

OPERATING MANUAL

NB-SS25 & 50 **Operating & Service Manual**




N-BIOTEK
Leading Biotechnology

- CONTENTS

	Page
1. SPECIFICATION	3
2. APPEARANCE & COMPONENT LOCATION	4 ~ 7
3. Operation(Programmed or USER mode)	8 ~ 9
4. FUNCTIONS OF COMPONENTS	
4.1. Piping Components	10
4.2. Electric Components	11 ~13
5. Electric wiring diagram.....	14
6. Trouble Shooting.....	15~18
7. Part Replacement Procedure.....	19 ~23
Warranty & Service Contact	24

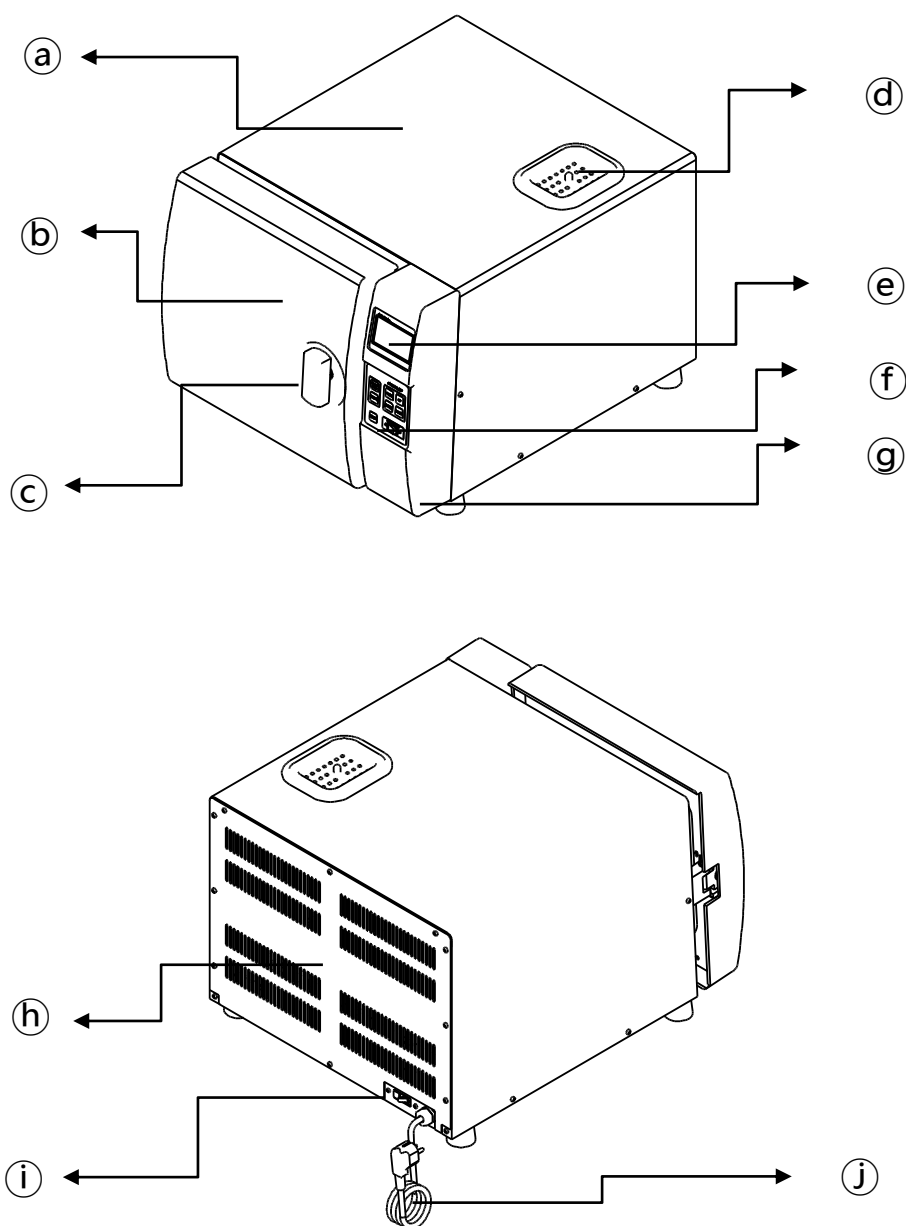
1. SPECIFICATION

 The NB-SS25 & 50 model is a full Automatic Clave built-in with 4 basic programs. User can control the sterilization temperature, sterilization time and drying time by using the user-mode program supplied.

Model	NB-SS25	NB-SS50
Overall Size	524(W) X 630(D) X 380(H) mm	636(W) X 670(D) X 468(H)mm
Chamber Size	240(W) X 440(D) X 240(H) mm	330(W) X 460(D) X 330(H)mm
Chamber Type	Rectangular	Rectangular
Reservoir Capacity	4.5Liter	6 Liter
Tray	2 EA	2 EA
Sterilization Temperature	121°C/135°C	121°C/135°C
Sterilization Pressure	1.2bar ~ 2.16bar	1bar ~ 2.1bar
Sterilization Mode	5 Kinds (I , P, P, G, U)	5 Kinds (I , P, P, G, U)
Printer (Option)	Thermal Dot Matrix 40 Characters per line	Thermal Dot Matrix 40 Characters per line
Control System	8 bit Microprocessor	8 bit Microprocessor
Dry System	Vacuum Pump	Vacuum Pump
Power Consumption	AC220V,50/60Hz 1700W	AC220V,50/60Hz 1700W
Display	128x64 LCD (EL Back-light)	128x64 LCD (EL Back-light)
Weight	60 Kg	80 Kg
Accessories (Option)	Cart 640(W)X750(H)X660(L)mm	Cart 640(W)X750(H)X660(L)mm

