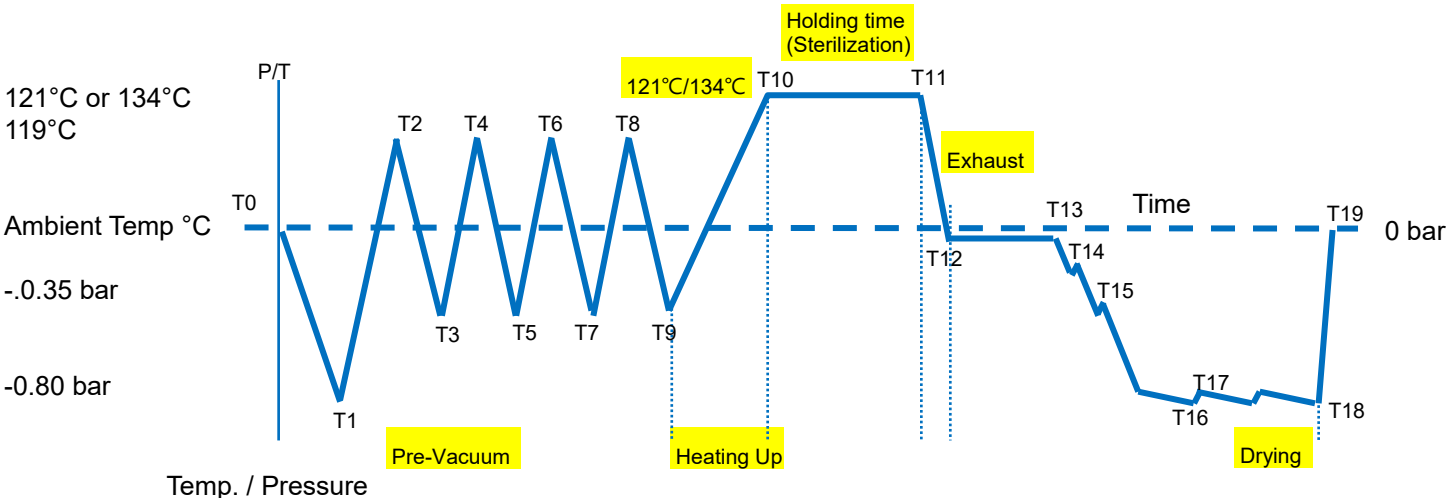


Figure 73

C. Press  or  button to select Customization program (Figure 74), and then press  button to select customization program, as shown in Figure 75.

MENU	
Unwrapped	**121℃**
Wrapped	**121℃**
Unwrapped	**134℃**
Wrapped	**134℃**
PRION	
LIQUID	
Dry	
Customization	
Function Test	
System Setting	

Figure 74

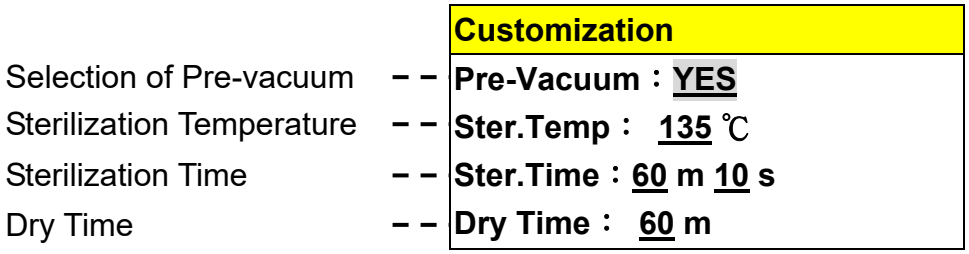


Figure 75

D. Press button to enter editing mode, and then press or button to select "Yes" or "No". Press button to store Pre-Vacuum parameter as shown in Figure 76.

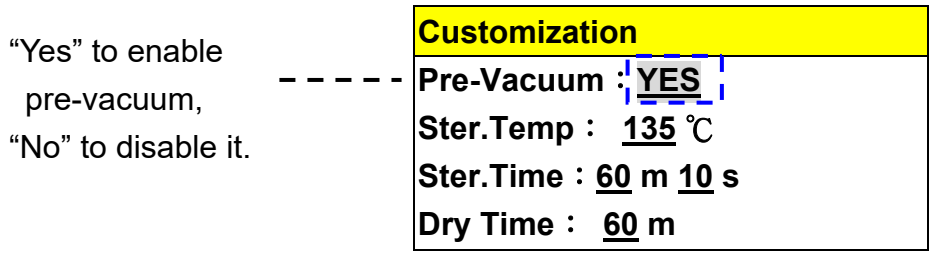


Figure 76

E. Press or button to move the cursor to the "Ster. Temp".

Press button to enter editing mode, and then press or button to change sterilization temperature.

Press button to store sterilization temperature parameter as shown in Figure 77.

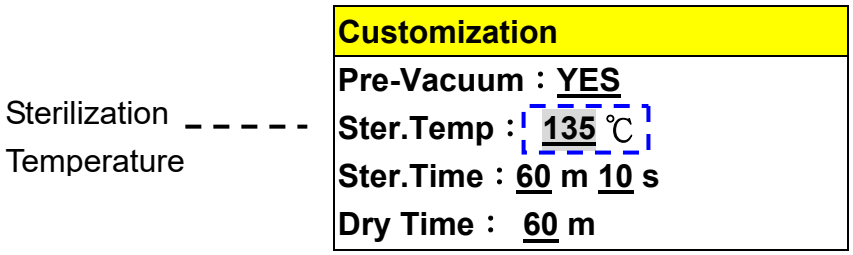


Figure 77

F. Press or button to move the cursor to the "Ster. Time".

Press button to enter editing mode, and then press or button to change sterilization time- minutes.

Press button to store sterilization time parameter as shown in Figure 78.

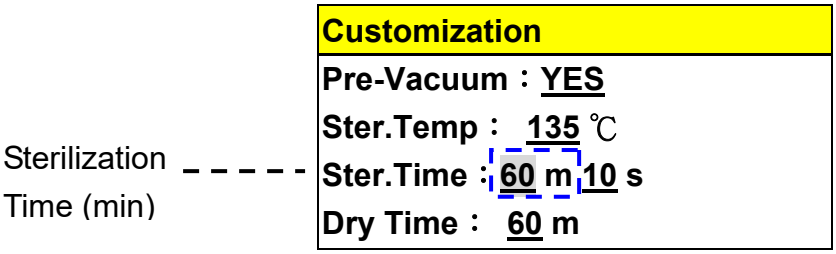


Figure 78

G. Press or button to move the cursor to the “Ster. Time”.

Press button to enter editing mode, and then press or button to change sterilization time- seconds.

Press button to store sterilization time parameter as shown in Figure 79.

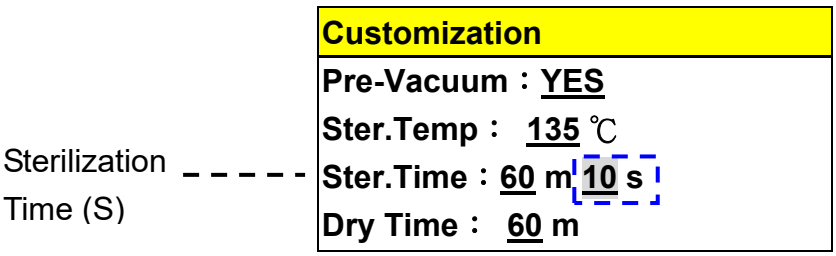


Figure 79

H. Press or button to move the cursor as shown in Figure 80

Press button to enter editing mode, and then press or button to change dry time.

Press button to store dry time parameter as shown in Figure 80.

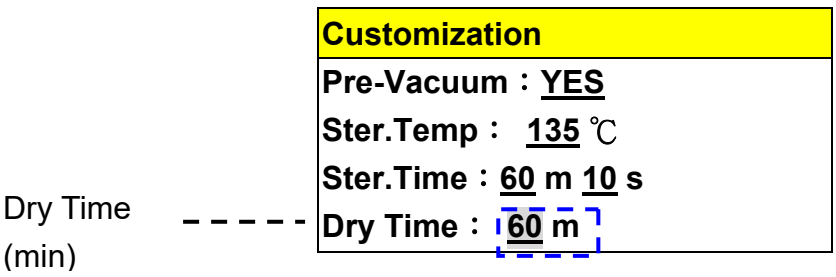


Figure 80

I. Parameters of the customization programs:

	Customization
Pre-vacuum	Yes
Range of Sterilization Temperature (ºC)	119 - 135
Range of Sterilization Time	0 - 60 minutes 59 seconds
Range of Dry Time (min.)	0 - 60

Table 10

J. Press  or  button until as shown in Figure 81.

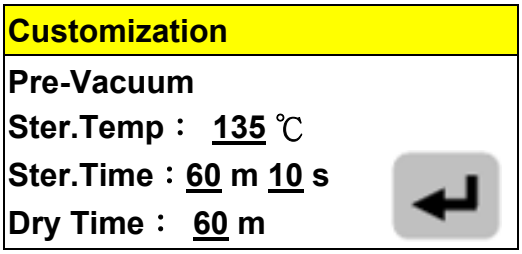


Figure 81

K. Press  button again to star the selected program. The relative information such as program cycle, present process, temperature, pressure and time as shown in Figure 82 will be displayed on the panel.

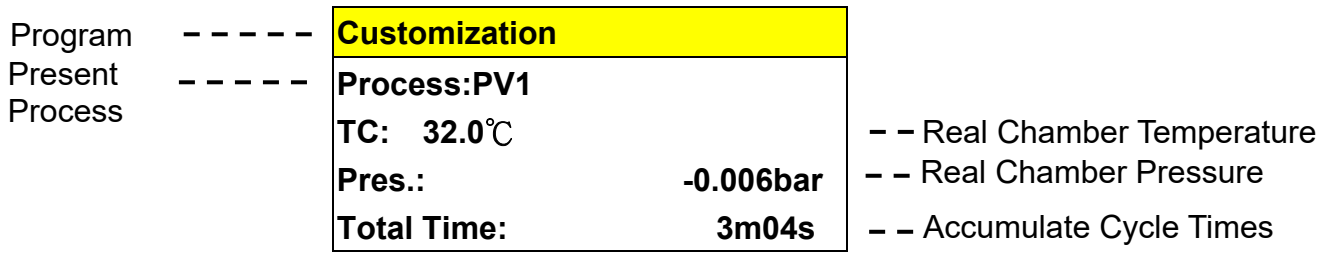


Figure 82

L. On completion, the buzzer will sound and the Program Complete message is displayed as shown in Figure 83.

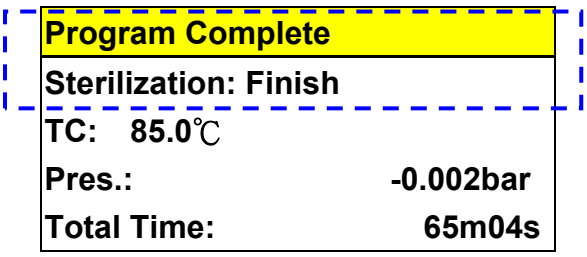


Figure 83– Program Complete

⚠**WARNING**: If any messages prompt, you may need to repeat the sterilization cycle.

M. When press the  button to open the door, a “Mind the Steam” will be prompted and then followed by “Please Open Door.” message. 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 “Troubleshooting” for further information.

⚠**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 box or use the appropriate aids (tray holder) to lift the trays.

⚠**WARNING:** If using the sterilizer continuously, it’s required to have a 20 min. interval between each sterilization cycle to allow the unit to cool.

6.9.2 Customization without pre-vacuum

A. Before start Sterilization program please refer to “6.4 Prepare Sterilization” section.

B. How to set the customization without pre-vacuum program:

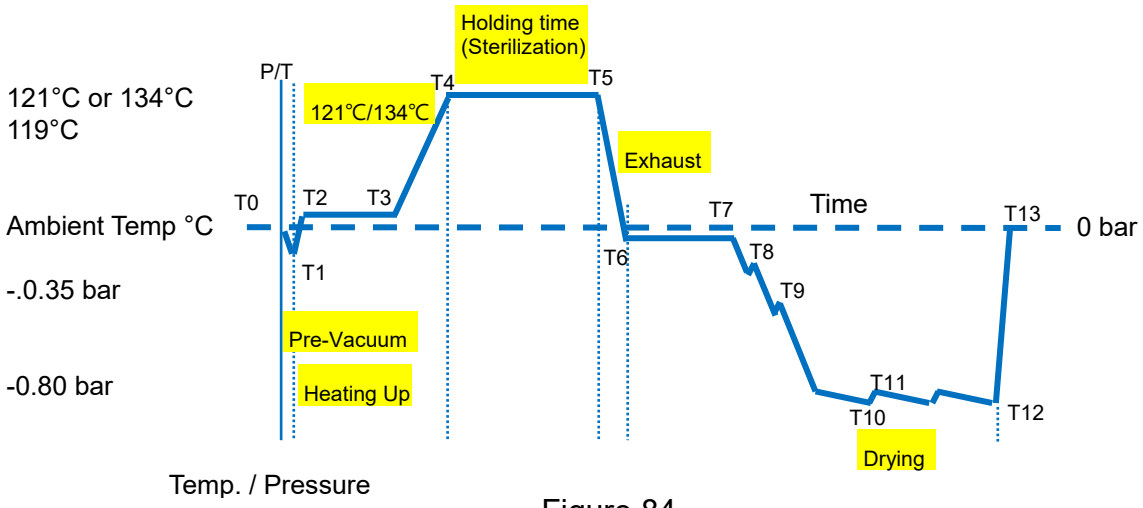


Figure 84

C. Press  or  button to select Customization program (Figure 85), and then press  button to select customization program, as shown in Figure 86

MENU	
Unwrapped	**121℃**
Wrapped	**121℃**
Unwrapped	**134℃**
Wrapped	**134℃**
PRION	
LIQUID	
Dry	
Customization	
Function Test	
System Setting	

Figure 85

Selection of Pre-vacuum
Sterilization Temperature
Sterilization Time
Dry Time

Customization
Pre-Vacuum：YES
Ster.Temp： 135 ℃
Ster.Time：60 m 10 s
Dry Time： 60 m

Figure 86

D. Press  button to enter editing mode, and then press  or  button to select "Yes" or "No". Press  button to store Pre-Vacuum parameter as shown in Figure 87.

"Yes" to enable pre-vacuum, "No" to disable it.

Customization
Pre-Vacuum：NO
Ster.Temp： 135 ℃
Ster.Time：60 m 10 s
Dry Time： 60 m

Figure 87

E. Press  or  button to move the cursor to the "Ster. Temp".
Press  button to enter editing mode, and then press  or  button to change sterilization temperature.
Press  button to store sterilization temperature parameter as shown in Figure 88.

Sterilization Temperature

Customization
Pre-Vacuum：NO
Ster.Temp：135 ℃
Ster.Time：60 m 10 s
Dry Time： 60 m

Figure 88

F. Press  or  button to move the cursor to the "Ster. Time".
Press  button to enter editing mode, and then press  or  button to change sterilization time- minutes.
Press  button to store sterilization time parameter as shown in Figure 89.

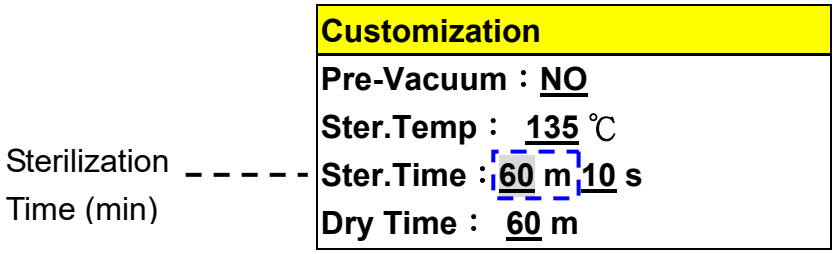


Figure 89

G. Press  or  button to move the cursor to the “Ster. Time”.

Press  button to enter editing mode, and then press  or  button to change sterilization time- seconds.

Press  button to store sterilization time parameter as shown in Figure 90.

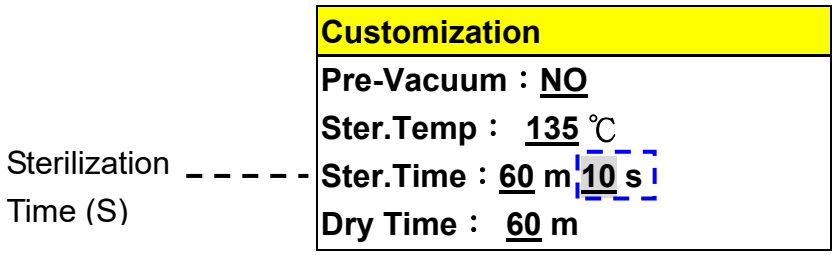


Figure 90

H. Press  or  button to move the cursor as shown in Figure 91

Press  button to enter editing mode, and then press  or  button to change dry time.

Press  button to store dry time parameter as shown in Figure 91.