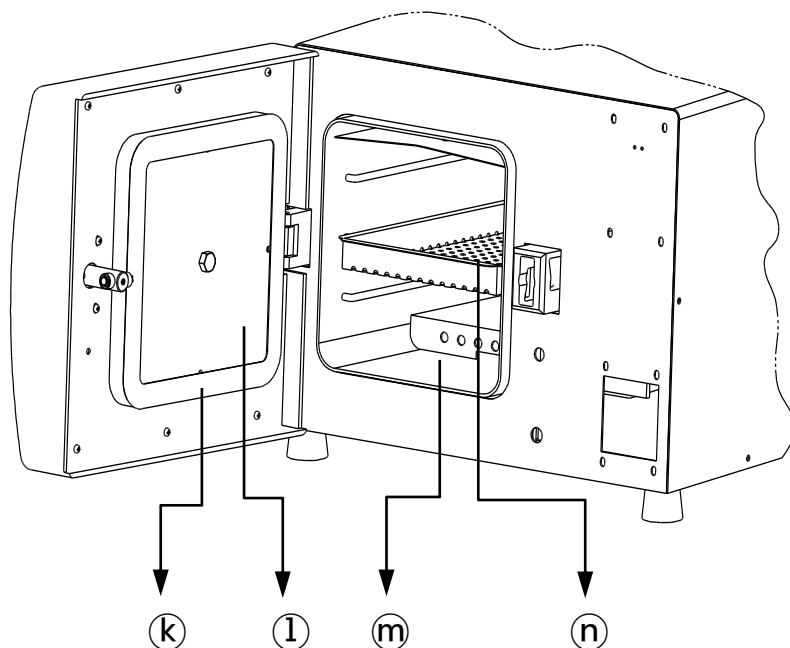
1. APPEARANCE & COMPONENT LOCATION

① Appearance

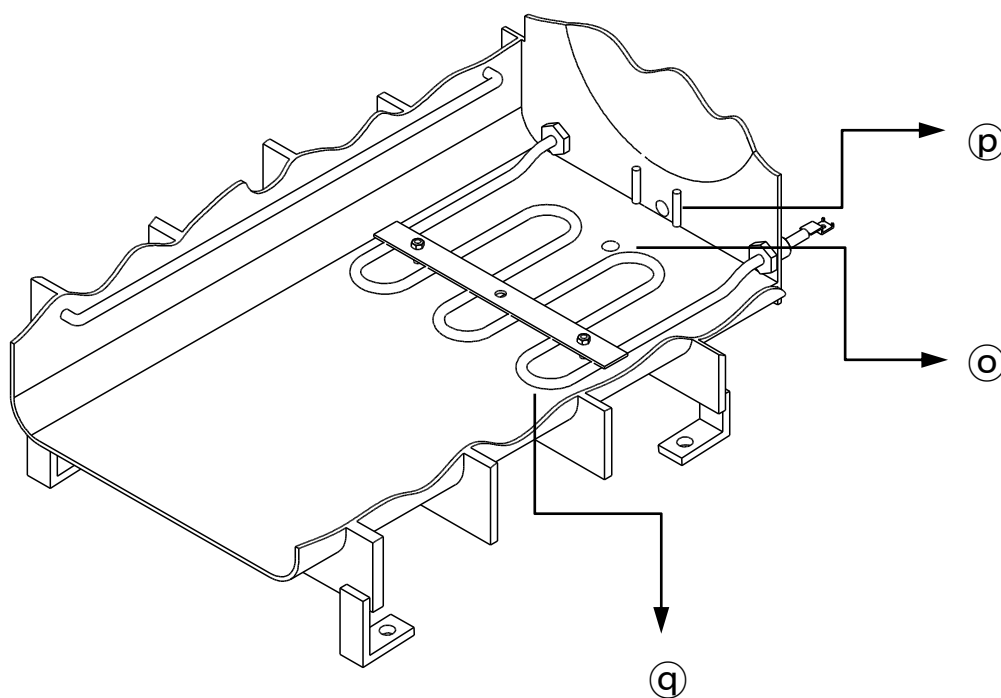


- | | |
|---------------------------------|--------------------------------|
| ① Upper Cover | ⑧ Control Box |
| ② Door Cover | ⑨ Rear Cover |
| ③ Door Lock Handle | ⑩ Over-current circuit breaker |
| ④ Water inlet hole to reservoir | ⑪ Power cord |
| ⑤ LCD indicator window | |
| ⑥ power (on/off) switch | |

② Inside Chamber



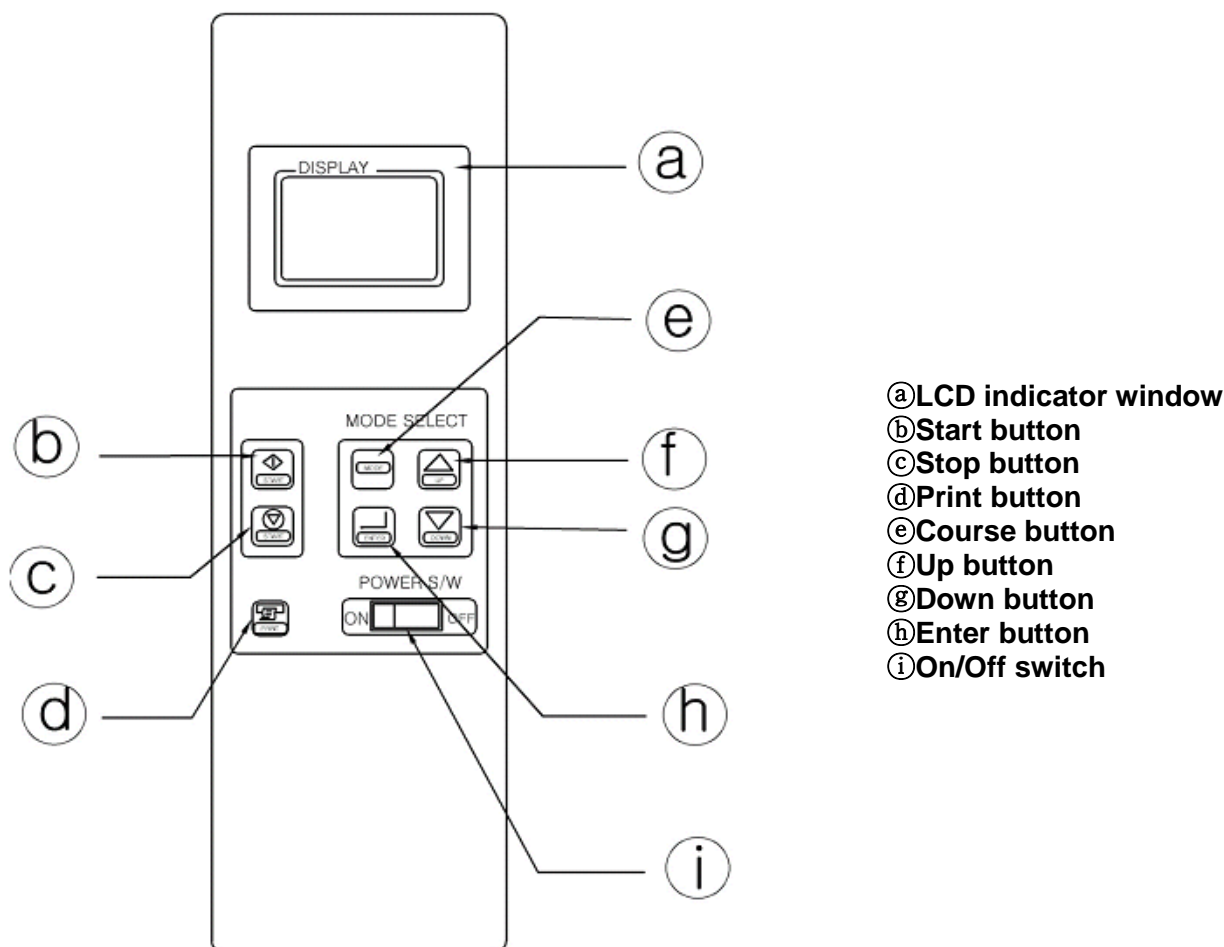
The inside view of sterilization chamber seen from the front



The inside view of sterilization chamber seen from the above.