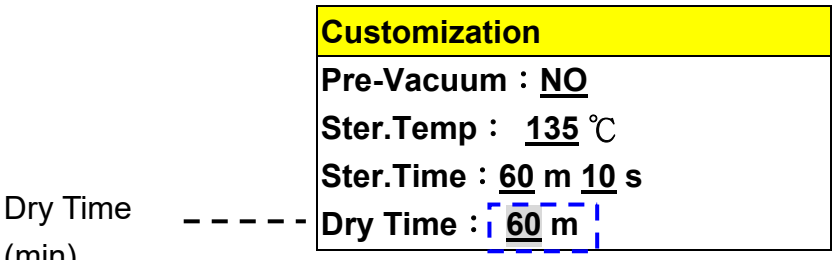


Figure 91

I. Parameters of the customization programs:

Table 11

	Customization
Pre-vacuum	No
Range of Sterilization Temperature (ºC)	105 - 135
Range of Sterilization Time	0 - 60 minutes 59 seconds
Range of Dry Time (min)	0 - 60

J. Press  or  button until as shown in Figure 92.

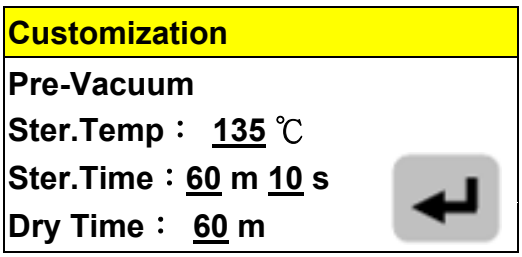


Figure 92

K. Press  button again to star the selected program. The relative information such as program cycle, present process, temperature, pressure and time as shown in Figure 93 will be displayed on the panel.

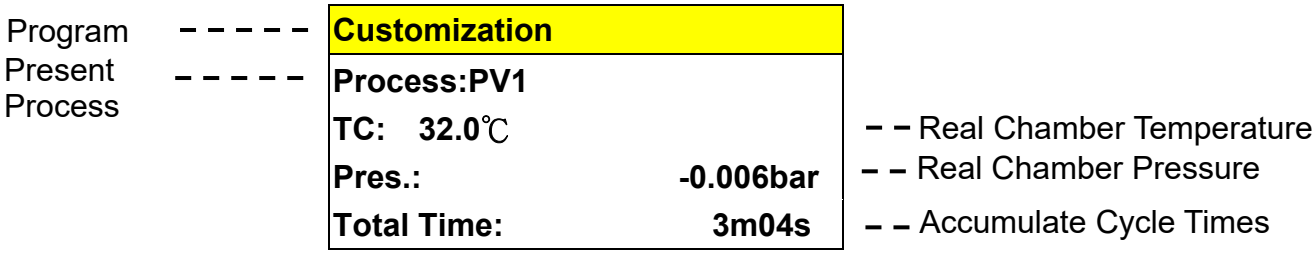


Figure 93

L. On completion, the buzzer will sound and the Program Complete message is displayed as shown in Figure 94.

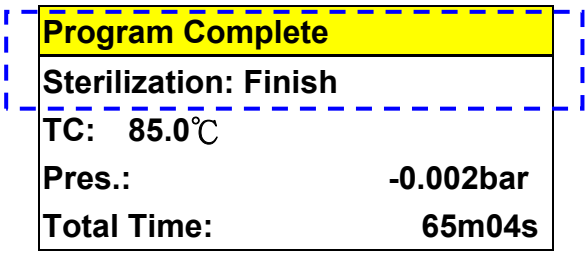


Figure 94– Program Complete

⚠**WARNING:** If any messages prompt, you may need to repeat the sterilization cycle.

M. When press the  button to open the door, a “Mind the Steam” will be prompted and then followed by “Please Open Door.” message. 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 “Troubleshooting” for further information.

⚠**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 box or use the appropriate aids (tray holder) to lift the trays.

⚠**WARNING:** If using the sterilizer continuously, it’s required to have a 20 min. interval between each sterilization cycle to allow the unit to cool.

⚠**WARNING:** No Vacuum Function at 105-118ºC in Customization program.

6.10 Function Test Program

There are 3 built-in test programs for checking the basic performance of the sterilizer as following.

6.10.1 Leakage Test

The leakage test is used to demonstrate that the quantity of air leakage into the sterilizer chamber during the periods of vacuum does not exceed a level which will inhibit the penetration of steam into the sterilizer load and will not be a potential cause of re-contamination of the sterilizer load during drying. See Figure 95 for the cycle diagram.

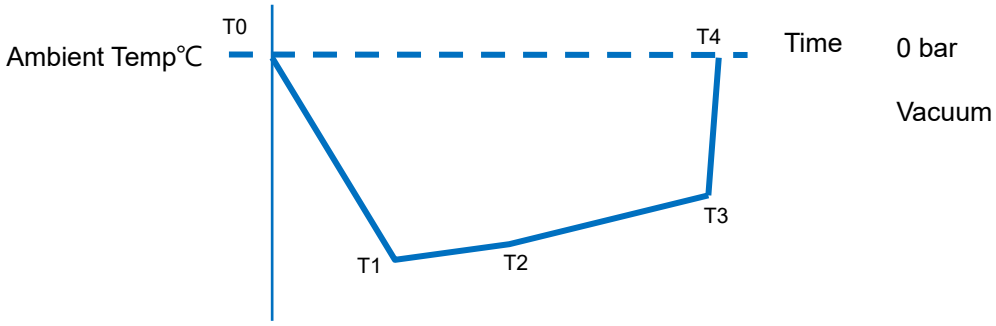


Figure 95

Legend of each cycle:

Table 12

T0-T1:	Pre-vacuum to -80kPa
T1-T2:	P1: Hold the pressure for 300 s
T2-T3:	P2: Pressure after a leakage time of 600 s
T3-T4:	P3: Complete the test cycle and release the pressure

The leakage will be automatically calculated by the system, and the test result will be displayed and printed.

A. Before start Sterilization program please refer to “6.4 Prepare Sterilization” section.

B. How to set the leakage test program:

Press  or  button to select Function Test program (Figure 96), and then press  button to confirm, as shown in Figure 97.

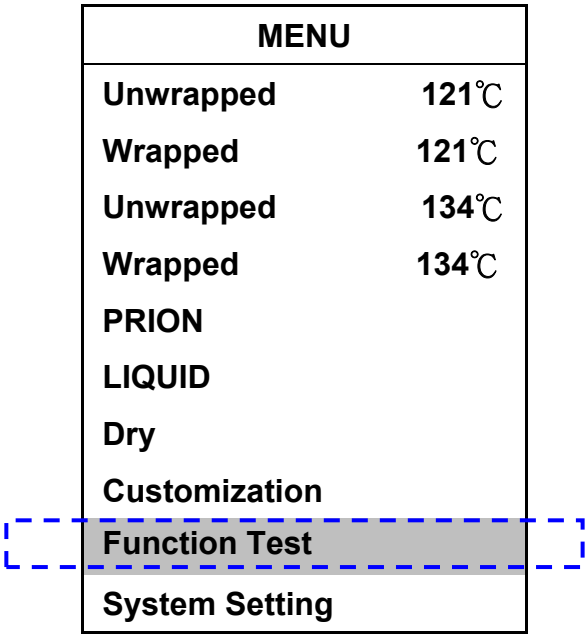


Figure 96

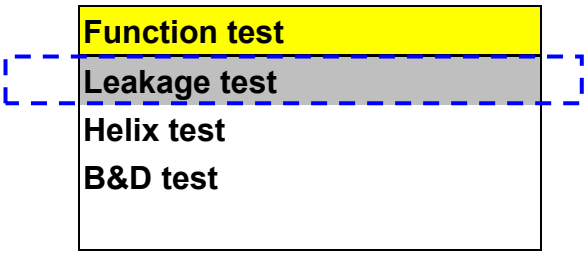


Figure 97

C. Press  button to confirm the selection of Leakage Test Program, as shown in Figure 98.

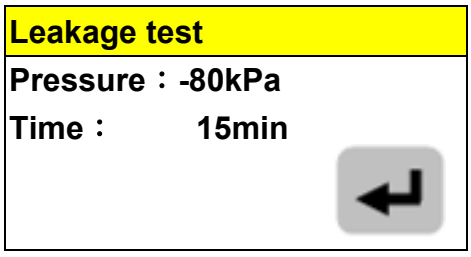


Figure 98

D. Press  button to star the Leakage Test Program, as shown in Figure 99.

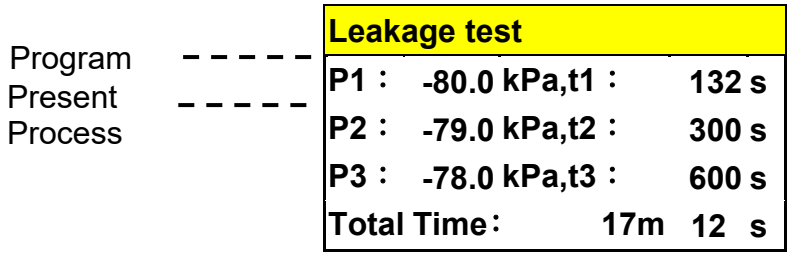


Figure 99

E. On completion, the buzzer will sound and the Program Complete message is displayed as shown in Figure 100.

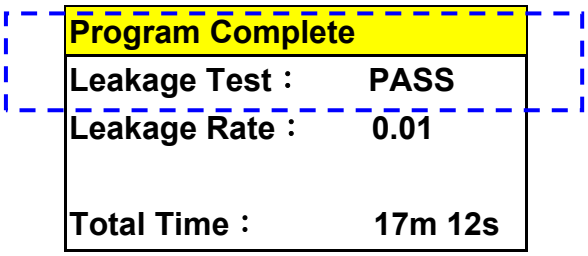


Figure 100- Program Complete

WARNING: Check the pressure gauge is reading ZERO before opening the door.

WARNING: If using the sterilizer continuously, it's required to have a 20 min. interval between each sterilization cycle.

NOTE: For the test result to be valid, you may carry out with an empty sterilization cycle without any load at ambient temperature.

6.10.2 Helix Test

⚠WARNING: This program is running at under 1,000m altitude.

A. Before start Sterilization program please refer to “6.4 Prepare Sterilization” section.

B. Please refer to “(Helix test)” and follow the test tool supplier’s instructions.

C. How to set the Helix test program:

Press  or  button to select Function Test program (Figure 101), and then press  button to confirm, as shown in Figure 102.

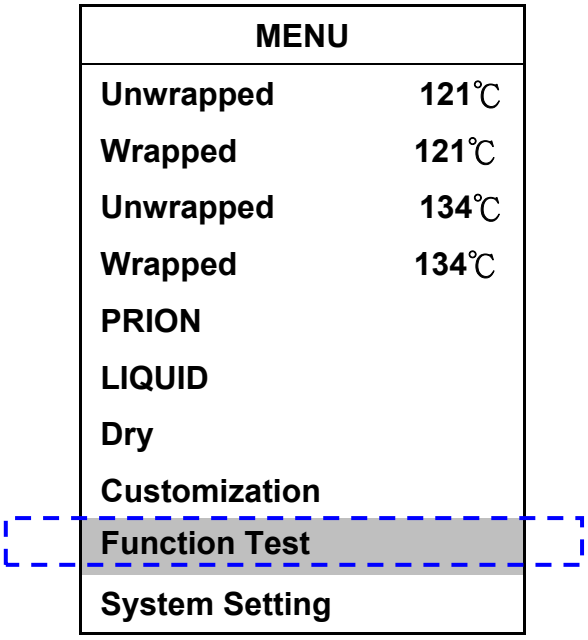


Figure 101

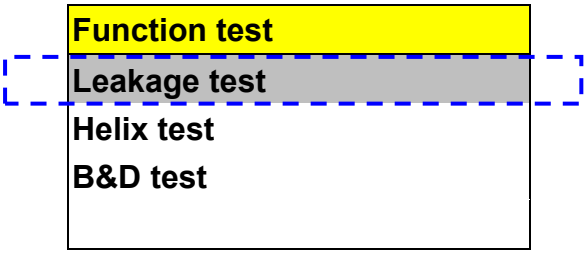


Figure 102

D. Press  or  button to select Helix Test program (Figure 103).

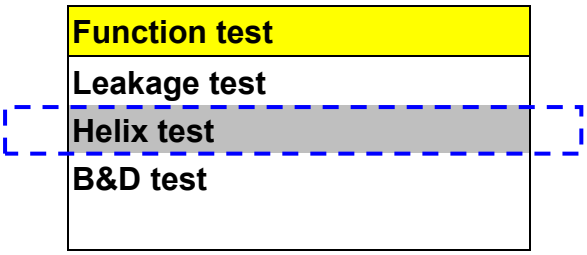


Figure 103

E. Press  button to confirm the selection of Helix Test Program, as shown in Figure 104.

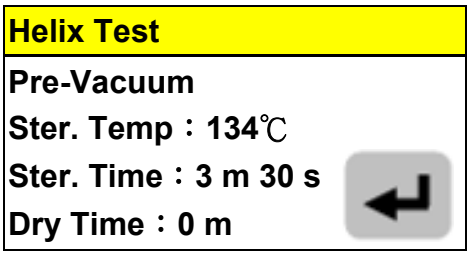


Figure 104

F. Press  button to star the Helix Test Program, as shown in Figure 105.

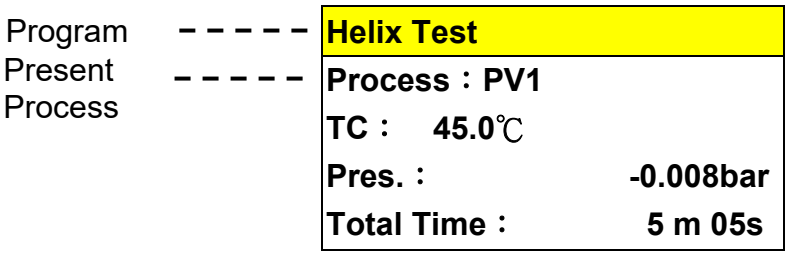


Figure 105

G. On completion, the buzzer will sound and the Program Complete message is displayed as shown in Figure 106.

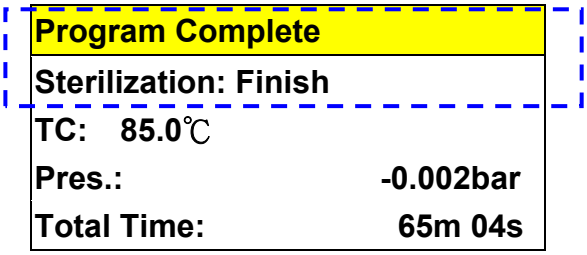


Figure 106- Program Complete

⚠**WARNING:** If any messages prompt, you may need to repeat the sterilization cycle.

H. When press the  button to open the door, a “Mind the Steam” will be prompted and then followed by “Please Open Door.” message. Open the door and take out the Helix load. Check the status of the indicators. If failed, repeat the cycle. Consult with the qualified technician for calibration if necessary. Please refer to “Troubleshooting” for further information.

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 box or use the appropriate aids (tray holder) to lift the trays.

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

6.10.3 B&D Test

⚠**WARNING: This program is running at under 1,000m altitude.**

A. Before start Sterilization program please refer to “6.4 Prepare Sterilization” section.

B. Please refer to “(B &D Test)” and follow the B&D supplier’s instructions.

C. How to set the B&D test program:

Press  or  button to select Function Test program (Figure 107), and then press  button to confirm, as shown in Figure 108.

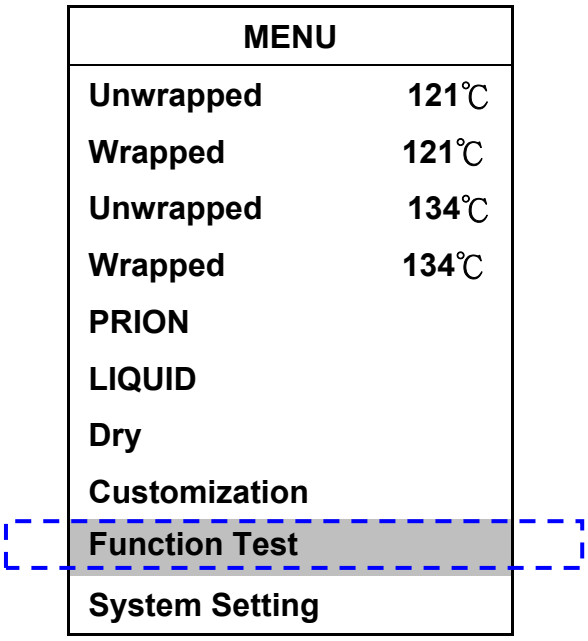


Figure 107

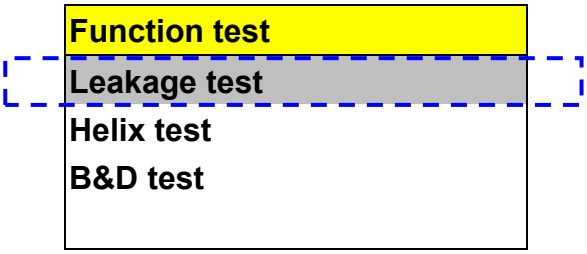


Figure 108

D. Press  or  button to select B&D Test program (Figure 109).

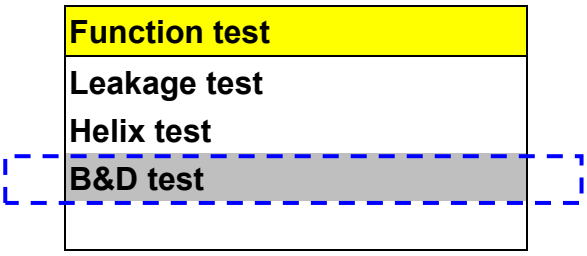


Figure 109

E. Press  button to confirm the selection of B&D Test Program, as shown in Figure 110.

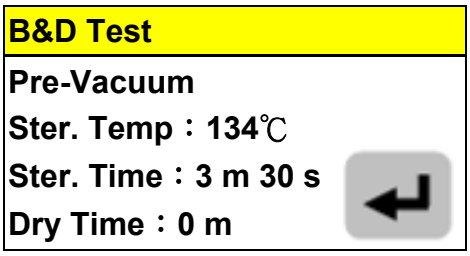


Figure 110

F. Press  button to star the Helix Test Program, as shown in Figure 105.

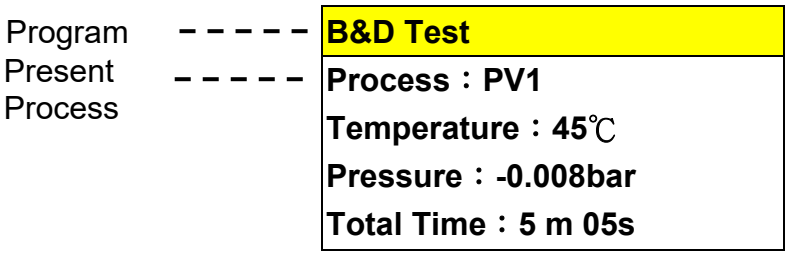


Figure 111

G. On completion, the buzzer will sound and the Program Complete message is displayed as shown in Figure 112.

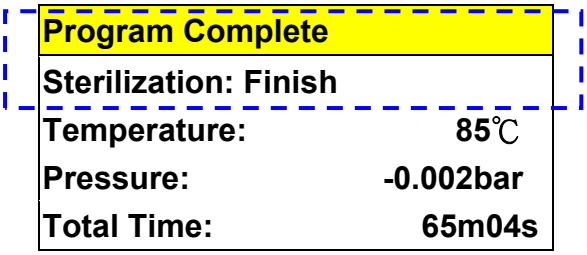


Figure 112- Program Complete

⚠**WARNING:** If any messages prompt, you may need to repeat the sterilization cycle.