- Ⓚ Door Gasket
- Ⓛ Door
- Ⓜ Door
- Ⓝ Tray
- Ⓞ Temperature Sensor2
- Ⓟ Water supply nozzle
- Ⓠ Heater

③ Control Panel



Door Locking Handle

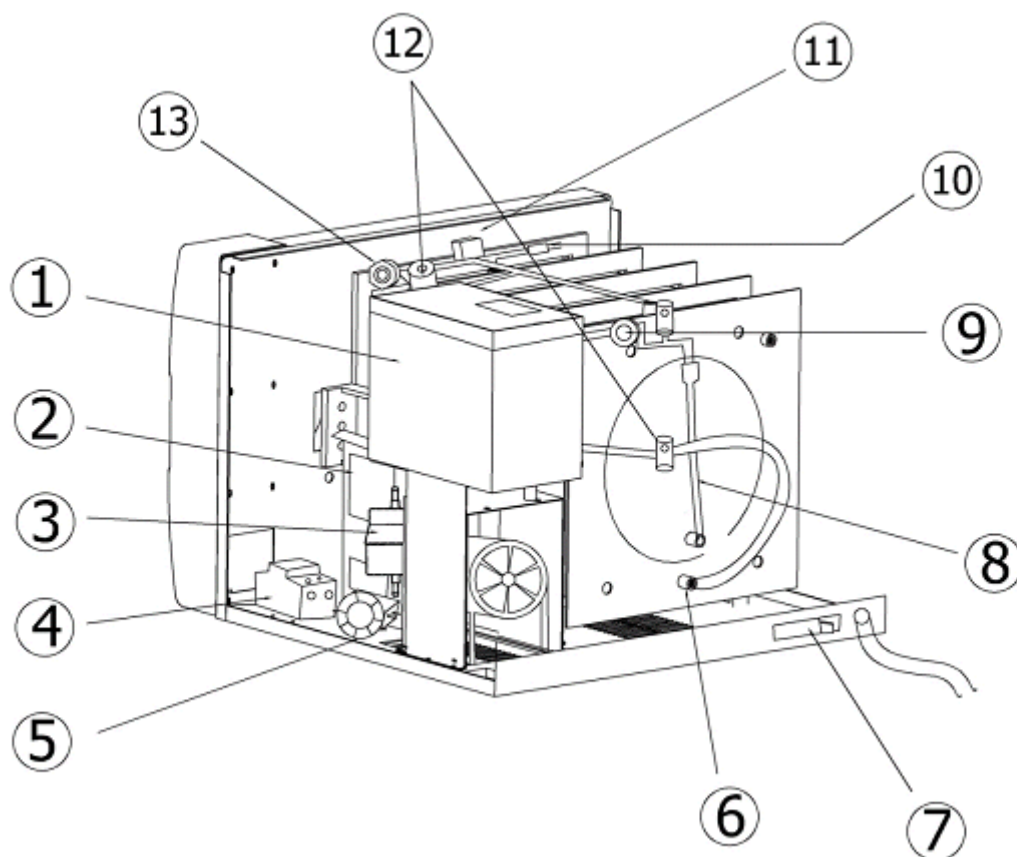
Turn it to the right and the door will be sealed and closed. To open the door into the sterilization chamber, turn the handle to the left and the door will be opened. When pressure is filled in sterilization chamber, the door handle will not be opened.

-Caution-

Please open the door after making sure the pressure indicator points to '0' when the door should be opened.

Over-current circuit breaker

The over-current circuit breaker is located at the lower and right-hand part of the rear side of the sterilizer. The over-current circuit breaker works when the leak current flow due to the insulation breakage of sterilizer. The voltage available is 220V and the current limit is 20A. Before turning on the electric current S/W at the Control Box, the user should set the over-current circuit breaker S/W to the 'on' position.

④ Component diagram of the inner part of Sterilizer.

- ① Water Reservoir tank
- ② Control panel
- ③ Tank(pc muffler)
- ④ Magnet S/W
- ⑤ Thermostat
- ⑥ Solenoid Valve(water supply/ventilation)
- ⑦ Over-current circuit breaker
- ⑧ Normal Open Solenoid Valve
- ⑨ Bacteria filter
- ⑩ Check Valve
- ⑪ Temperature sensor 1
- ⑫ Normal Close Solenoid Valve
- ⑬ Air Vent

3. OPERATION

● Using or operation method

(1) Preparing matters prior to using

- ① Turn the knob counter clockwise and open the door.
- ② Put the items to be sterilized into the chamber in order.
(Cramming the items into the sterilization chamber often causes incomplete sterilization.)
- ③ Turn the knob clockwise and close the door.

(2) Using method and operation order

- ① Turn on the over-current circuit breaker on the rear side of the machine.
- ② Turn on the on-off S/W at the Control box.
- ③ Press the Mode key and Select the sterilization courses.

Sterilization courses

course	Sterilization temperature(C)	Sterilization time(minute)	Drying time(minute)
Instrument	132	15	25
Package	132	20	35
Glove	121	20	30
Gravity	121	20	00
User course	110 ~ 135	05 ~ 60	0 ~ 60

※ The sterilization temperature and time and drying time are programmed as above standard.
If selecting user mode, user can program temperature, time, drying time as desired within specification. Refer to operation how to use "USER" mode below.

※ How to use "USER" mode

1. Press the Enter S/W.
2. "Sterilization temperature" indicator flickers. (Enter sterilization temperature)
If the 'UP- DOWN' S/W is pressed on, temperature increases or decreases by one degree.
The temperature can be set in the range from 110 to 135C degrees.
Press the 'ENTER' S/W.
3. The sterilization time indicator flickers. (Enter sterilization time)
If the 'UP- DOWN' S/W is pressed on, temperature increases or decreases by one degree.
The sterilization input time can be set in the range from 05 to 60 minutes.
Press the 'ENTER' S/W.
4. The drying time indicator flickers. (Enter drying time)
If the 'UP- DOWN' S/W is pressed on, temperature increases or decreases by one degree.
The sterilization input time can be set in the range from 0 to 60 minutes.
Press the ENTER S/W twice to end the input mode.

● Full process of Sterilization after set-up

① Press the START s/w on.

⇒ The sterilization cycle starts and the chamber temperature and pressures are displayed at the LCD indicator window, soon.

* When sterilization chamber is over-heated, the machine does not operate for the safety. Please start again in about 5 minutes.

② Pre-Vacuum

⇒ "Pre-Vacuum" is displayed on the LCD indicator window and vacuum pump operates, taking the air out of the chamber.

③ Supply of Water

⇒ Water supply is displayed at the LCD indicator window and the water stored at the tank fast flows into the chamber.

④ Heating

⇒ Heating is displayed at the LCD indicator window. And the heater operates and raises the temperature to the number set by generating the hot steam inside the chamber.