H. When press the  button to open the door, a “Mind the Steam” will be prompted and then followed by “Please Open Door.” message. Open the door and take out the Helix load. Check the status of the indicators. If failed, repeat the cycle. Consult with the qualified technician for calibration if necessary. Please refer to “Troubleshooting” for further information.

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 box or use the appropriate aids (tray holder) to lift the trays.

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

6.11 System Setup

6.11.1 Date and Time

A. Press  or  button to select System Setting program (Figure 113), and then press  button to select Date &Time setting, as shown in Figure 114.

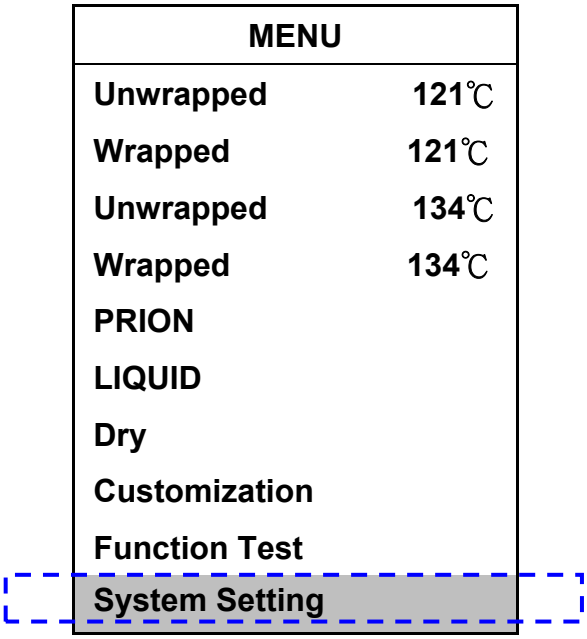


Figure 113

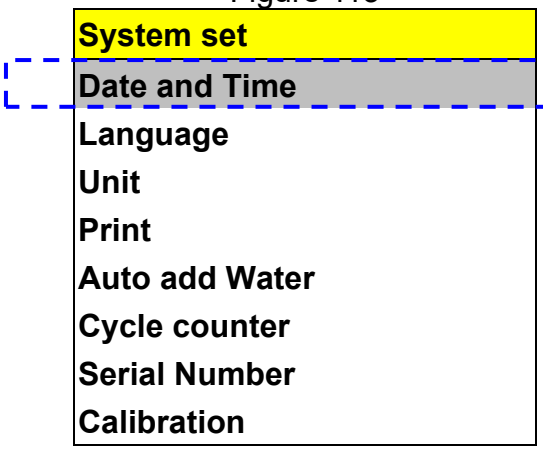


Figure 114

B. Press  button to the editing mode as shown in Figure 115. Press  or  button to change the Month. Press  button to store the parameter.

Date and Time
Date=MMM/DD/YYYY
Oct / 15 / 2015
Time=hh：mm：ss
16：35：20

Figure 115

C. Press  button to shift the cursor to date. Press  or  button to change the contents, and press  button to store the parameter as shown in Figure 116.

Date and Time
Date=MMM/DD/YYYY
Oct / 15 / 2015
Time=hh：mm：ss
16：35：20

Figure 116

D. Press  button to shift the cursor to year. Press  or  button to change the contents, and press  button to store the parameter in Figure 117.

Date and Time
Date=MMM/DD/YYYY
Oct / 15 / 2015
Time=hh：mm：ss
16：35：20

Figure 117

E. Press  button to shift the cursor to hour. Press  or  button to change the contents, and press  button to store the parameter in Figure 118.

Date and Time
Date=MMM/DD/YYYY
Oct / 15 / 2015
Time=hh：mm：ss
16 : 35 : 20

Figure 118

F. Press  button to shift the cursor to minute. Press  or  button to change the contents, and press  button to store the parameter in Figure 119.

Date and Time
Date=MMM/DD/YYYY
Oct / 15 / 2015
Time=hh：mm：ss
16 : 35 : 20

Figure 119

G. Press  button to shift the cursor to second. Press  or  button to change the contents, and press  button to store the parameter in Figure 120.

Date and Time
Date=MMM/DD/YYYY
Oct / 15 / 2015
Time=hh：mm：ss
16 : 35 : 20

Figure 120

H. Press  button returns to System setting.

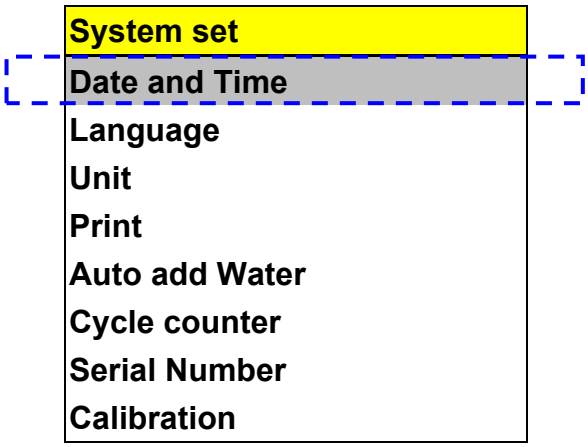


Figure 121

6.11.2 Language

1. On the system setting page shown in Figure 122, move the cursor to column "Language" with  or  button shown in Figure 123, and then press  button to enter into the language setting.

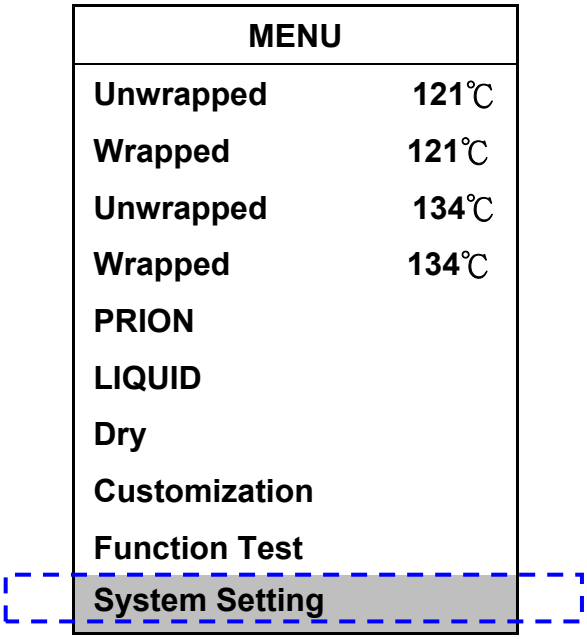


Figure 122

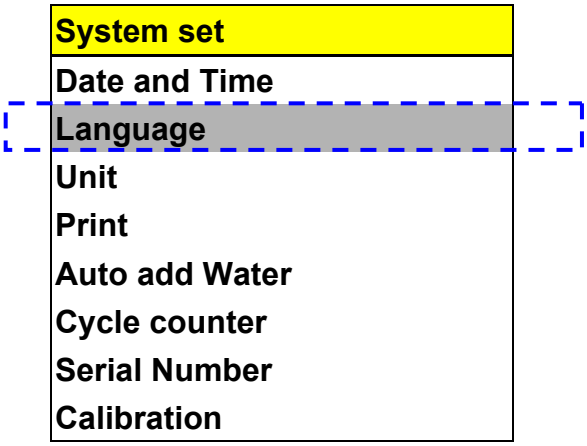


Figure 123

2. Press  or  button to set Language "English" or Española shown in Figure 124, and after completion of setting press  .

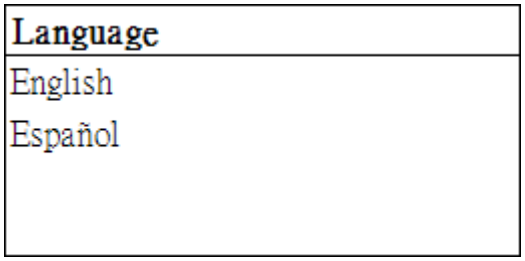


Figure 124

3. Press  button and return to the System Setting page shown in Figure 125.

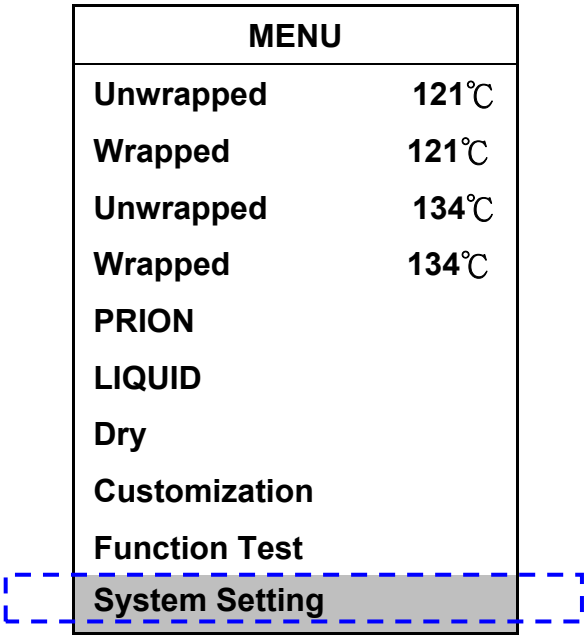


Figure 125

6.11.3 Units

Temperature unit and pressure unit are set to ºC and bar respectively as default; however, you can change these units as following:

- Temperature unit: ºC, ℉
- Pressure unit: bar, kPa, MPa, psi, kgf/cm^2

To change the unit:

A. Press  or  button to select System Setting program (Figure 126), and then press  button to select Unit setting, as shown in Figure 127.

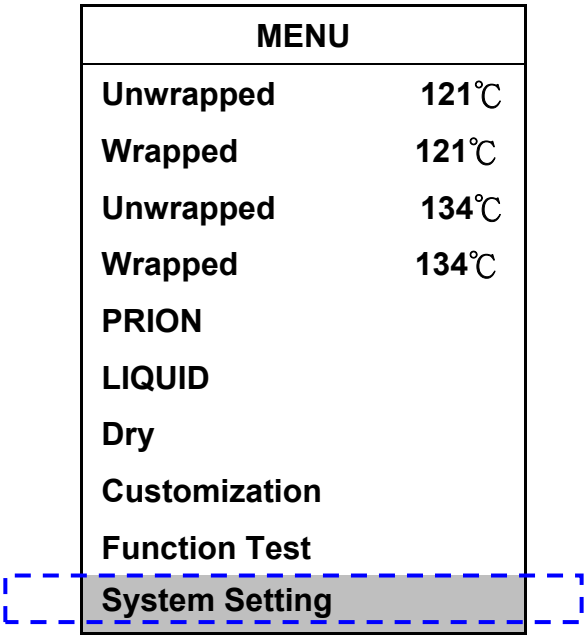


Figure 126

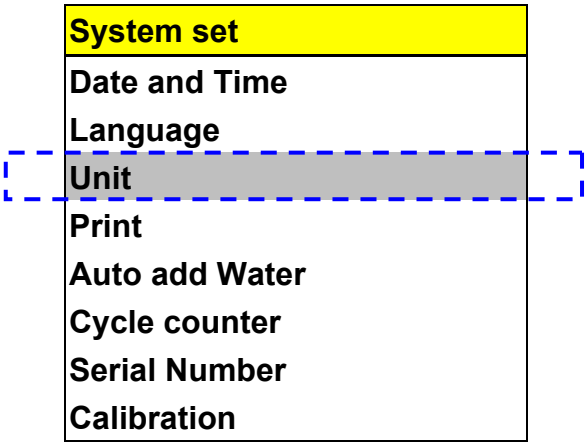


Figure 127

B. Press  button to the editing mode as shown in Figure 128.

Unit
Temp: ℃
Pressure：bar

Figure 128

C. Press  or  button to change the unit, and press  button to store the parameter in Figure 129.

Unit
Temp: ℉
Pressure：bar

Figure 129

D. Press  button to shift the cursor to Pressure. Press  or  button to change the contents, the “bar, kPa, MPa, psi, kgf/cm^2” is displayed in sequence, and press  button to store the parameter in Figure 130.

Unit
Temp: ℉
Pressure：kPa

Figure 130

E. Press  button returns to System setting.

System set
Date and Time
Language
Unit
Print
Auto add Water
Cycle counter
Serial Number
Calibration

Figure 131

6.11.4 Printer

The real time program steps could be printed by the printer and also stored on a SD memory. The values of the sterilization steps are used as a reference record of each sterilization process. It is set to “ON” as default. However, you may enable or disable the printer as following:

A. Press  or  button to select System Setting program (Figure 132), and then press  button to select Printer setting, as shown in Figure 133.

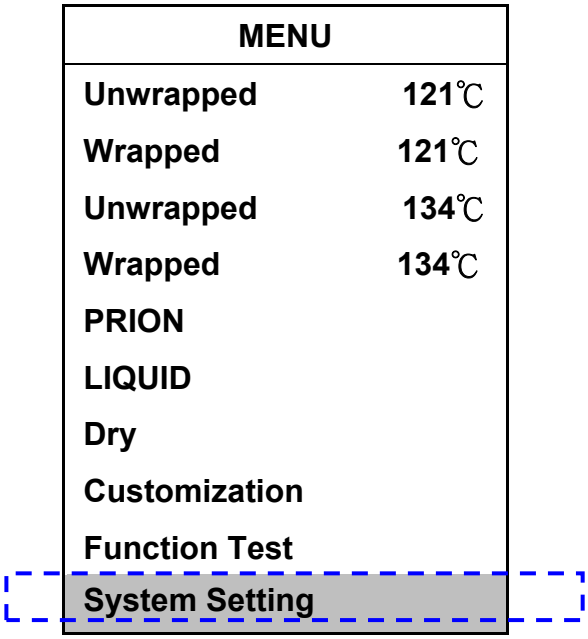


Figure 132

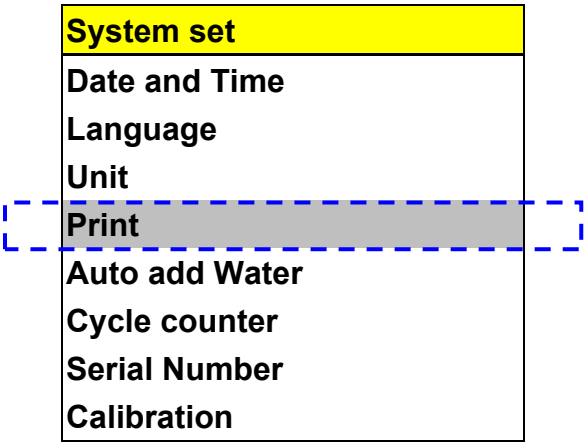


Figure 133

B. Press  button to the editing mode as shown in Figure 134.

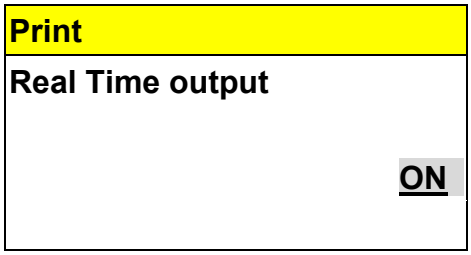


Figure 134

C. Press  or  button to enable or disable the real time printout, and press  button to store the parameter in Figure 135.

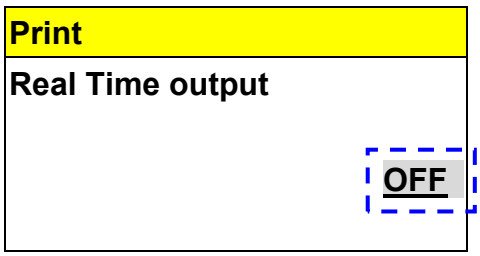


Figure 135

D. Press  button returns to System setting.

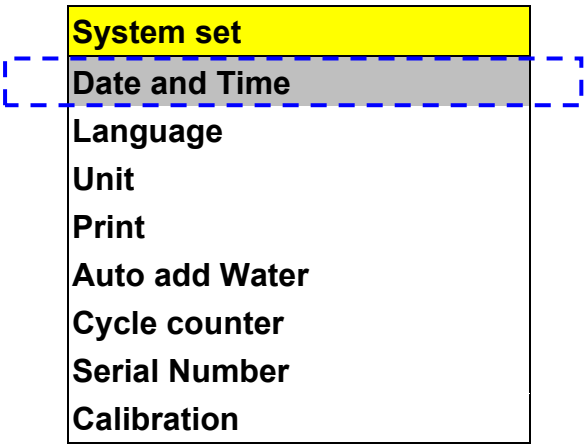


Figure 136

6.11.5 Auto Add Water

When the Auto Add Water is set to "ON" and start the sterilization program, it will check the water level of the water tank automatically. If water level of the water tank is not sufficient for running a sterilization cycle, it will supply the external water into the water tank until full level is reached.
If the Auto Add Water is set to "OFF" for manual add water, a “Low water in the tank” will be displayed while detecting low water level.
It is set to “OFF” as default. However, you may enable or disable the Auto Add Water as following:

A. Press  or  button to select System Setting program (Figure 137), and then press  button to select Auto add water setting, as shown in Figure 138.

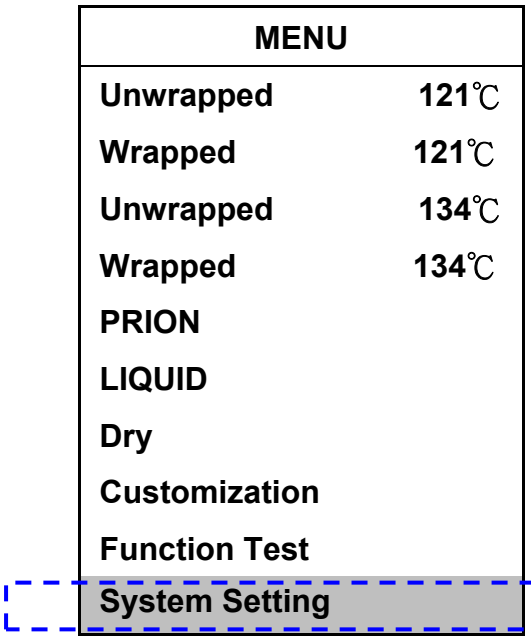


Figure 137

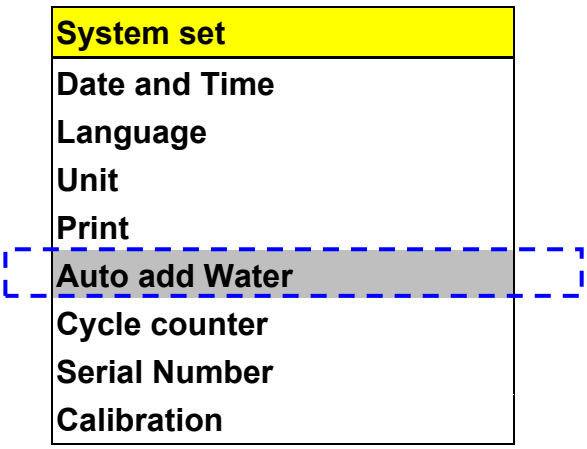


Figure 138

B. Press  button to the editing mode as shown in Figure 139.

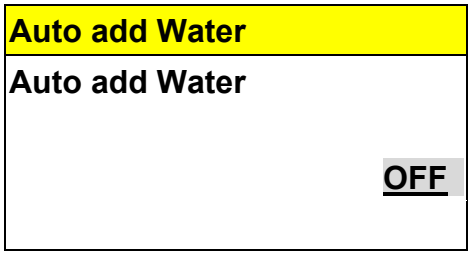


Figure 139

C. Press  or  button to enable or disable the Auto add water, and press  button to store the parameter in Figure 140.

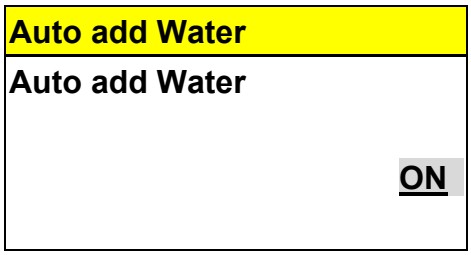


Figure 140

D. Press  button returns to System setting.

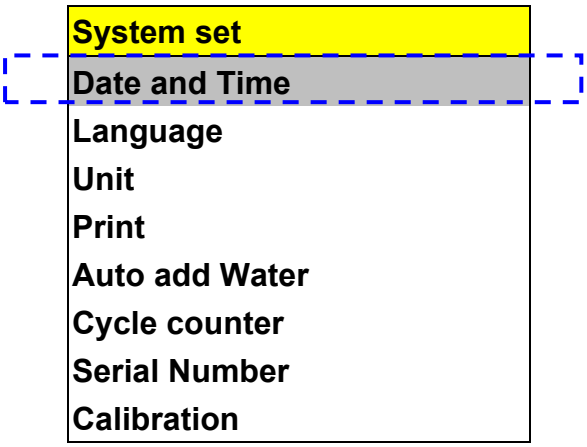


Figure 141

6.11.6 Cycle Counter

The autoclave required to be inspected and examined after pre-determinate cycles (default value 5,000 cycles) for its safety and performance by qualified persons.

A “Maintenance service” will be displayed to remind operator for the servicing work. Press any key to ignore the message.

⚠**CAUTION:** It is highly recommended by the manufacturer to call servicing work as soon as possible due to safety and performance reasons. Failure to follow the Maintenance Instructions will adversely affect performance and lifespan of the sterilizer, and may invalidate the warranty.

⚠**CAUTION:** The user should not change this parameter unless authorized by service personnel.

To change the next Maintenance cycle:

A. Press  or  button to select System Setting program (Figure 142), and then press  button to select Cycle counter setting, as shown in Figure 143.

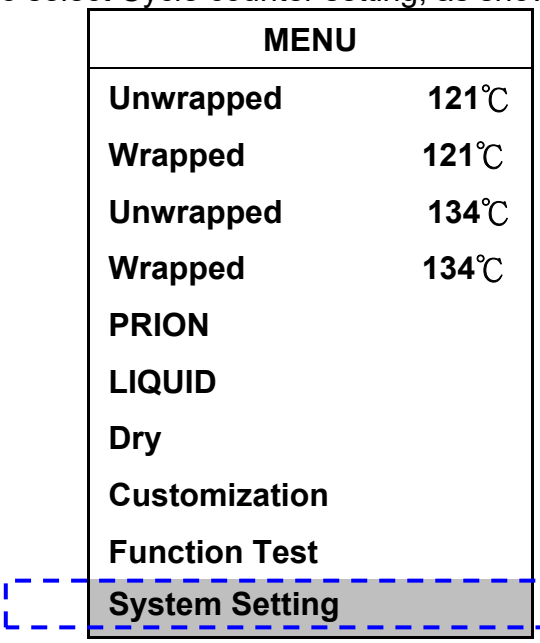


Figure 142

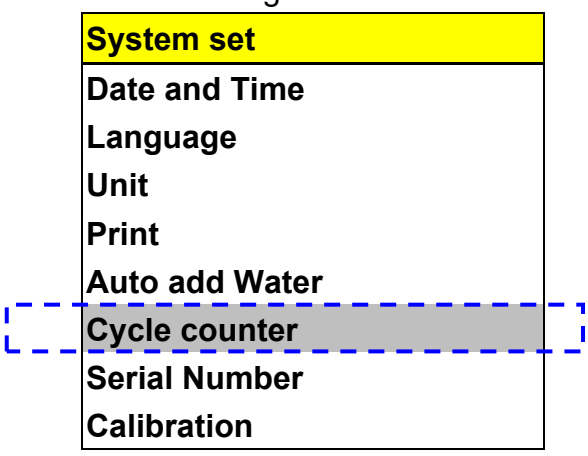


Figure 143

B. Press  button to the editing mode as shown in Figure 144.

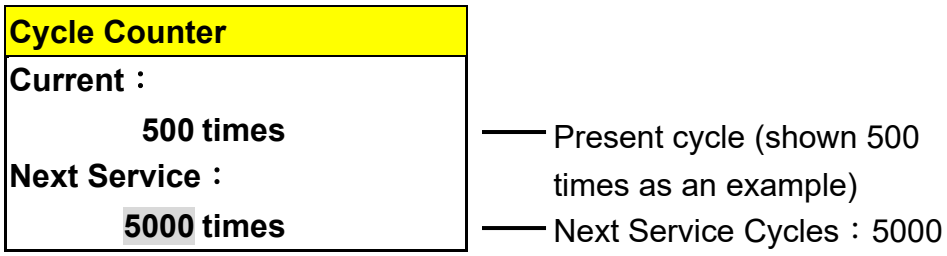


Figure 144

C. Press  or  button to change next service times, and press  button to store the parameter in Figure 145.

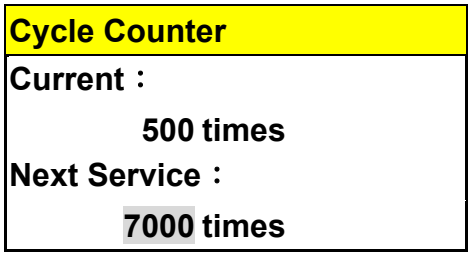


Figure 145

D. Press  button returns to System setting.

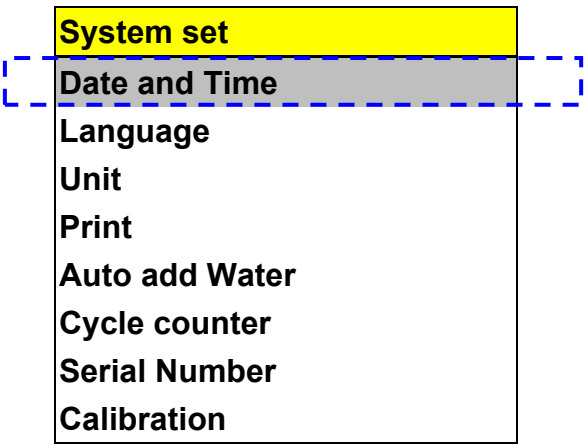


Figure 146

6.11.7 Series Number

NOTE: The 12 digits series number, compose by 9 digits followed by a dash "–"and 3 digits, is the unique identification of each autoclave, which is factory default.

To view the series number:

A. Press  or  button to select System Setting program (Figure 147), and then press  button to view the Series Number, as shown in Figure 148.

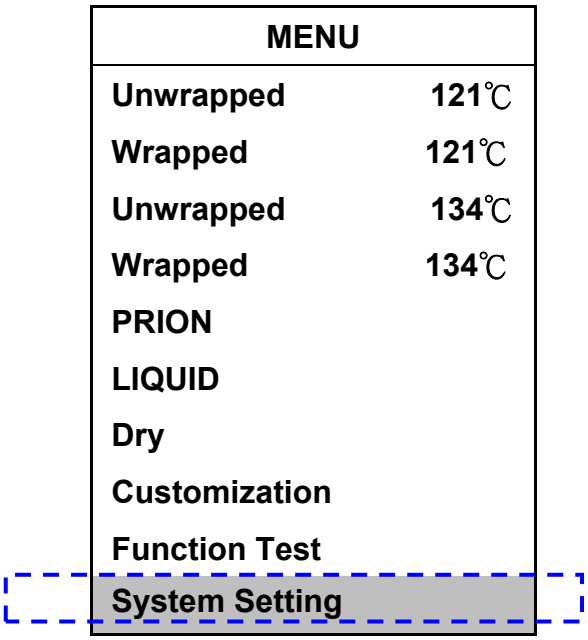


Figure 147

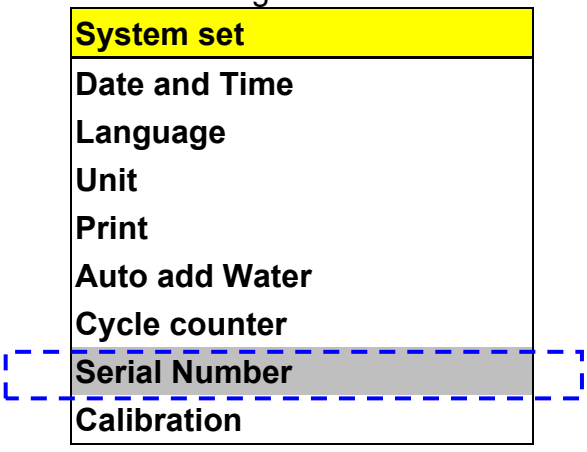


Figure 148

B. Press  button to the viewing mode as shown in Figure 149.

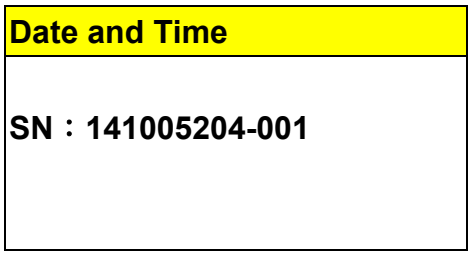


Figure 149

C. Press  button returns to System setting.

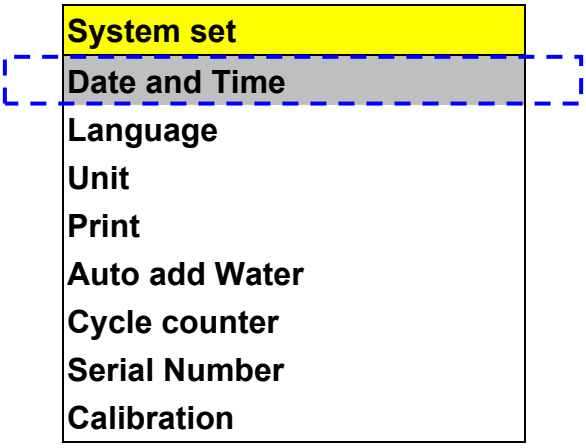


Figure 150

6.11.8 Calibration (Engineering Mode, Authorized Personnel Only)

⚠CAUTION: This autoclave had been calibrated before shipment, and this Calibration function is password protected to prevent improper operation by the user. Only well-trained personnel can perform the calibration work. Failure to do calibration could result in serious injury or damage to the autoclave. However, the autoclave may need to be re-calibrated if necessary, such as the replacement of components. The following information is aimed for operating by authorized technicians, not by the operator.

A. Press  or  button to select System Setting program (Figure 151), and then press  button to select the Calibration, as shown in Figure 152.

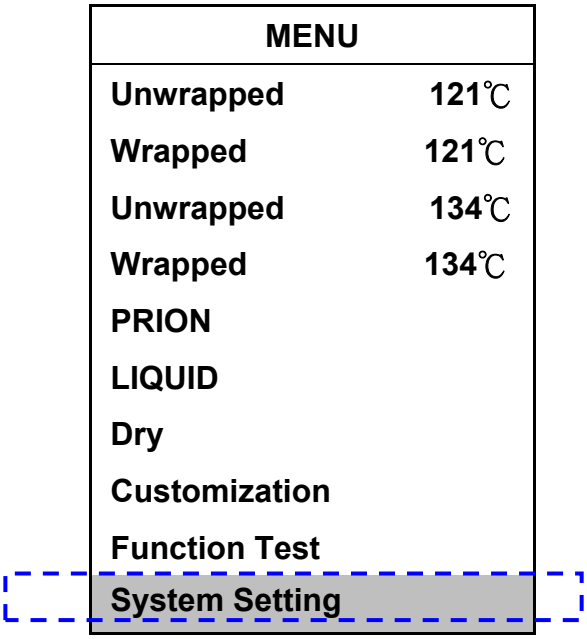


Figure 151

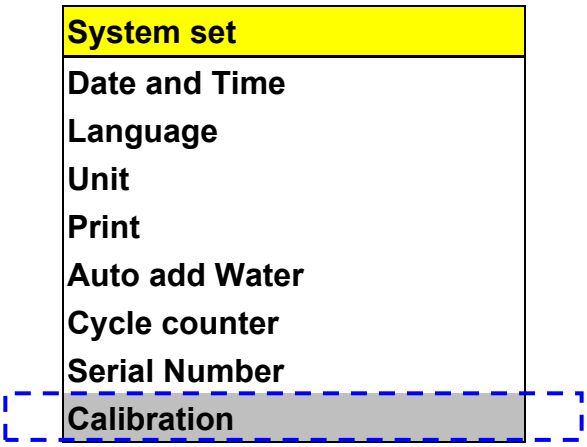


Figure 152

B. Press  button to the editing mode as shown in Figure 153.

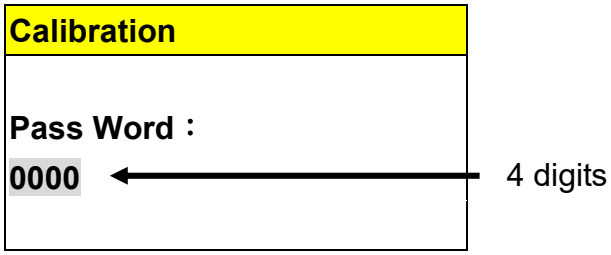


Figure 153

C. Press  button returns to System setting.

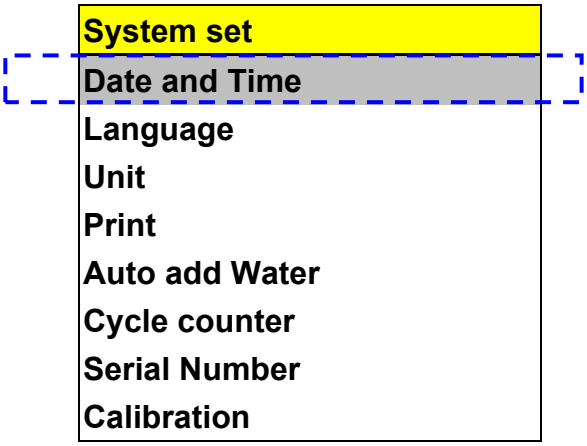


Figure 154

6.12 Description of Printer

6.12.1 Dimensions of Printer Paper

Thermal printer is installed in this sterilizer, and the dimension of thermal printer paper is 57 mm in wide, 50 mm in outside diameter, and 12 meter in length.

6.12.2 Installation of Printer Paper

There are two ways for feeding paper, one is automatic feeding and the other is manual feeding.

⚠**NOTE:** Please contact your service agent for the suitable type of thermal printer papers.

⚠**WARNING:** Loss of magnetism data will be incurred if magnetic stripe close to the printer.