⑤ Sterilization

⇒ Sterilization is displayed at the LCD indicator window and remnant sterilization time decreases by the minute from the sterilization indicator.

⑥ Ventilation

⇒ Ventilation is displayed at the LCD indicator window and the ventilation cycle proceeds

⑦ Drying

⇒ Drying is displayed at the LCD indicator windows and the remnant drying time decreases by the minute from the drying time indicator.

⑧ Complete

⇒ Complete is displayed at the LCD indicator window and a melody rings for 35 seconds.

※ if the sterilization process should be recorded, press the Print button before starting the machine. The printer will print out the whole process, such as, the sterilization process, sterilization temperature and pressure. (Optional spec)

4. FUNTIONS OF COMPONENTS

4.1 Piping Components

☞ Water Reservoir

The water reservoir stores the water to be supplied to sterilization chamber and optimal water storage capacity is 5 liters. The water in the reservoir is supplied to the sterilization chamber and used to generate the steam. The water is recollected into the water reservoir after the process.

☞ Vacuum Pump - It sends the air and steam inside the chamber into the water reservoir.

☞ Air Vent - The Air Vent helps to carry out complete sterilization by ventilating the air and unsaturated steam inside the sterilization chamber in the heating or sterilization process and making the steam saturated in the sterilization chamber.

☞ Check Valve -The Check Valve prevents the reverse flow of water.

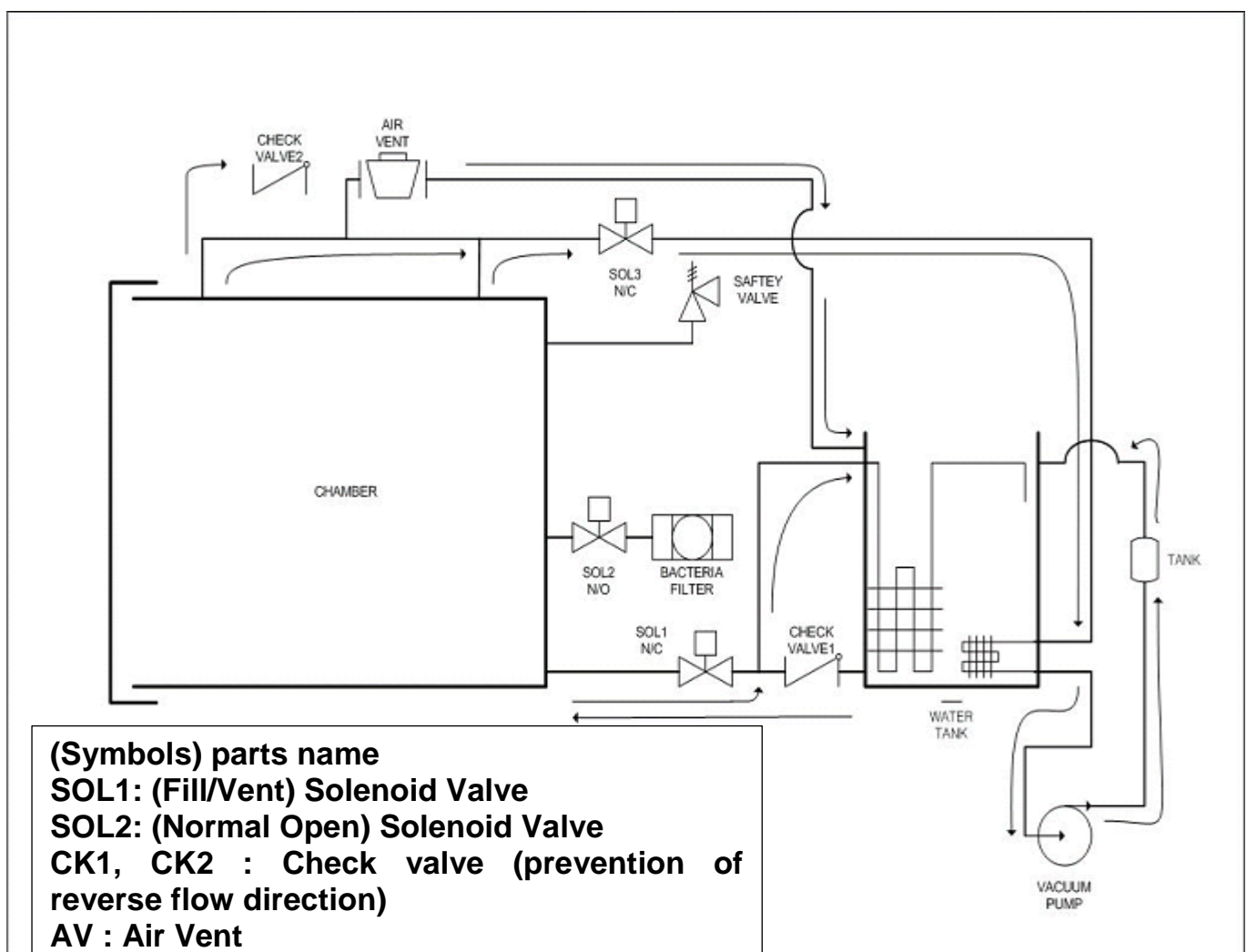
☞ Drain linking Tube - The tube is connected from the water reservoir to the drain hose.

☞ Drain hose - The drain hose is used to eliminate the water in the reservoir.

It is composed of stop fitting and when the drain hose is connected to the stop fitting, the water automatically flows out.

☞ Bacteria Filter - The filter is used to filter out the dust and bacteria in the air so that the clean air can flow into the chamber, when the air is supplied to the sterilization chamber in the pre-vacuum process.

①Piping Diagram (Schematic)



4.2 Electrical Components

Vacuum Pump

It is vacuum equipment which takes out the air and steam inside the sterilization chamber and sends them into the water reservoir tank. It helps the smooth water supply and quick drying by making the sterilization chamber vacuum during the pre-vacuum or dry process.

(FILL/EXHAUST) Solenoid Valve = **Sol1**

The (FILL/VENT) Solenoid Valve is used for the purposes following.

1st, the valve operates in the Fill process and the water in the water reservoir flows into the sterilization chamber. The Fill process is usually finished with 1 minute and 40 seconds.

2nd, FILL/EXHAUST Solenoid Valve operates during the EXHAUST process and makes the vapor pressure and residues inside sterilization chamber be recollected into the water reservoir tank during the EXHAUST process. The valve will be closed when the temperature in the sterilization chamber drops below 106°C during the EXHAUST process

SOL2 (Normal Close Solenoid Valve)

The valve operates together when the vapor and air in the sterilization chamber are taken into the water reservoir tank by the vacuum pump during the drying process. It protects the vacuum pump from the internal pressure of the sterilization chamber when the vacuum pump is not used.