⚠**NOTE:** The thermal printer papers are very sensitive to the hot-wet conditions. Always store the paper in cold-dry ambient conditions. The manufacturer highly recommended a hard copy of the contents immediately after completing each sterilization cycles.

6.12.2.1 Automatic Feeding Paper

A. Turn on the Power.

B. Press down and then pull outward the rim of the printer cover (See Figure 155).

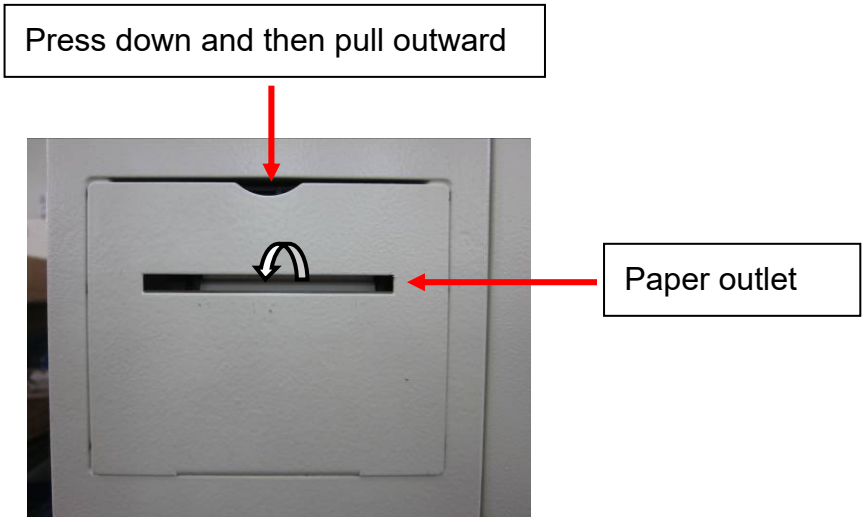


Figure 155

C. Take out the empty roll from the compartment (See Figure 156), and replace with a new one. In order to print correctly, please load the thermal paper according to the instruction of the thermal paper for the printing side.

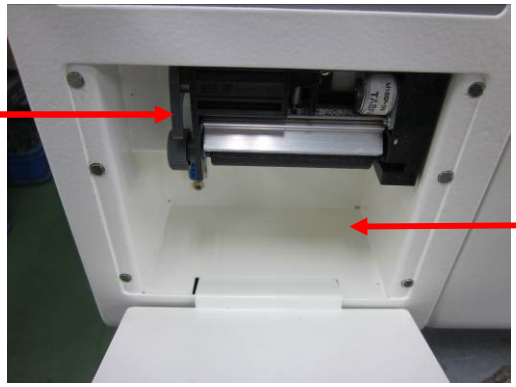


Figure 156

D. Replace with a new one thermal paper in the compartment, and position the lever in the “downward position” as shown in Figure 158. Locate the thermal paper near to the sensing inlet (Figure 157), the thermal paper will be detected and then fed automatically (See Figure 158)

⚠**NOTE:** Refer to the instruction of the thermal paper supplier for the printing face.

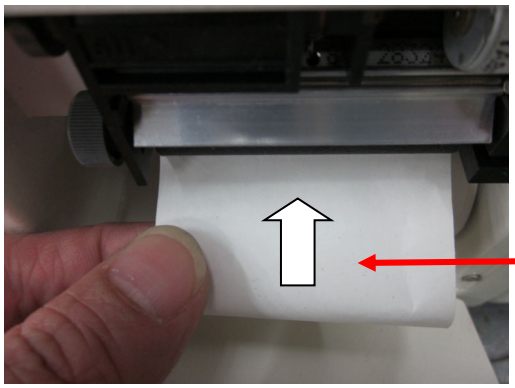


Figure 157

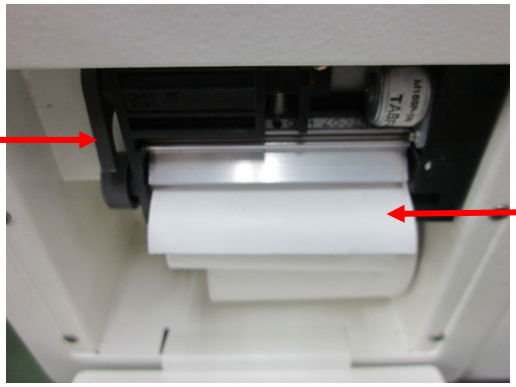


Figure 158

E. Align the thermal paper matching with the paper outlet of the printer cover. Close the printer cover to complete the replacement.

Figure 159

6.12.2.2 Manual Feeding Paper

A. Turn on the Power. (Not necessary for manual replacement)

B. Press down and then pull outward the rim of the printer cover (See Figure 160).

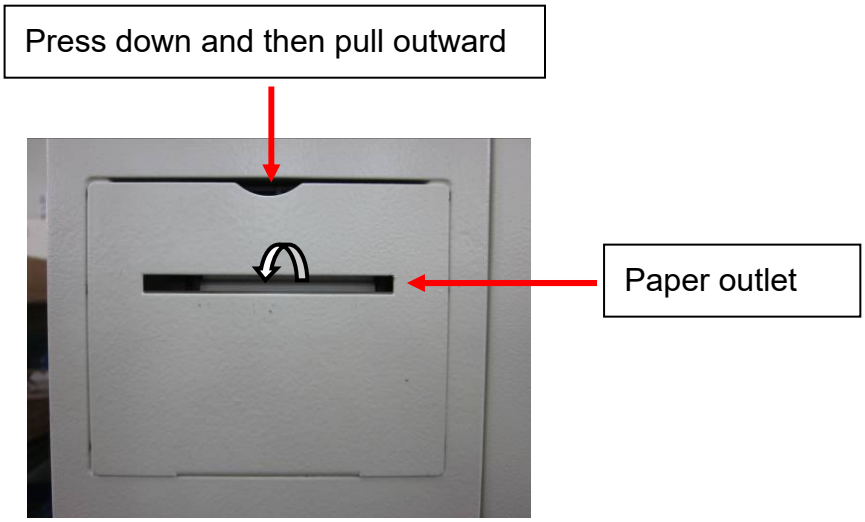


Figure 160

C. Take out the empty roll from the compartment (See Figure 161), and replace with a new one. In order to print correctly, please load the thermal paper according to the instruction of the thermal paper for the printing side.

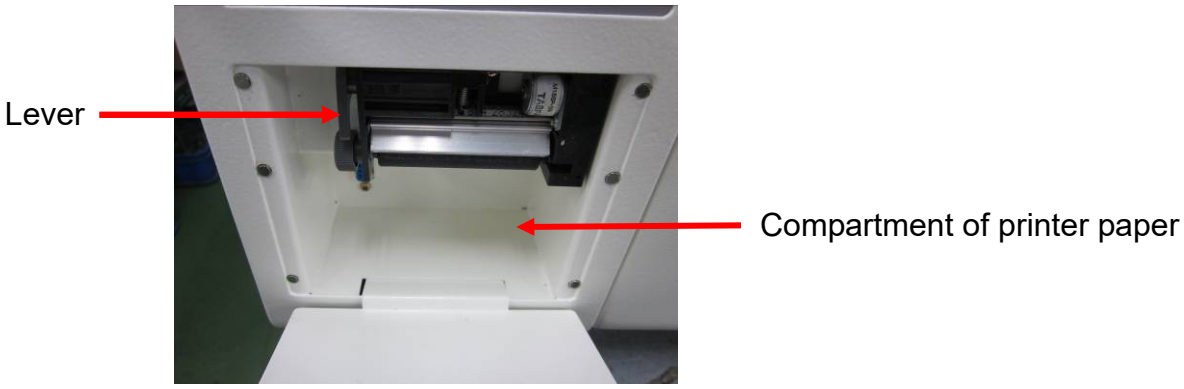


Figure 161

D. Position the lever in the “upward position” as shown in Figure 162.

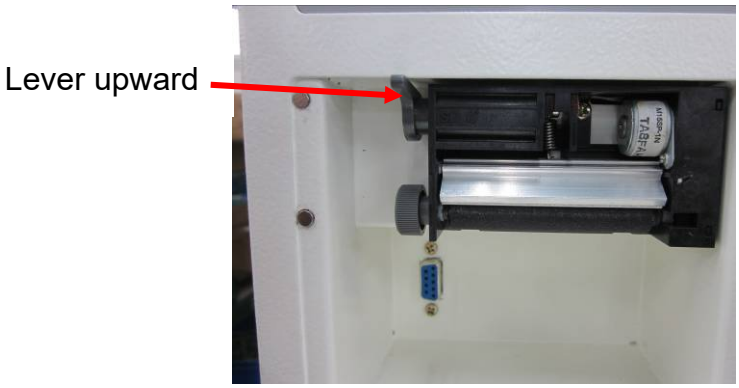


Figure 162

E. Replace with a new one thermal paper in the compartment, and. Locate the thermal paper to the paper inlet as shown in Figure 163, and then push the thermal paper until you can pull it out. Position the lever in the “downward position” as shown in Figure 164.

⚠**NOTE:** Refer to the instruction of the thermal paper supplier for the printing face.

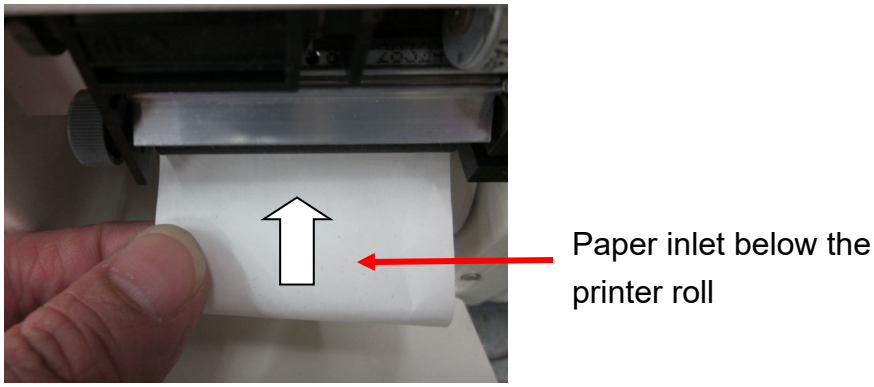


Figure 163

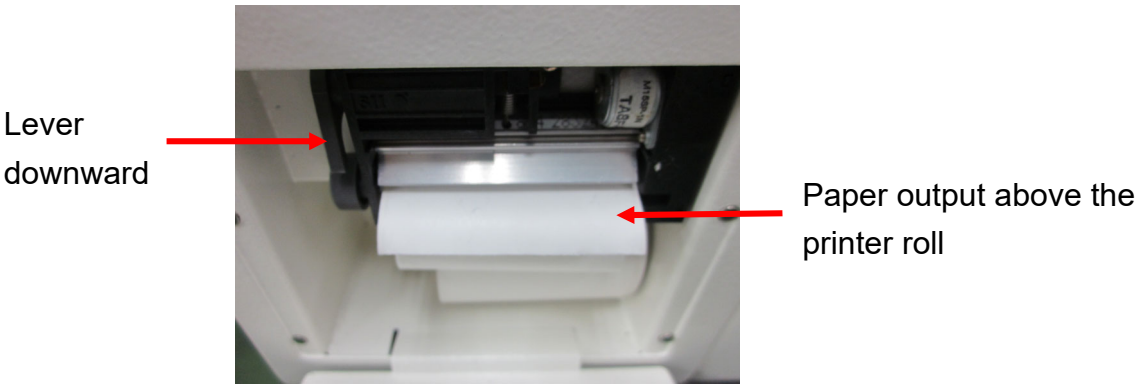


Figure 164

F. Align the thermal paper matching with the paper outlet of the printer cover. Close the printer cover to complete the replacement.

Figure 165

6.12.3 Printout of Printer

There are three types of printout as following:

1) General Program, 2) LIQUID Program (Optional), 3) Dry Program, 4) Leakage Test

6.12.3.1 Printout of General Program

The following printout is applicable to programs of Unwrapped 121 ºC, Wrapped 121 ºC, Unwrapped 134 ºC, Wrapped 134 ºC, Customization, Helix test, and B &D test.

Table 13

Printer output	Description
Model：SA-300MB	Model number
Ver. SA-300MB_A1V2.0	Software version installed in this autoclave
SN：141005204-001	Series number
Program： Unwrapped 134 ºC	Program selected
Pre-Vacuum	Pre-vacuum function enabled
Ster. Temp：134 ºC	Sterilization temperature
Ster. Time： 4 m 0 s	Sterilization duration
Dry Time： 15 m	Dry duration
Date：Apr.02.2015 Time：14：10：27	Date and Time of sterilization
Cycle Counter ：000351	Cycles that had been started

Step	Time mmm:ss	Temp. ºC	Pres. bar
Start	000:00	23.9	0.000
PV1	005:06	24.0	-0.986
H1	022:49	119.0	0.853
PV2	027:19	86.3	-0.363
H2	034:00	119.0	0.874
PV3	038:25	88.4	-0.368
H3	044:47	119.0	0.853
PV4	048:57	89.8	-0.361
H4	054:50	119.0	0.851
PV5	058:40	89.8	-0.362
H5	069:44	135.5	2.121
S00	069:44	135.5	2.121
S02	071:44	136.6	2.184
S04	073:44	136.3	2.156
Ex	078:04	106.6	0.195
D0	078:45	93.6	-0.304
D1	093:46	112.6	-0.381
VR	094:03	114.2	-0.057
End	094:03	114.2	-0.057

Step	action
Time mmm:ss	mmm: minutes starting record, ss: seconds starting record
Temp(ºC)	chamber temperature in ºC
Pres(bar)	Chamber pressure in bar
start	start time
PV1	1st pre-vacuum pulse
H1	1st heating pulse
PV2	2nd pre-vacuum pulse
H2	2nd heating pulse
PV3	3rd pre-vacuum pulse
H3	3rd heating pulse
PV4	4th pre-vacuum pulse
H4	4th heating pulse
PV5	5th pre-vacuum pulse
H5	5th heating pulse
S00	start of sterilization
S02	sterilization time recorded every 2 minutes after “S00”; and also the last sterilization time
EX	exhaust of water and steam
D0	dry time-started
D1	dry time-finished
VR	vacuum release

Printer output	Description
	End end of recording
Ster. Temp ： 135.0 - 135.8 ºC	The maximum and minimum temperature detected during sterilization period
Ster. Pres ： 2.123 – 2.160 bar	The maximum and minimum pressure detected during sterilization period
Ster. Time ： 4 m 0 s	Sterilization period
Total time ： 94 m 03 s	Time elapsed between start and program complete
Program complete	Message of ending recording
Signature:_____	Signature office

6.12.3.2 Printout of LIQUID Program (Optional)

The following printout is applicable to programs of LIQUID.

Table 14

<table>
<tr><th>Printer output</th><th>Description</th></tr>
<tr><td>Model：SA-300MB</td><td>Model number</td></tr>
<tr><td>Ver.
SA-300MB_A1V2.0</td><td>Software version installed in this autoclave</td></tr>
<tr><td>SN：141005204-001</td><td>Series number</td></tr>
<tr><td>Program：
LIQUID</td><td>Program selected</td></tr>
<tr><td>Ster. Temp：121 ºC</td><td>Sterilization temperature</td></tr>
<tr><td>Ster. Time： 15 m</td><td>Sterilization duration</td></tr>
<tr><td>Date：Apr.02.2015
Time：14：10：.27</td><td>Date and Time of sterilization</td></tr>
<tr><td>Cycle Counter ：000351</td><td>Cycles that had been started</td></tr>
<tr><td>
Step Time Temp. Pres.
mmm:ss ºC bar
Start 000:00 28.2 0.001
PV1 000:54 28.4 -0.110
H1 034:03 122.2 1.093
ET 044:03 122.5 1.120
S00 044:03 122.5 1. 120
S02 046:03 122.1 1.088
S04 048:03 122.6 1.132
≷
S14 058:03 122.5 1.125
S15 059:03 122.3 1.195
CD 094:03 80.0 -0.015
End 094:03 80.0 -0.015
</td><td>
<table>
<tr><td>Step</td><td>action</td></tr>
<tr><td>Time
mmm:ss</td><td>mmm: minutes starting record,
ss: seconds starting record</td></tr>
<tr><td>Temp(ºC)</td><td>chamber temperature in ºC</td></tr>
<tr><td>Pres(bar)</td><td>Chamber pressure in bar</td></tr>
<tr><td>start</td><td>start time</td></tr>
<tr><td>PV1</td><td>1st pre-vacuum pulse</td></tr>
<tr><td>H1</td><td>1st heating pulse</td></tr>
<tr><td>ET</td><td>Equilibrium Time</td></tr>
<tr><td>S00</td><td>start of sterilization</td></tr>
<tr><td>S02</td><td>sterilization time recorded every 2 minutes after “S00”; and also the last sterilization time</td></tr>
<tr><td>CD</td><td>Cooling Down</td></tr>
<tr><td>End</td><td>end of recording</td></tr>
</table>
</td></tr>
<tr><td>Ster. Temp ： 121.2 – 122.8 ºC</td><td>The maximum and minimum temperature detected during sterilization period</td></tr>
<tr><td>Ster. Pres ： 1.088 – 1.220 bar</td><td>The maximum and minimum pressure detected during sterilization period</td></tr>
<tr><td>Ster. Time ： 15 m</td><td>Sterilization period</td></tr>
<tr><td>Total time ： 94 m 03 s</td><td>Time elapsed between start and program complete</td></tr>
<tr><td>Program complete</td><td>Message of ending recording</td></tr>
<tr><td>Signature:_____</td><td>Signature office</td></tr>
</table>

6.12.3.3 Printout of Dry Program

The following printout is applicable to Dry Program:

Table 15

<table>
<tr><th>Printer output</th><th>Description</th></tr>
<tr><td>Model：SA-300MB</td><td>Model number</td></tr>
<tr><td>Ver.
SA-300MB_A1V2.0</td><td>Software version installed in this autoclave</td></tr>
<tr><td>SN：141005204-001</td><td>Series number</td></tr>
<tr><td>Program：
Dry</td><td>Program selected</td></tr>
<tr><td>Date：Apr.02.2015
Time：14：10：27</td><td>Date and Time of sterilization</td></tr>
<tr><td>Cycle Counter ：000351</td><td>Cycles that had been started</td></tr>
<tr><td>
Step Time Temp. Pres.
mmm:ss ºC bar
Start 000:00 27.8 -0.067
D0 000:41 27.5 -0.296
D1 002:41 28.2 -0.242
VR 002:55 28.3 -0.059
End 002:55 28.3 -0.059
</td><td>
<table>
<tr><td>Step</td><td>action</td></tr>
<tr><td>Time
mmm:ss</td><td>mmm: minutes starting record,
ss: seconds starting record</td></tr>
<tr><td>Temp(ºC)</td><td>chamber temperature in ºC</td></tr>
<tr><td>Pres(bar)</td><td>Chamber pressure in bar</td></tr>
<tr><td>start</td><td>start time</td></tr>
<tr><td>D0</td><td>dry time-started</td></tr>
<tr><td>D1</td><td>dry time-finished</td></tr>
<tr><td>VR</td><td>vacuum release</td></tr>
<tr><td>End</td><td>end of recording</td></tr>
</table>
</td></tr>
<tr><td>Total time ： 2 m 55 s</td><td>Time elapsed between start and program complete</td></tr>
<tr><td>Program complete</td><td>Message of ending recording</td></tr>
<tr><td>Signature:_____</td><td>Signature office</td></tr>
</table>

6.12.3.4 Printout of Leakage Test

The following printout is applicable to Leakage Test:

Table 16

<table>
<tr><th>Printer output</th><th>Description</th></tr>
<tr><td>Model：SA-300MB</td><td>Model number</td></tr>
<tr><td>Ver.
SA-300MB_A1V2.0</td><td>Software version installed in this autoclave</td></tr>
<tr><td>SN：141005204-001</td><td>Series number</td></tr>
<tr><td>Program：
Leakage Test</td><td>Program selected</td></tr>
<tr><td>Date：Apr.02.2015
Time：14：10：27</td><td>Date and Time of sterilization</td></tr>
<tr><td>Cycle Counter ：000351</td><td>Cycles that had been started</td></tr>
<tr><td>----------
P0: 1.5 kPa, t0: 0 s
P1: -79.6 kPa, t1: 228 s
P2: -79.4 kPa, t2: 300 s
P3: -79.4 kPa, t3: 600 s
----------</td><td><table>
<tr><td>Step</td><td>action</td></tr>
<tr><td>P0</td><td>ambient atmospheric pressure</td></tr>
<tr><td>t0</td><td>start of the test</td></tr>
<tr><td>P1</td><td>lowest pressure level</td></tr>
<tr><td>t1</td><td>time when the pressure level is reached</td></tr>
<tr><td>P2</td><td>pressure after a period of 300 s</td></tr>
<tr><td>t2</td><td>start of the leakage period</td></tr>
<tr><td>P3</td><td>pressure after a leakage time of 600 s</td></tr>
<tr><td>t3</td><td>end of the test</td></tr>
</table></td></tr>
<tr><td>Program complete</td><td>Message of ending recording</td></tr>
<tr><td>Total time: 19m 31s</td><td>Time elapsed between start and program complete</td></tr>
<tr><td>Leakage Rate：0.00 (kPa/min)</td><td>The rate of air leakage into the sterilizer chamber during periods of vacuum,
Pass if the value nor grater than 0.13 kPa/min</td></tr>
<tr><td>Leakage Test：Pass</td><td>Test result Pass</td></tr>
<tr><td>Signature:_____</td><td>Signature office</td></tr>
</table>

6.12.4 Printout Button

Press  button to reprint the last message that had been recorded in the memory.

6.13 External storage medium – SD Card

6.13.1 Using a SD card

The sterilization temperature, steam pressure and real time information during each cycle can be stored to an onto a SD memory card (hereinafter referred to as SD card) automatically if a SD card is inserted. It records the specified information in *.dat format, and the file can be read by the WordPad or Notepad.

A. You should format your storage medium prior insert into the sterilizer for the first time. SD card supports FAT file system, and SD/HC card support FAT32 file system.

⚠**NOTE:** Use only recommended storage medium by the manufacturer such as SD, SD/HC (up to 32GB).

B. Insert a formatted SD card before commencing a sterilization cycle. A “Low water in the tank” will be displayed and recorded onto the memory if missing a SD card.

⚠**CAUTION:** DO NOT remove SD card while any cycle is running, otherwise the data will not be recorded correctly, and may damage to the data and sterilizer.

C. You can operate on the files in this SD card in PC via a card reader or SD card interface. Data will be stored under the root directory only.
The recording files will be created for each sterilization cycle in the format of “YYMMDDnn.DAT”, where:
   - nn represents the cycle sequence of the recording date,
   - YY represents the last 2 digits of the year,
   - MM represents the 2 digits of the month,
   - DD represents the 2 digits of the date.

   You should open WordPad or Notepad and then open the file by File -> Open File-> (file path\YYYY\MM\YYMMDDnn.dat), to view the contents.

⚠**CAUTION:** You should backup your storage medium to a safe medium period ally.

⚠**NOTE:** WordPad and Notepad are registered trademarks of Microsoft, Inc. Microsoft is a registered trademark.

6.13.2 Readout of a SD card

There are three types of readout as following:

1) General Program, 2) LIQUID Program (Optional), 3) Dry Program, 4) Leakage Test

6.13.2.1 Readout of General Program

The following readout is applicable to programs of Unwrapped 134 ºC, Wrapped 134 ºC, Unwrapped 121 ºC, Wrapped 121 ºC, Customization, Helix test, and B &D test.

Table 17

Readout of a SD card	**Description**
Model：SA-300MB	Model number
Ver. SA-300MB_A2V2.0	Software version installed in this autoclave
SN：141005204-001	Series number
Program： Unwrapped 134 ºC	Program selected
Pre-Vacuum	Pre-vacuum function enabled
Ster. Temp：134 ºC	Sterilization temperature
Ster. Time： 4 m 0 s	Sterilization duration
Dry Time： 15 m	Dry duration
Date：Apr.02.2015 14：10：27	Date and Time of sterilization
Cycle Counter ：000464	Cycles that had been started

Step	Time mmm:ss	Temp. ºC	Pres. bar
Start	000:00	23.9	0.000
PV1	005:06	24.0	-0.986
H1	022:49	119.0	0.853
PV2	027:19	86.3	-0.363
H2	034:00	119.0	0.874
PV3	038:25	88.4	-0.368
H3	044:47	119.0	0.853
PV4	048:57	89.8	-0.361
H4	054:50	119.0	0.851
PV5	058:40	89.8	-0.362
H5	069:44	135.5	2.121
S00-00	069:44	135.5	2.121
S00-01	069:45	136.6	2.172
S00-02	069:46	136.3	2.166
≷			
S03-58	073:42	135.6	2.131
S03-59	073:43	136.3	2.165
S04-00	073:44	136.3	2.246
Ex	078:04	106.6	0.195
D0	078:45	93.6	-0.304
D1	093:46	112.6	-0.381
VR	094:03	114.2	-0.057
End	094:03	114.2	-0.057

Step	action
Time mmm:ss	mmm: minutes starting record, ss: seconds starting record
Temp(ºC)	chamber temperature in ºC
Pres(bar)	Chamber pressure in bar
start	start time
PV1	1st pre-vacuum pulse
H1	1st heating pulse
PV2	2nd pre-vacuum pulse
H2	2nd heating pulse
PV3	3rd pre-vacuum pulse
H3	3rd heating pulse
PV4	4th pre-vacuum pulse
H4	4th heating pulse
PV5	5th pre-vacuum pulse
H5	5th heating pulse
S00-00	start of sterilization
Sxx-xx	sterilization time recorded every 1 second after “S00”; until the last sterilization time
EX	exhaust of water and steam
D0	dry time-started
D1	dry time-finished
VR	vacuum release
End	end of recording

Readout of a SD card	**Description**
Ster. Temp ： 135.0 – 135.8 ºC	The maximum and minimum temperature detected during sterilization period
Ster. Pres ： 2.123 – 2.160 bar	The maximum and minimum pressure detected during sterilization period
Ster. Time ： 4 m 0 s	Sterilization period
Total time ： 94 m 03 s	Time elapsed between start and program complete
Program complete	Message of ending recording

6.13.2.2 Readout of LIQUID Program (Optional)

The following printout is applicable to programs of LIQUID.

Table 18

<table>
<tr><th>Readout of a SD card</th><th>Description</th></tr>
<tr><td>Model：SA-300MB</td><td>Model number</td></tr>
<tr><td>Ver.
SA-300MB_A1V2.0</td><td>Software version installed in this autoclave</td></tr>
<tr><td>SN：141005204-001</td><td>Series number</td></tr>
<tr><td>Program：
LIQUID</td><td>Program selected</td></tr>
<tr><td>Ster. Temp：121 ºC</td><td>Sterilization temperature</td></tr>
<tr><td>Ster. Time： 15 m</td><td>Sterilization duration</td></tr>
<tr><td>Date：Apr.02.2015 14：10：.27</td><td>Date and Time of sterilization</td></tr>
<tr><td>Cycle Counter ：000351</td><td>Cycles that had been started</td></tr>
<tr><td>
Step Time mmm:ss Temp. ºC Pres. bar
Start 000:00 28.2 0.001
PV1 000:54 28.4 -0.110
H1 034:03 122.2 1.093
ET 044:03 122.5 1.120
S00:00 044:03 122.5 1.120
S00:01 044:04 122.1 1.088
S00:02 044:05 122.6 1.132
≷
S14:59 059:02 122.5 1.125
S15:00 059:03 122.3 1.195
CD 094:03 80.0 -0.015
End 094:03 80.0 -0.015
</td><td>
<table>
<tr><td>Step</td><td>action</td></tr>
<tr><td>Time mmm:ss</td><td>mmm: minutes starting record,
ss: seconds starting record</td></tr>
<tr><td>Temp(ºC)</td><td>chamber temperature in ºC</td></tr>
<tr><td>Pres(bar)</td><td>Chamber pressure in bar</td></tr>
<tr><td>start</td><td>start time</td></tr>
<tr><td>PV1</td><td>1st pre-vacuum pulse</td></tr>
<tr><td>H1</td><td>1st heating pulse</td></tr>
<tr><td>ET</td><td>Equilibrium Time</td></tr>
<tr><td>S00-00</td><td>start of sterilization</td></tr>
<tr><td>S15-00</td><td>sterilization time recorded every 15 minutes after “S00”; and also the last sterilization time</td></tr>
<tr><td>CD</td><td>Cooling Down</td></tr>
<tr><td>End</td><td>end of recording</td></tr>
</table>
</td></tr>
<tr><td>Ster. Temp ： 121.7 – 122.8 ºC</td><td>The maximum and minimum temperature detected during sterilization period</td></tr>
<tr><td>Ster. Pres ： 1.091 – 1.135 bar</td><td>The maximum and minimum pressure detected during sterilization period</td></tr>
<tr><td>Ster. Time ： 15 m 0 s</td><td>Sterilization period</td></tr>
<tr><td>Total time ： 94 m 03 s</td><td>Time elapsed between start and program complete</td></tr>
<tr><td>Program complete</td><td>Message of ending recording</td></tr>
</table>

6.13.2.3 Readout of Dry Program

The following readout is applicable to Dry Program:

Table 19

<table>
<tr><th>Readout of a SD card</th><th>Description</th></tr>
<tr><td>Model：SA-300MB</td><td>Model number</td></tr>
<tr><td>Ver.
SA-300MB_A1V2.0</td><td>Software version installed in this autoclave</td></tr>
<tr><td>SN：141005204-001</td><td>Series number</td></tr>
<tr><td>Program：
Dry</td><td>Program selected</td></tr>
<tr><td>Date：Apr.02.2015 14：10：27</td><td>Date and Time of sterilization</td></tr>
<tr><td>Cycle Counter ：000464</td><td>Cycles that had been started</td></tr>
<tr><td>
Step Time mmm:ss Temp. ºC Pres. bar
Start 000:00 27.8 -0.067
D0 000:41 27.5 -0.296
D1 002:41 28.2 -0.242
VR 002:55 28.3 -0.059
End 002:55 28.3 -0.059
</td><td>
<table>
<tr><td>Step</td><td>action</td></tr>
<tr><td>Time mmm:ss</td><td>mmm: minutes starting record,
ss: seconds starting record</td></tr>
<tr><td>Temp(ºC)</td><td>chamber temperature in ºC</td></tr>
<tr><td>Pres(bar)</td><td>Chamber pressure in bar</td></tr>
<tr><td>start</td><td>start time</td></tr>
<tr><td>D0</td><td>dry time-started</td></tr>
<tr><td>D1</td><td>dry time-finished</td></tr>
<tr><td>VR</td><td>vacuum release</td></tr>
<tr><td>End</td><td>end of recording</td></tr>
</table>
</td></tr>
<tr><td>Total time ： 2 m 55 s</td><td>Sterilization period</td></tr>
<tr><td>Program complete</td><td>Message of ending recording</td></tr>
</table>

6.13.2.4 Readout of Leakage Test

The following readout is applicable to Leakage Test:

Table 20

<table>
<tr><th>Readout of a SD card</th><th>Description</th></tr>
<tr><td>Model：SA-300MB</td><td>Model number</td></tr>
<tr><td>Ver.
SA-300MB_A1V2.0</td><td>Software version installed in this autoclave</td></tr>
<tr><td>SN：141005204-001</td><td>Series number</td></tr>
<tr><td>Program：
Leakage Test</td><td>Program selected</td></tr>
<tr><td>Date：Apr.02.2015 14：10：27</td><td>Date and Time of sterilization</td></tr>
<tr><td>Cycle Counter ：000464</td><td>Cycles that had been started</td></tr>
<tr><td>----------
P0: 1.5 kPa, t0: 0 s
P1: -79.6 kPa, t1: 228 s
P2: -79.4 kPa, t2: 300 s
P3: -79.4 kPa, t3: 600 s
----------</td><td><table><tr><th>Step</th><th>action</th></tr><tr><td>P0</td><td>ambient atmospheric pressure</td></tr><tr><td>t0</td><td>start of the test</td></tr><tr><td>P1</td><td>lowest pressure level</td></tr><tr><td>t1</td><td>time when the pressure level is reached</td></tr><tr><td>P2</td><td>pressure after a period of 300 s</td></tr><tr><td>t2</td><td>start of the leakage period</td></tr><tr><td>P3</td><td>pressure after a leakage time of 600 s</td></tr><tr><td>t3</td><td>end of the test</td></tr></table></td></tr>
<tr><td>Total time: 19m 31s</td><td>Time elapsed between start and program complete</td></tr>
<tr><td>Leakage Rate：0.00 (kPa/min)</td><td>The rate of air leakage into the sterilizer chamber during periods of vacuum,
Pass if the value nor grater than 0.13 (kPa/min)</td></tr>
<tr><td>Leakage Test：Pass</td><td>Test result : Pass</td></tr>
</table>

6.14 Emergency Stop

A. Press the Emergency Button  to interrupt the program and release the pressure inside the chamber.

B. The sterilizer will sound to alert, and the message “Emergency stop” will be displayed to notify an emergency operation. Please wait till the pressure gauge is reading ZERO,

WARNING: The Emergency Button can only been pressed when there’s an unusual event or emergency. The sterility of the sterilized items should be verified again.

WARNING: Disposal of the items which is sterilized by unfinished cycle should be in accordance with the local laws. Do not handle them as general waste.

NOTE: If the Emergency Button had been pressed without opening the door, you may require repeating this emergency to release the pressure.

C. Press the  button to open the door, a “Mind the Steam” will be prompted and then followed by “Please Open Door.” message. 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 box or use the appropriate aids (tray holder) to lift the trays.

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

6.15 Placement for items to be sterilized

Please place items to be sterilized on the tray properly in order to have the best drying result.

⚠**WARNING:** To sterilize absorbent cotton or woolen, please wrap it with sterilizing pouch to avoid piping clog.

6.15.1 Sterilization for Implements

Place implements on the tray evenly according to Figure 166. Do not pile up nor overlap each implement.

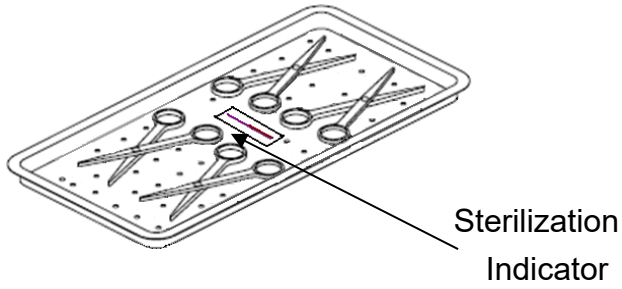


Figure 166

⚠**WARNING:** If implements are packed with sterilizing pouches, please make sure not to pile them up. Follow Figure 167 for correct placement and do not overlaps pouches like to Figure 168 ensure the sterilization quality.

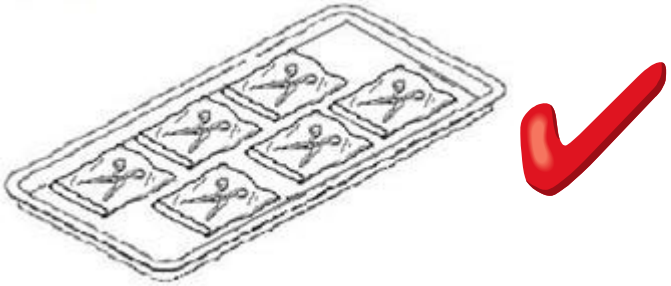


Figure 167

Figure 168

WARNING: We suggest using Spring Holder for items with sterilizing pouches to assure sterilization result. Follow Figure 169 or Figure 170 to place each pouch separately. Spring holder is available as an optional accessory.