Normal Open Solenoid Valve = **Sol3**

The valve has the characteristics of the exact reverse operation to the (FILL/ EXHAUST) Solenoid Valve. When the electric signal is on, the valve is closed, and when the signal is off, the valve is opened.

Sol3 val alternates between on and off during the pre-vacuum process and supplies the clean air through the bacterial filter into the chamber by alternating between on and off during the drying process, too. When the machine stops due to the electric current leaking or other reasons, it discharges the pressure in the chamber for the safety of user.

Water level detection sensor

The water level detection sensor detects the water level at the appropriate place when the water in the water reservoir flows through the SOL1 into the sterilization chamber during Water Fill process. The Micro processor cuts the water flow by the water level detection and proceeds to the next process.

Sheath Heater

Sheath Heater generates the steam by heating the water in the sterilization chamber during heating process and maintains the temperature and pressure set by operating and alternating between on and off during the heating process, and dries the things sterilized in the drying process by alternating between on and off.

The operation of Sheath Heater is controlled by Micro Processor.

The capacity of Sheath Heater is 1700W.

Temperature Sensor

Temperature Sensor is located the front part of the pipe above the chamber and the Micro computer measures the internal temperatures of the sterilization chamber during the sterilization and VENT process and controls the electric components.

Over Heat (Low Water) Cut-OFF

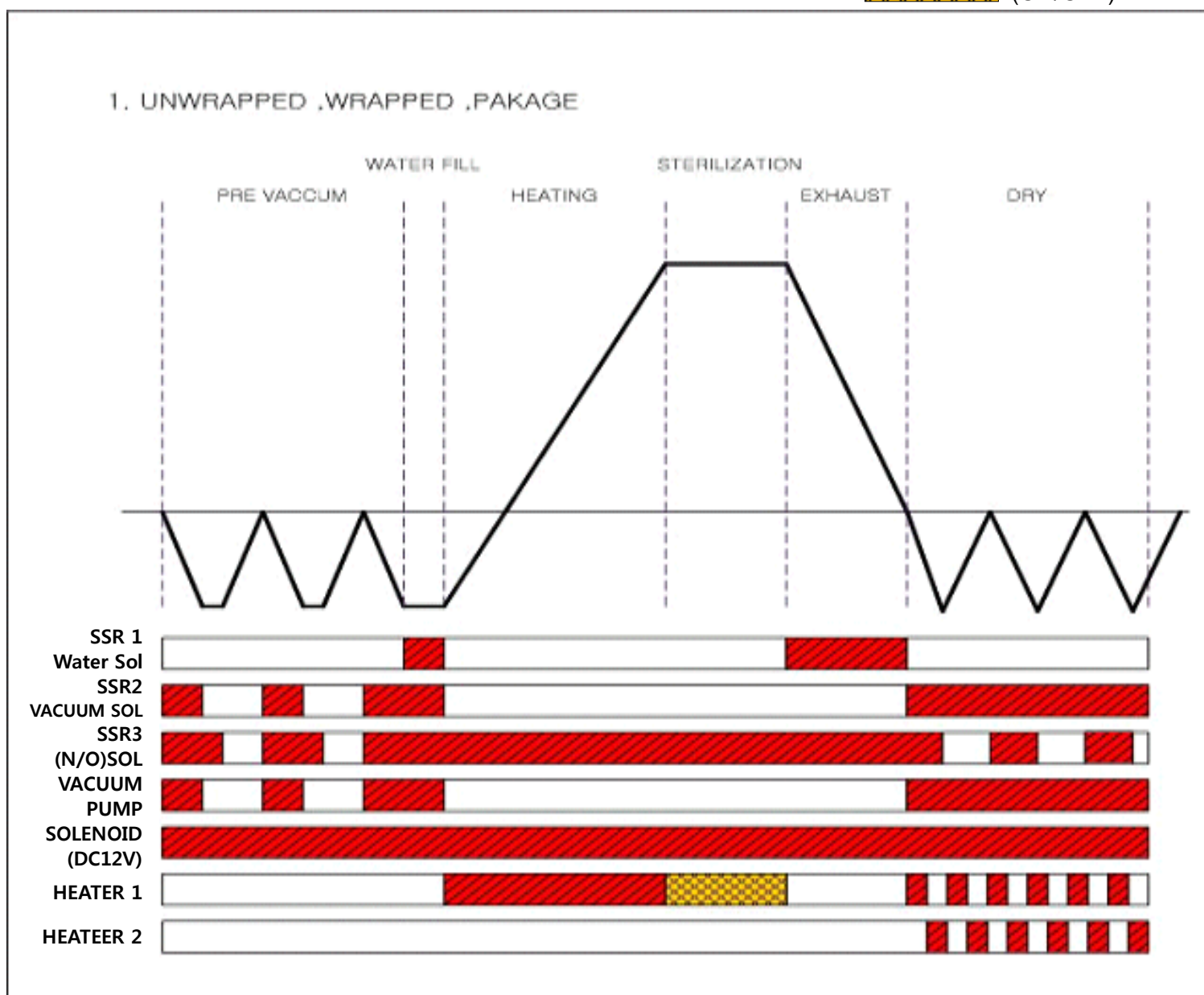
During the heating process, if the sheath heater installed at the bottom side of the sterilization chamber is not immersed in the water, or if no water is supplied, the sheath heater is over-heated, the things sterilized will be fatally damaged or the sterilization chamber will be over-heated. Heat Cut-Off (Thermostat) is equipped at the external lower side of the sterilization chamber, so if the sheath heater is overheated, it will transmit the overheated state to the Micro- processor. The Micro-processor will get the sheath heater off and protect the things sterilized and the chamber. (Over Heat (Low Water) Cut-Off Switch is set to 180℃)

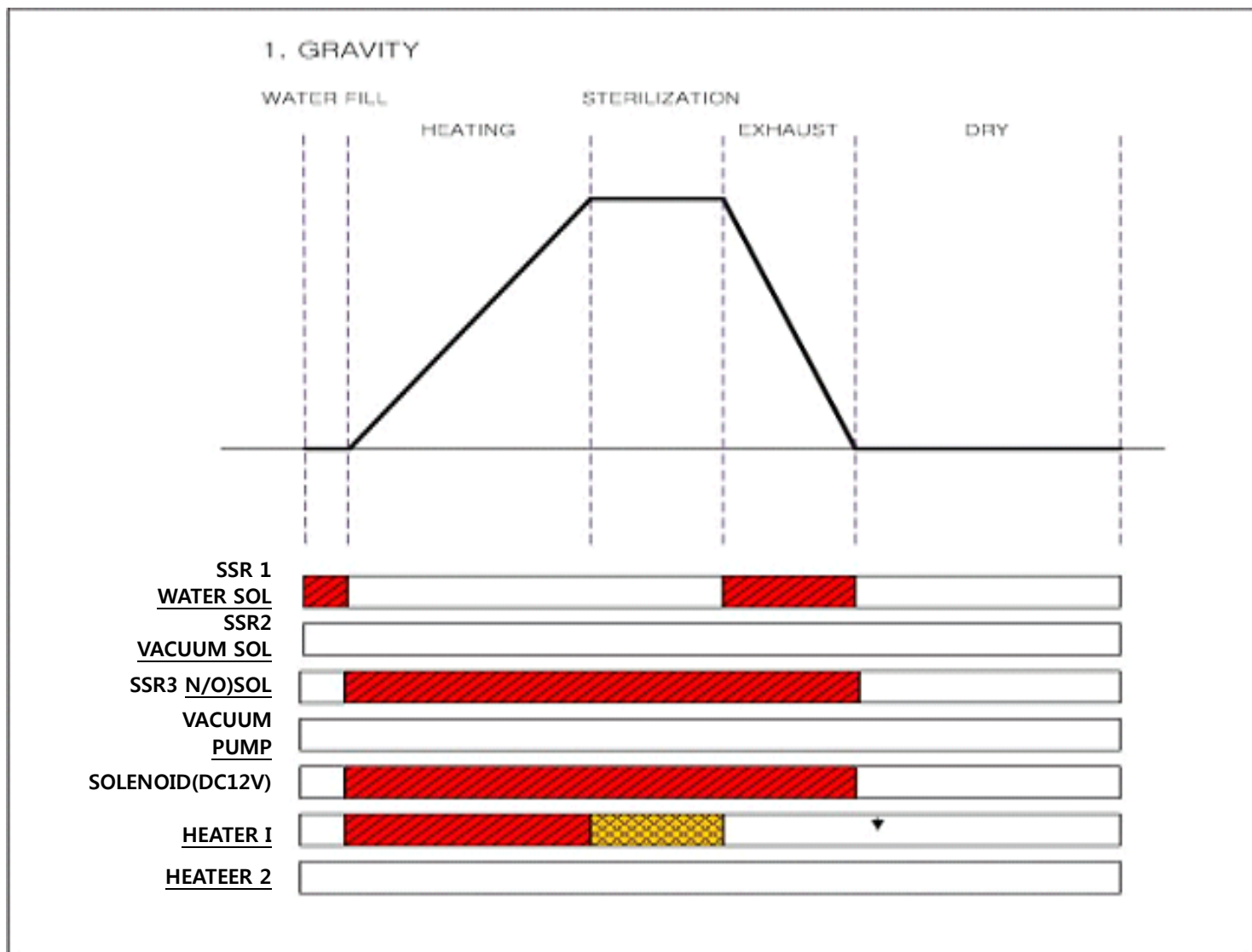
Power Supply

Power Supply converts the AC with Voltage of 85 to 250V into the DC 5V and 12V for the Micro Computer control voltage. The Power Supply is equipped at the bottom side of the control panel.

#Flow Diagram

 (ON)
 (ON/OFF)





(Symbols) parts name

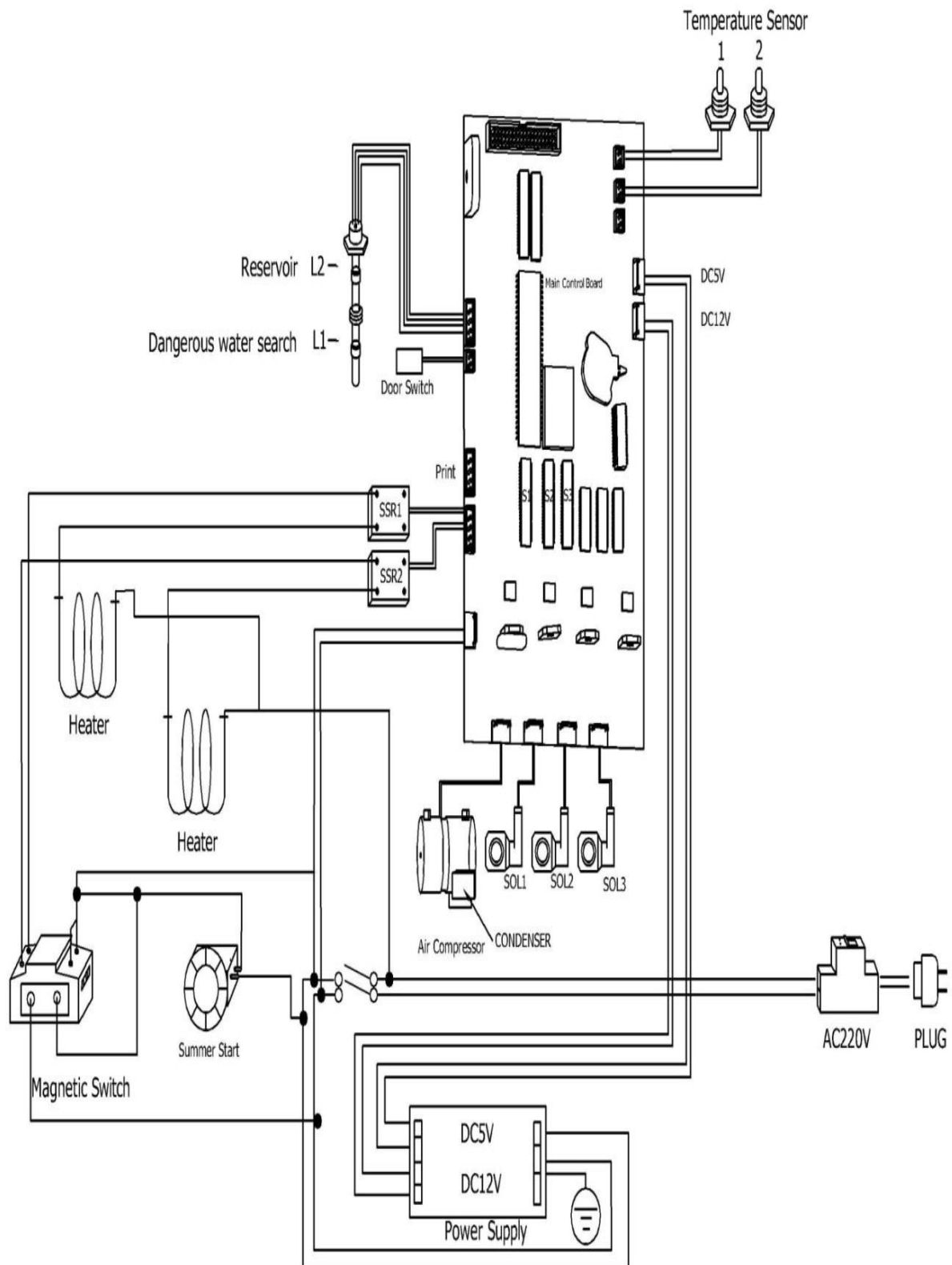
SOL1: (Fill/Vent) Solenoid Valve

SOL2: (Normal Open) Solenoid Valve

CK1, CK2 : Check valve (prevention of reverse flow direction)