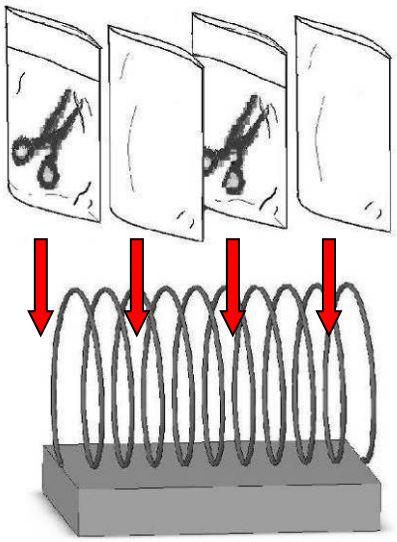


Figure 169

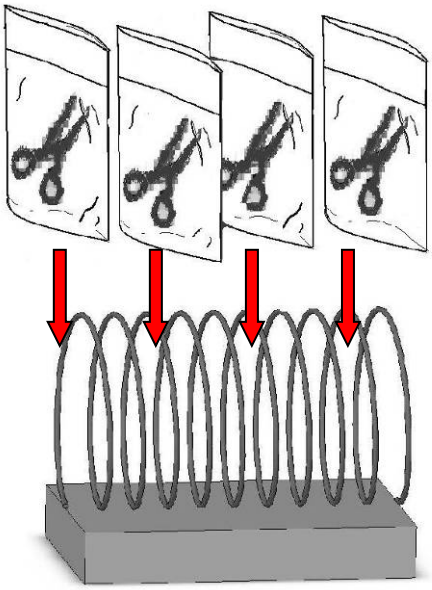


Figure 170

WARNING: If implements are packed with sterilizing pouches and placed inside sterilization box, make sure to display items as shown in Figure 171.

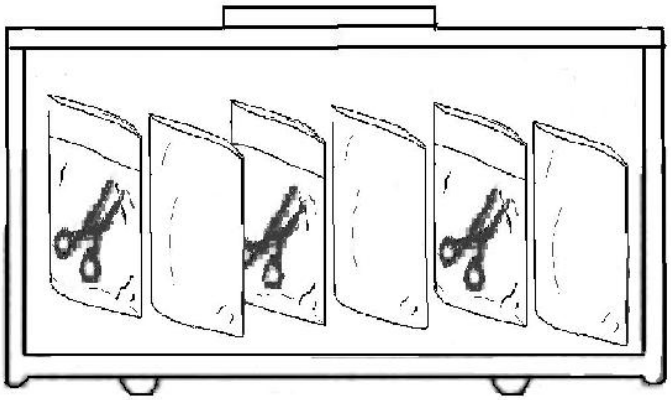


Figure 171

6.15.2 Sterilization for Wrap

WARNING: To sterilize absorbent cotton or woolen, please wrap it with a thin towel, covering cloth, linen, or sterilizing pouch to avoid piping clog according to Figure 172.

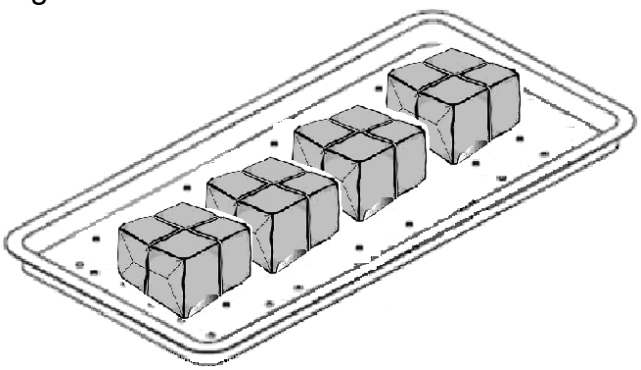


Figure 172

- Place wrap upright on the tray.
- Be careful not to let wrap touching the inner side of chamber.
- Make sure the openings of wraps are perpendicular to the tray in order to improve sterilization performance.
- Arrange openings of wraps toward same direction.
- When place sterilizing pouch on the sterilization box or tray, make sure the medical grade paper is facing upward.

6.15.3 Placement for Sterilization box

- Insert chemical indicator into wrap, then place wrap inside the sterilization box.
- Be sure there will be enough space between each wrap for better air flow.
- Make sure to close the cover of sterilization box properly.

Figure 173

WARNING: Please follow above Figure 173 and place wrap vertically inside the sterilization box.

7 Messages and Troubleshooting

7.1 System Message

Code	Message	Description and Solution
002	Emergency stop	1) The EMERGENCY button was pressed to interrupt the program. Please wait until the pressure been release to 0 reading and then pressure the “unlock button”  to open the door by turning the door knob 90° counterclockwise. 2) The sterility of the sterilized items should be verified again. 3) Consult your service agent for maintenance service as soon as possible.
003	Stop operation Wait.....	Cancel button  was pressed to stop a program; press enter button  to confirm the stop operation, and press  again to continue program.
010	Maintenance service	1) The default 5,000 cycles or preset service cycles have been reached. 2) You can press any key to continue your operation, but this message will be displayed every time to remind service. 3) Consult your service agent for maintenance service as soon as possible.
031	Chamber temp >97℃	1) Please wait until chamber temperature cool down. 2) Press any key to continue, and your sterilization work will start automatically after the preset time reached.
040	Wrong password	Consult your service agent and re-input again.

7.2 Component Message

Code	Message	Description and Solution
101	SSR1 fault	1) SSR1 fault, press any key to terminate operation. 2) Consult your service agent.
102	SSR2 fault	1) SSR2 fault, press any key to terminate operation. 2) Consult your service agent.
110	Absolute pressure sensor fault	1) Pressure gauge P1 fault; press any key to terminate operation. 2) Consult your service agent.
111	pressure sensor fault	1) Pressure gauge P2 fault; press any key to terminate operation. 2) Consult your service agent.
120	CJC fault	1) Consult your service agent.
121	Temp sensor T1 fault	1) Temperature sensor T1 fault, press any key to terminate operation. 2) Consult your service agent.
123	Temp sensor T3 fault	1) Temperature sensor T3 fault, press any key to terminate operation. 2) Consult your service agent.
130	Keyboard fault	1) Keyboard fault, press any key to terminate operation. 2) Consult your service agent.
140	Air Filter block	1) Replace a new Air Filter; press any key to terminate operation. 2) Consult your service agent.
150	FAN 1 fault	1) System Fan F1 fault; press any key to terminate operation. 2) Consult your service agent.
151	FAN 2 fault	1) System Fan F2 fault; press any key to terminate operation. 2) Consult your service agent.
160	Band heater abnormal	1) Band heater fault, press any key to terminate operation. 2) Consult your service agent.

7.3 Process Message

Code	Message	Description and Solution
200	Altitude over	1) Sea level above 2000M detected, press any key to terminate operation. 2) Consult your service agent.
201	Room temp too low	1) Room temperature lowers than 5ºC, press any key to terminate operation. 2) Consult your service agent.
202	Room temp too high	1) Room temperature higher than 50ºC, press any key to terminate operation. 2) Consult your service agent.
210	Over heat	1) No water in the chamber causing EGO operated to protect heater, press any key to terminate operation. 2) Consult your service agent.
211	Over pressure	1) Over pressure in the chamber, press any key to terminate operation. 2) Consult your service agent.
220	Vacuum abnormal	1) The pre-vacuum is not reach to preset value during air removal step, press any key to terminate operation. 2) Consult your service agent.
224	Post vacuum abnormal	1) The dry-vacuum is not reach to preset value during the drying steps, press any key to terminate operation. 2) Consult your service agent.
230	Pressure too high	1) The pressure is higher than preset value during sterilization step; press any key to terminate operation. 2) Consult your service agent.
231	Pressure too low	1) The pressure is lower than preset value during sterilization step; press any key to terminate operation. 2) Consult your service agent.
232	Dynamic pressure too high	1) The pressure fluctuation is higher than 10 bar/min; press any key to terminate operation. 2) Consult your service agent.
233	Exhaust over time	1) The exhaust time exceed preset value during exhaust step; press any key to terminate operation. 2) Consult your service agent.
240	Pre-heat over time	1) The pre-heat time exceed preset value during pre-heat step, press any key to terminate operation. 2) Consult your service agent.

Code	Message	Description and Solution
242	Low temp during Sterilizer step	1) The sterilization temperature lower than preset value during sterilization step, press any key to terminate operation. 2) Consult your service agent.
243	Temp rise too fast	1) The sterilization temperature higher than preset value, 8°K/min, before sterilization step, press any key to terminate operation. 2) Consult your service agent.
246	Sterilizer temp over rang	1) The sterilization temperature high than 4ºC.

7.4 Test Message

Code	Message	Description and Solution
302	Leakage fail	1) The rate of air leakage into the chamber during periods of vacuum exceed 0,13 kPa/min. 2) Consult your service agent.
304	Chamber temp higher than 40 ºC	1) The chamber temperature higher than 40ºC, press any key to terminate operation. 2) Please, waiting the chamber temperature cool down to 40ºC.
400	Low water in the tank	1) The water level is insufficient for running a sterilization cycle. 2) Fill water into the water tank.
401	Low water in the chamber	1) The water level in the chamber is insufficient for running a sterilization cycle. 2) Check water tank have water. 3) Consult your service agent.

7.5 Storage Medium Message

Code	Message	Description and Solution
500	EEPROM error	1) EEPROM writes error, press any key to terminate operation. 2) Consult your service agent.
520	No SD card	1) SD card write error or write protected, press any key to terminate operation. 2) Consult your service agent. 3) Please insert a SD card.
522	Format error	1) Wrong SD card format, press any key to terminate operation. 2) Refer to “6.13.1 Using a SD card”. 3) Consult your service agent.
530	No printer paper	1) No printer paper, press any key to continue operation. 2) Refer to “6.12 Description of Printer “to install printer.
531	Printer abnormal	1) The Printer Level is not positioned to downward. 2) Consult your service agent.
533	Printer disconnect	1) Printer time out, press any key to continue operation. 2) Consult your service agent.
600	Door open	1) press any key to terminate operation or wait for 5 seconds to terminate operation. 2) Close the door and continue your operation again. 3) Consult your service agent.

7.6 General Troubleshooting

Symptoms	**Possible Cause**	**Solution**
LCD not Illuminated	The main cable is unplugged or the socket switch is off.	Plug in the sterilizer and turn on the socket switch.
	Main switch not turn on.	Press the Power switch to ON ”I” position.
	No Fuse Breaker tripped.	Wait until the sterilizer cool down to room temperature. Press the buttons of two No Fuse Breakers on rear of unit to reset.
	LCD display fail.	Consult your service agent.
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 “8.4 Annually Maintenance” to replace it.
Door cannot be opened	Pressure persists inside chamber	1. Press  button to open the door. 2. Consult your service agent.
Water inside chamber doesn’t automatically return to outside.	Piping system of filter blocked, or faulty exhaust solenoid valve.	Contact local distributor for service.
Excessive force is required to pull the safety valve	1. Do not use suitable tool.	1. Please use a tool (e.g. screw driver or pliers) to pull the ring.
	2. Faulty safety valve	2. Contact local distributor for service.

⚠**WARNING:** Contact local distributor for service. DO NOT disassemble the sterilizer by yourself if the symptoms still exists, as explosion and scald may occur.

8. Maintenance Instructions

⚠**WARNING:** Failure to follow the Maintenance Instructions will adversely affect performance and lifespan of the sterilizer, and may invalidate the warranty.

⚠**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.

8.1 Daily Maintenance

- Perform B & D test.
- Perform Helix Test.
- 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 water level. Top up with water for sterilization or distilled water only.
- Ensure the vent holes (Figure 36 –Rear View) are not blocked.
- Check the status of the power cord. Call for service if breakage comes up.

8.2 Weekly Maintenance

- Clean the box, tray frame and trays with detergent, or a non-corrosive stainless steel cleaner and water, using cloth or sponge.
- Replace the water for sterilization or distilled water in water reservoir:
  Drain water from the water reservoir using Water Level/Drain Hose (Figure 35) located on the right side of the unit. Fill clean water for sterilization or distilled water.
- Clean the filter
  Use a wrench to unscrew the filter nut counterclockwise as shown in Figure 174 and Figure 175.

CAUTION: Place a towel underneath the filter tap to avoid leakage.

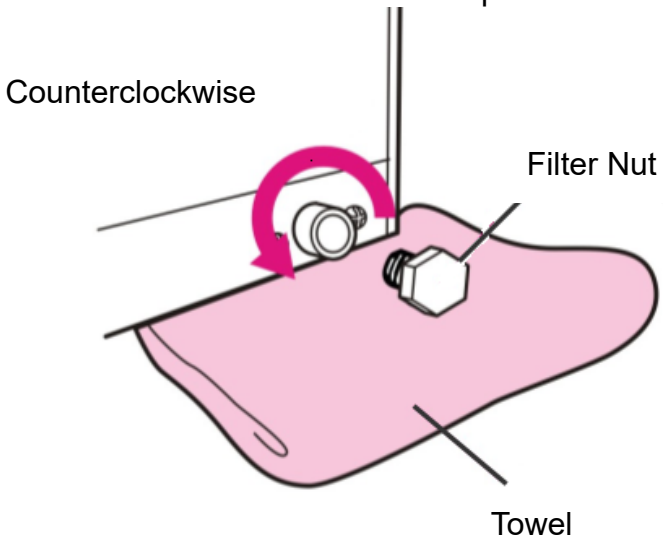


Figure 174

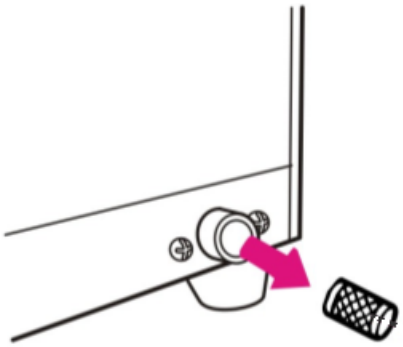


Figure 175

Take out the filter carefully, and flush it with water to clean it. Assemble it back as shown in Figure 176.

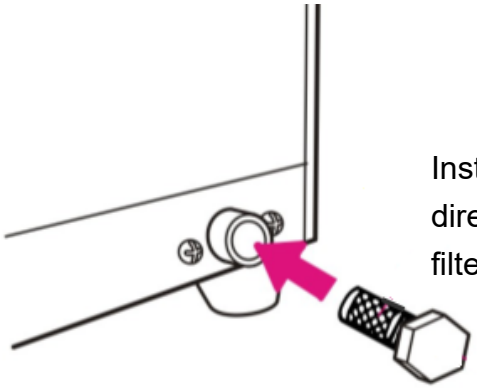


Figure 176

8.3 Monthly Maintenance

- Use the non-corrosive cleaner and stiff bristled brush or sponge to clean the water level sensor at the rear of the chamber as shown in Figure 177.

⚠**CAUTION:** Clean the dirt off from the sides of the sensor is more important than the tip. Use a damp cloth to wipe the surface after cleaning.

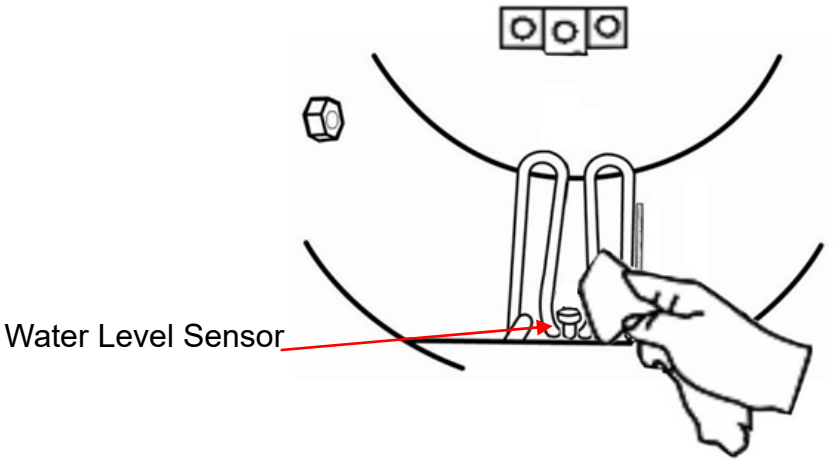


Figure 177

- 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. Remove the water reservoir cap as shown in Figure 178. Use a screw driver to pull the metal ring of the safety valve for approx. 3 seconds; then release. Perform the check 3 times. Put the water reservoir cover back.

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

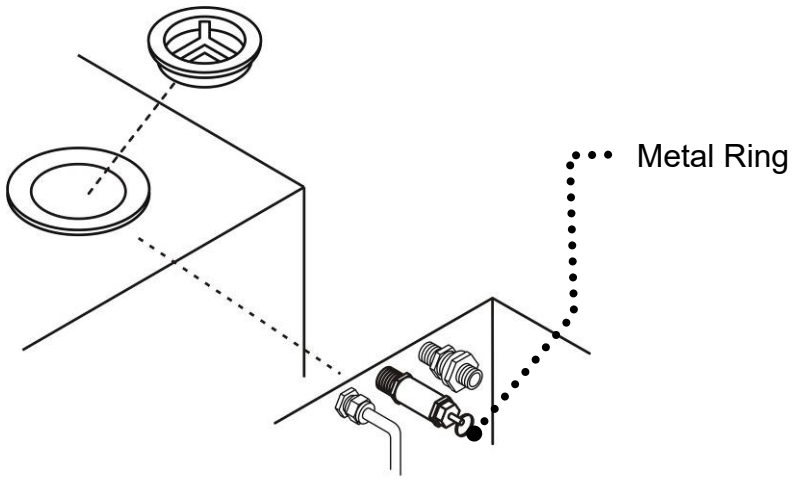


Figure 178

- Check if the Air Filter too dirty.