AV : Air Vent

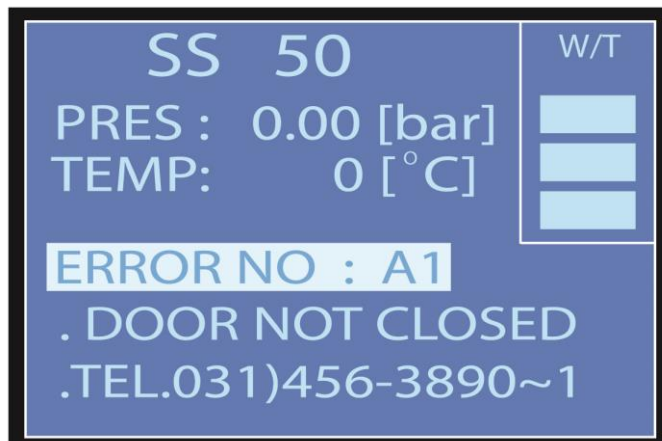
5. Electric wiring diagram



6.Trouble Shooting

The sterilizer fully operates automatically by the Micro processor during all the processes and if there is any problem in the sterilization engineering process, the Micro processor stops all the proceeding process and lets user know the current error state by displaying it.

If an error happens, it displays 'error No' at the LCD indicator window and indicates the error symptom below it. It continues to ring the error signal sound until it is reset again by the user.



✎ If an error happens, the user should press the Start/Stop button to reset after recording the error NO.

✎ If an error happens during the sterilization process, the steam and water inside sterilization chamber is automatically recollected into the water reservoir tank. (Only when there is a pressure in the chamber)

The user should inspect the machine only when the machine is fully cooled down to touch.

Error & cause of trouble	1 st stage measures	2 nd stager measures & checkup
A1 Door can't be closed completely.	1. Operate it after opening and closing door once more. 2. If the error continues, it is the door S/W breakdown.	1 Check the Door Switch. (It can have the S/W problem or a loose connection at the linking part.) 2. Check the electric wire between Door Switch and Main Control Board. (Sometimes, connecting part can be found to be disconnected.) 3. If there is any problem with Main Control Board, repair or change the board.
C1 There is insufficient water at reservoir tank.	1. Fill the reservoir tank with water. 2. When there is still no lighting at the 2 blank indicator of the water detection level, despite of the water being filled, it is problem with the water detection part at the reservoir.	1. Lift the float ball of water detection level part equipped inside the water reservoir tank up to L2 and when there is still no light at the 2 blank or 3 blank indicator, it is the problem with the water detection part. 2. Check the connecting wire between the water detection part and Main Control Board. Sometimes, the connecting part is found to be disconnected 3. When there is a problem with Main Control Board, repair or change the Board.

<p>C2</p> <p>The water Fill time exceeds more than 5 minutes</p>	<p>1. Operate it again after cleaning the water detection sensor equipped inside sterilization chamber.</p> <p>2. If the error still happens after the 2nd operation, it is a problem with the water detection sensor or clogging problem in the water pipes.</p>	<p>1. Check if Solenoid Valve (N/C SOL 1) is clogged or not.</p> <p>2. If there is a problem with Main Control Board, repair or replace it.</p>
<p>C3</p> <p>The vacuum process is cancelled at the water FILL time.</p>	<p>1. Check the Door after opening it. If there is any foreign stuff, remove it and close the door again.</p>	<p>1. Check if the Vacuum Pump operates.</p> <p>2. Check if the Sol2 valve is operational.</p> <p>3. If there is any problem with Main Control Board, repair or replace the Board.</p>
<p>D1</p> <p>There is no temperature change inside sterilization chamber during the heating process.</p>	<p>1. Open the Door and check if there is too much water supplied to the sterilization chamber.</p> <p>2. If the water quantity is normal, it is a problem with the heater, the heater control or the Control circuit.</p>	<p>1. Check if the Sheath Heater inside the sterilization chamber is broken or disconnected.</p> <ul style="list-style-type: none"> Open the rear cover of the sterilizer and measure the resistance between both ends of Sheath Heater. (Sheath Heater resistance value=16.5Ω) If the resistance value cannot be taken, the heater has a problem with the broken wire. Replace the heater. <p>2. Check if the Heater Control circuit (SSR1) has any problem or not. If the LED operation lamp is not on during the heating process, it is a problem with the SSR 1.</p> <p>3. Check the connecting wire between SSR1 and Main Control Board.</p> <p>4. If the Main Control Board has a problem, repair or replace it.</p>
<p>D2</p> <p>The set temperature cannot be reached within the set time(30 minutes), during the heating process.</p>	<p>1. Operate it again after the temperature inside sterilization chamber is fully cooled down. When the water FILL process is finished, press the STOP button to stop the operation and check the water quantity supplied. The heating process can exceed the time set, if there is too much water supplied to the sterilization chamber.</p> <p>2. Operate it again after adjusting the water quantity to less than 70% of things sterilized inside sterilization chamber. (cramming can cause the Error.)</p>	<p>1. Measure the voltage of the consent attached to the plug of the sterilizer. (if the voltage is lower than the 220V, the heating process can take a little longer time)</p> <p>2. Check if there is too much steam drops generated during the heating process inside the water reservoir.</p> <ul style="list-style-type: none"> If either Air Vent or Solenoid Valve has any problem, the water and steam in the sterilization chamber can flow reversely back to the water reservoir tank during the heating process. If there is a problem with Air Vent or Solenoid Valve, repair or replace it.

E1 The temperature inside sterilization chamber get out of the temperature range of $\pm 2^{\circ}\text{C}$ more than the temperature set during the sterilization process.	1. Operate it again after checking the things sterilized loaded inside the sterilization chamber. (Load them less than 70% of the capacity. Cramming can cause the Error.)	1.If the consecutive ER "E1 happens during the sterilization process, where the loading state of the sterilized things is normal and the Air Vent and Solenoid Valve operate well without generating too much steam, please check the Temperature Sensor or Board. • Measure the resistance of Temperature Sensor according to the temperature.	
		Temperature($^{\circ}\text{C}$)	Value of resistance measured
		0 $^{\circ}\text{C}$	706,5 K Ω
		30 $^{\circ}\text{C}$	170.6 K Ω
		60 $^{\circ}\text{C}$	50.68 K Ω
		90 $^{\circ}\text{C}$	17,79 K Ω
		120 $^{\circ}\text{C}$	7.12 K Ω
		150 $^{\circ}\text{C}$	3.178 K Ω
		200 $^{\circ}\text{C}$	1 K Ω
		If there is a problem with the Temperature Sensor, replace it. • If any problem happens to the Main Control Board, repair or replace it.	
F1 The temperature at the lower part of sterilization chamber exceeds the set temperature of 150 $^{\circ}\text{C}$ and is overheated.	1.The error can happen when the water supplied to the lower part of the sterilization chamber all evaporates or flows back to the reservoir and the sheath heater is overheated during the heating or sterilization process. 2.The error can happen during the sterilization process when the water quantity supplied to the sterilization chamber is less than the appropriate quantity during the Fill process. • Operate it after the sterilizer is fully cooled down.(Check if the water is appropriately supplied, or if too much steam or quantity of water flows back to the reservoir tank, when it is operated.)	1.Check if the temperature of the Over Heat(Low Water) Cut-Off Thermostat is set to set temperature of 150 $^{\circ}\text{C}$. • Check if the safety device of Thermostat has any problem with the functionality. And when any problem is found, replace it. 2.If, during the Heating or sterilization process, too much of steam is discharged or the water flows back to the reservoir, stop the operation and check the Air Vent or the Solenoid Valve(N/C Sol 1),(N/O Sol). (If there is any problem with the Air Vent or Solenoid Valve, repair or replace it) 3.If the temperature of sheath heater inside sterilization chamber is low and the error of Er "F1" continues to happen, while it is not in the sterilization process, check if the Over Heat (Low Water) Cut-Off Thermostat is well connected with the Main Control Board. If the problem is related to the Main Control Board, repair or replace the Main Control Board. 4.Check if there is any problem with the SSR1 of Heater Control (Sheath Heater). (if there is a problem with SSR1, replace it)	
		1.If the steam is not well discharged from the Air Vent, replace the Air Vent.	