Figure 179

Open the door and visual inspect if the Air Filter become dark-grey. Replace with a new Air Filter (HEPA) with the same part number.

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

To replace the filter proceed as follows:

1. Remove the old filter by turning the Air Filter counterclockwise until it is released.
2. Replace a new one by turning clockwise. Verify that the New Air Filter has fastened well in its place.

8.4 Annually Maintenance

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 and pressure 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.

How to replace the silicone door gasket:

1. Remove the gasket assembly from the door groove, and then take out the door gasket frame, door gasket plate from the old gasket. Install the door gasket frame, door gasket plate to the new gasket as shown in Figure 180。

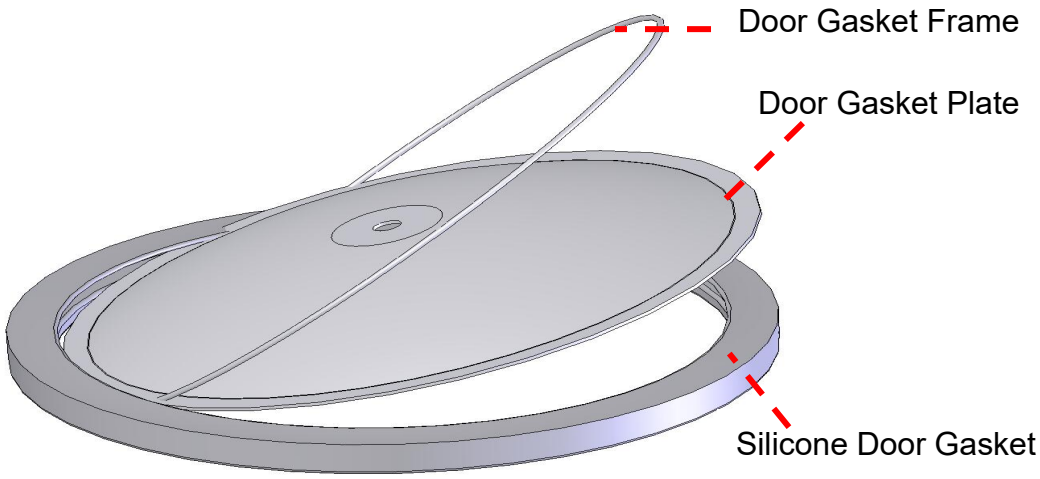


Figure 180

2. Check if the door gasket frame, door gasket plate are installed into the gasket completely as shown in Figure 181.

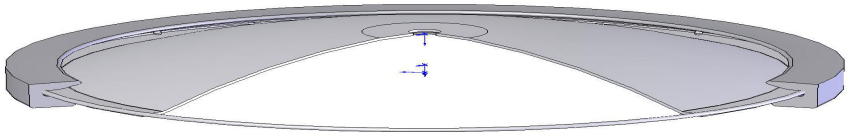


Figure 181

3. Install the gasket with the door gasket frame, door gasket plate inside to the door groove. Press the gasket into the door groove evenly as shown in Figure 182. Take thick end of silicone door gasket of the installation direction while pressing the gasket into the groove. Refer to Figure 183 for the correct direction.

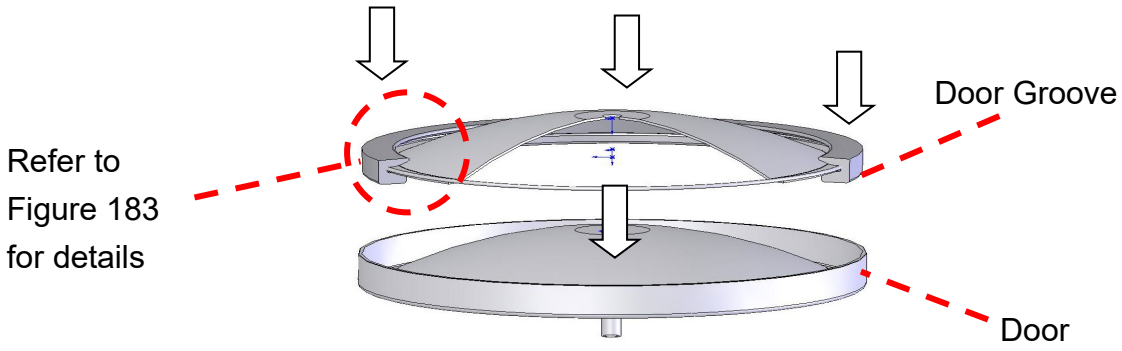


Figure 182

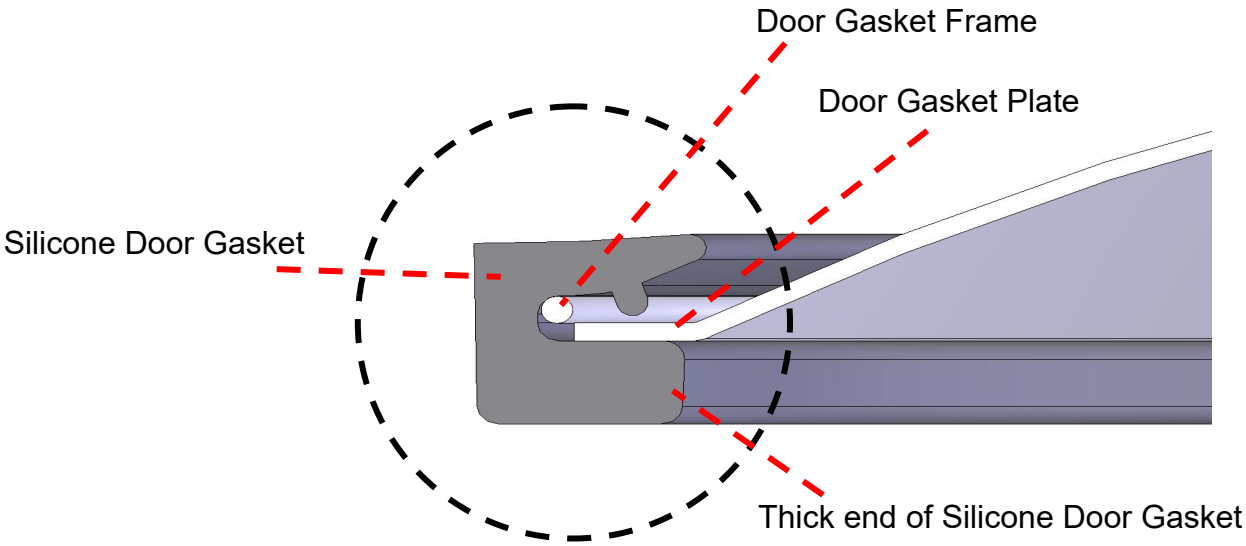


Figure 183

CAUTION: Assembly direction - toward the thick end of the Door Groove.

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

9 Water Quality

Suggested maximum limits of contaminants in and specification for water for steam sterilization:

	Feed water	Condensate
Evaporate residue	≤ 10 mg/l	≤ 1,0 mg/kg
Silicium oxide, SiO_2	≤ 1 mg/l	≤ 0,1 mg/kg
Iron	≤ 0,2 mg/l	≤ 0,1 mg/kg
Cadmium	≤ 0,005 mg/l	≤ 0,005 mg/kg
Lead	≤ 0,05 mg/l	≤ 0,05 mg/kg
Rest of heavy metals, excluding iron, cadmium, lead	≤ 0,1 mg/l	≤ 0,1 mg/kg
Chloride	≤ 2 mg/l	≤ 0,1 mg/kg
Phosphate	≤ 0,5 mg/l	≤ 0,1 mg/kg
Conductivity (at 20 °C)	≤ 15 µs/cm	≤ 3 µs/cm
pH value	5 to 7,5	5 to 7
Appearance	colourless, clean, without sediment	colourless, clean, without sediment
Hardness	≤ 0,02 mmol/l	≤ 0,02 mmol/l
NOTE 1 The use of water for steam generation with contaminants at levels exceeding those given in this Table can greatly shorten the working life of a sterilizer and can invalidate the manufacturer's warranty of guarantee.		
NOTE 2 The condensate is produced from steam that has been taken from the empty sterilizer chamber.		

Compliance should be tested in accordance with acknowledged analytical methods.

Table 21

CAUTION: We recommend testing the water quality once a month. The use of water for autoclaves that does not comply with the table above may have severe impact on the working life of the sterilizer and can invalidate the manufacturer’s guarantee.

10 Test Instructions

10.1 Biological performance of sterilizers

It is commonly used as a challenge organism for sterilization validation studies and periodic check of sterilization cycles. The biological indicator contains spores of the organism on filter paper inside a vial. After sterilizing, the cap is closed, an ampoule of growth medium inside of the vial is crushed and the whole vial is incubated. A color and/or turbidity change indicates the results of the sterilization process; no change indicates that the sterilization conditions were achieved; otherwise the growth of the spores indicates that the sterilization process has not been met.

An example of Raven Protest (that is Mesa Laboratories, Inc) is description as following:

1. Please one or more Raven Protest units in a horizontal position in the most difficult to sterilize locations. Run Cycle.

⚠**WARNING:** After sterilization, handle unit with care.

⚠**NOTE:** Raven Protest is registered trademarks of Mesa Laboratories, Inc.

2. After the Biological indicator has cooled, crush the media ampoule by squeezing the sides of the plastic tube or by using the tool provide.
3. Place processed unit(s) and one unprocessed (control) unit in a vertical position in an incubator at 58-62ºC for steam (Geobacillus steaothermophilus) for 24 hours.
4. Begin monitoring the incubated units after 24 hours. Record observations.
5. The control unit should exhibit turbidity and/or color change to or toward yellow.
6. A fail sterilization cycle is indicated by turbidity and/or color change to or toward yellow. A test unit that retains its original color indicates the sterilization parameters have been met.
7. More detail information please asks your dealer of biological test.

10.2 Air removal (Bowie-Dick type test pack)

A commercially available Bowie-Dick type test pack that is of a size appropriate to the chamber being tested. The indicator is a heat sensitive sheet that is placed in the middle of a packet made up of various layers of paper and foam rubber.

The packet for the B&D test must be inserted on it own, preferably on the lowest tray, with the label facing up. After performing the cycle, immediately verify the test. Being careful while handling the packet (It is still hot), remove the indicator sheet and follow the instructions given in the package for evaluating the result of test.

An example of B&D test (that is SPS medical company) is description as following:

⚠**NOTE:** SPS is registered trademarks of SPS medical company.

1. Assembly of the cube is reference.

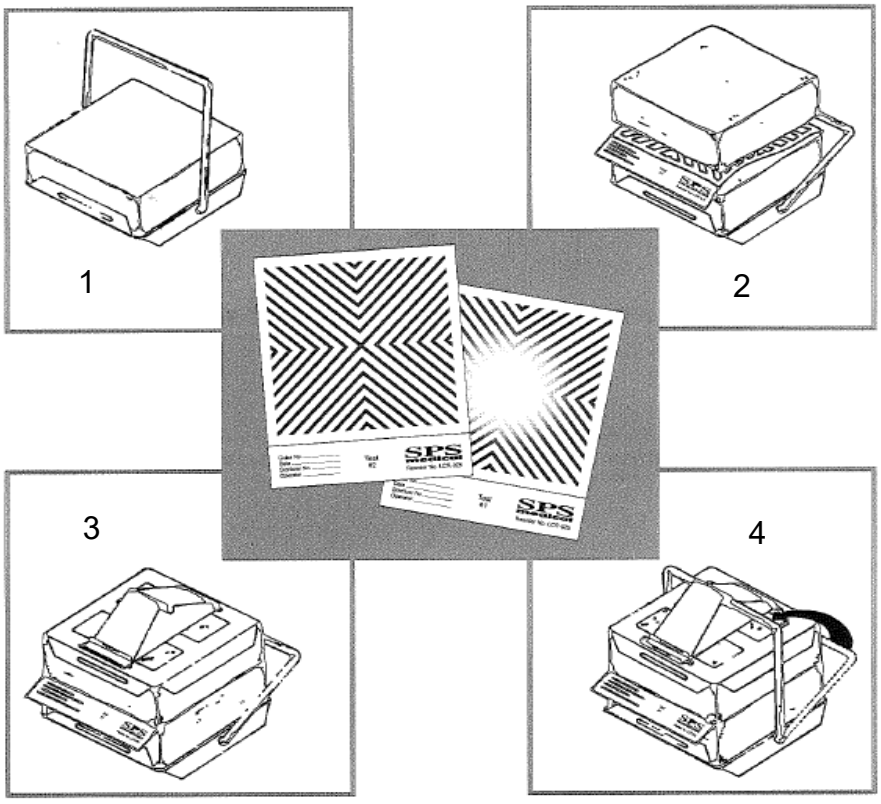


Figure 184

2. Place the pre-assembled Cube in the bottom section of the sterilizer rack, over the drain, in an otherwise empty chamber.
3. Running a steam cycle by sterilizer.

4. After processing, wear heat-resistant glover to remove the Cube from the sterilizer and allow to cool.

⚠**WARNING:** The metal clamp is hot at this stage of test.

5. Unlock the swing-bar and remove the indicator sheet from the center of the Cube.
6. The indicator test sheet should show a uniform color change. An incomplete color change may indicate sterilizer malfunction and should be immediately reported to the supervisor for review.
7. Complete the information on the test sheet and retain as permanent record.
8. More detail information please asks your dealer of B&D test.

10.3 Helix test

The Helix test represents a hollow A-type load (Conforms to EN 867-5 of tool), i.e. the load with the most critical characteristics.

Carry out the test as follows (Example of TST LOADCHEK OF BROWNE):

The Browne TST Control Helix is a Hollow Load Process Challenge Device (PCD) and has been developed and validated for testing the air removal (steam penetration) capability of small Type B steam sterilizers. Use in any other sterilizer or with any other type of indicator, may give dangerously misleading results.

1. Place a test strip (product code: 3783, Conforms to EN 867-5) inside the capsule.

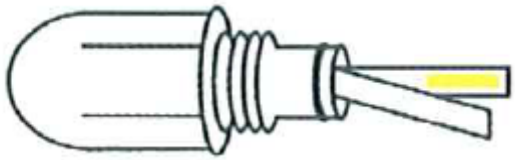


Figure 185

Figure 186

2. Close the capsule.
3. Place the test on the lower tray in the chamber.
4. Select and start B&D cycle at control panel.
5. Once the cycle is complete, open the door and remove the test.

⚠**WARNING:** The HELIX Test will be very hot!

6. Open the capsule and remove the test strip.
7. More detail information please ask your dealer of HELIX test.
8. The result is as follows:

Incorrect result:

Yellow = Unprocessed

Figure 187

Incorrect result:

Presence of Yellow/Brown/Green = Fail

Figure 188

Correct result:

Blue/Purple = Pass

Figure 189

11. Specifications

Model	SA-300MB	SA-302MB
Chamber Capacity (L)	40	50
Maximum Instrument Length (mm)	550	690
Maximum Load (unwrapped, solid) (g)	10,000	12,000
Maximum Load (wrapped) (g)	2,400	3,000
External Dimensions (mm)	600 (W) ×485 (H) × 790 (D)	600 (W) ×485 (H) × 885 (D)
Chamber Size (mm)	300 Diameter × 570 Depth	300 Diameter × 710 Depth
Net Weight (kg)	82.5	85
Gross Weight (kg)	91.5	94
Voltage/Wattage (Heater)	230V AC, 50/60Hz, 14A	
Heater	2300W for main heater. 826W for band heater, 100W for pump	
Fuses	20A × 2, No Fuse (circuit) Breaker	
Water Reservoir Capacity (ml)	4200	4200
Water Capacity per Cycle (ml)	4200	4200
Sterilization Temperature (°C)	105 – 135	
Working Environment	● Indoor use; ● Under 3,000m (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 – 90%RH	
Storage Conditions	-10°C to 50°C, 10%RH – 70%RH	
Over Pressure Protection	2.5 bar	
Air Filter Efficiency	≦0.3um	
Over Pressure Indication	Yes	
Over Temperature Indication	Yes	
Water Level Indication	Yes	
Door Lock Indication	Micro switch sensor with warning LCD	
Pressure Display	Analog pressure gauge, LCD display	
Function Display	LCD	
Sterilization Program	Unwrapped 121°C Wrapped 121°C Unwrapped 134°C Wrapped 134°C	PRION LIQUID 105-135°C (Optional) Customization 105-135°C
Test Program	Leakage test, Helix test (Under 1,000m), Bowie-Dick test (Under 1,000m),	
Dry Program	1-60 minutes	
Others Function	Cancel, Emergency. Sterilization process recording, Auto add water, Real-time Printer, Cycle counter, Next Service cycles remind, Unit Setting for Pressure and Temperature, Date and time setting Calibration Mode/Engineering Mode	
Printer	Thermal Printer	
Max. capacity of SD card	SD/HC (Max. 32GB)	

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 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.

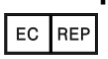
User's Name:

Address:

Country: _____ Tel: _____ Fax:

Date of Purchase: Model No

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

Name	Sturdy Autoclave Sterilizer
Model	SA-300MB/SA-302MB
Manufacturer 	Sturdy Industrial Co. Ltd.
Address	No. 168, Sec. 1, Zhongxing Rd., Wugu District, New Taipei City, 24872, Taiwan
EC Representative 	APEX MEDICAL S.L. Elcano 9, 6 ª planta 48008 Bilbao. Vizcaya SPAIN