<p>B1 When the Temperature Sensor has some problem with the function.</p>	<p>1. Check if the "04" °C is displayed at the LCD indicator window. (if the wire of temperature sensor is broken, the "04" °C displayed at the temperature indicator.)</p> <p>2. If the temperature at the temperature indicator displays regularly the temperature inside the sterilization chamber shortly after the error happens, operate sterilizer again after cooling it down fully.</p>	<p>1. Measure the resistance of Temperature Sensor and if it is found to be broken, replace it. (the resistance measured : less than 3KΩ)</p> <p>2. Check if the Main Control Board is well connected with the temperature sensor.</p> <p>3. When the Main Control Board is found to be defective, repair or replace the Board.</p> <p>4. Measure the resistance of the Temperature Sensor, and if it is found to be broken, replace it. (If the value of resistance measured is more than 700KΩ it can be broken of wire)</p>
<p>B2 When the Pressure Sensor has some problem with the function.</p>	<p>1. If the pressure is not operational at the LCD indicator window, check if the pressure is displayed as more than 0.1Bar ,</p>	<p>1. Measure the output voltage of Pressure Sensor, and if it is not found to be about 2V, replace it. (measure it under normal air pressure.)</p> <p>2. Measure input voltage of Pressure Sensor, and if it is not found to be about 5V, replace the POWER SUPPLY.</p> <p>3. Check if the wires of the Main Control Board is well connected.</p> <p>4. If any problem is found with the .Main Control Board, repair or replace the Board.</p>



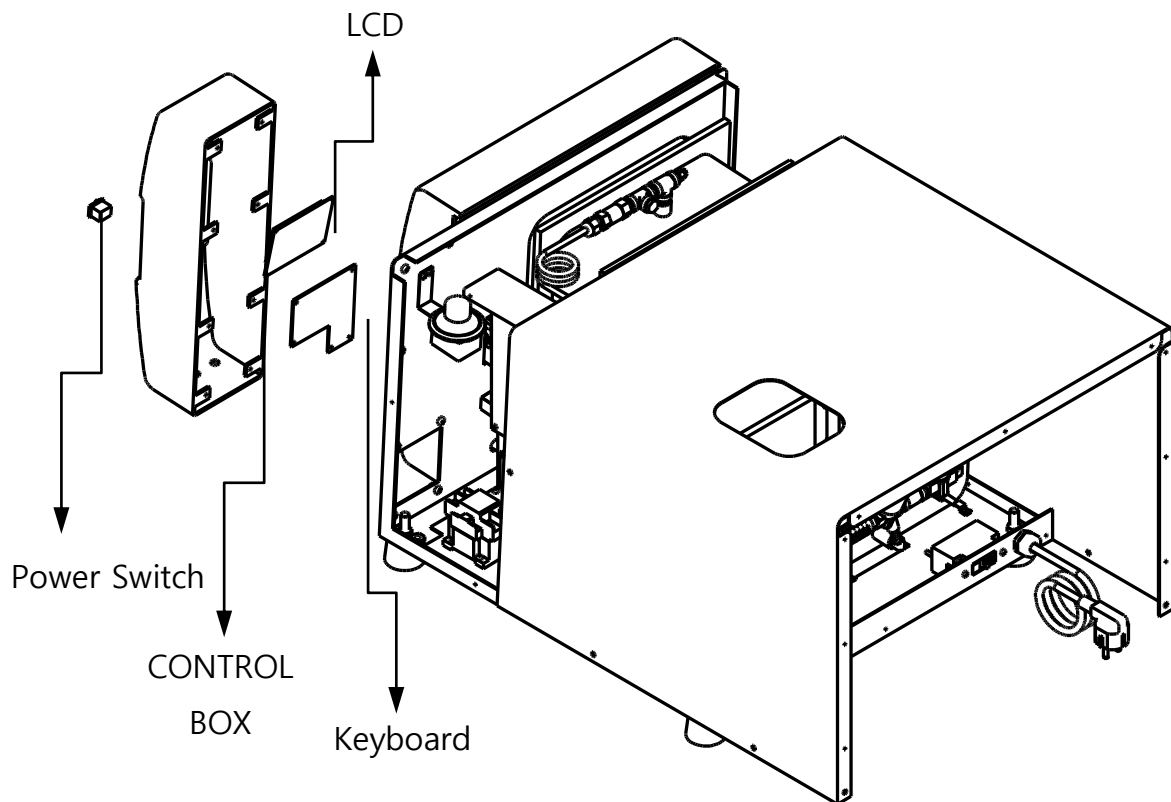
- When the sterilizer is operated again, start it after it is fully cooled down.
- When the sterilizer is needed to take apart for the repair or inspection, the job must be conducted by the engineers from the production company or the agency. The arbitrary disassembly or modification by others than the engineers is not allowed
- When the error happens, the 1st stage action can be made by the user himself, the 2nd stage measures or inspection should be carried out by the engineers.

7. Part Replacement Procedure with Drawing



When the electric component needs to be checked or repaired, disconnect the electric plug, and take caution when the checkup is conducted with the electric signal on.

A. Disassembly and assembly of the Control Box



A-1 Disassembly order

- Remove the body cover.(screws :8EA)
- Separate the Control Panel from the Front Panel.(screws 6EA)
- Separate the Gauge from the Control Panel.
- Separate all the cables connected with the Main Board.
- Separate the Main Control Board from the Display board.
- Separate the Display board from the Control Panel.

A-2 Assembly order

- The assembly should be made in the reverse order of the disassembly.
- Power Supply should be assembled before the assembled Control Panel attached to the Front Panel.

A-3 Adjustment of VR103 (adjustment of the pressure and temperature)

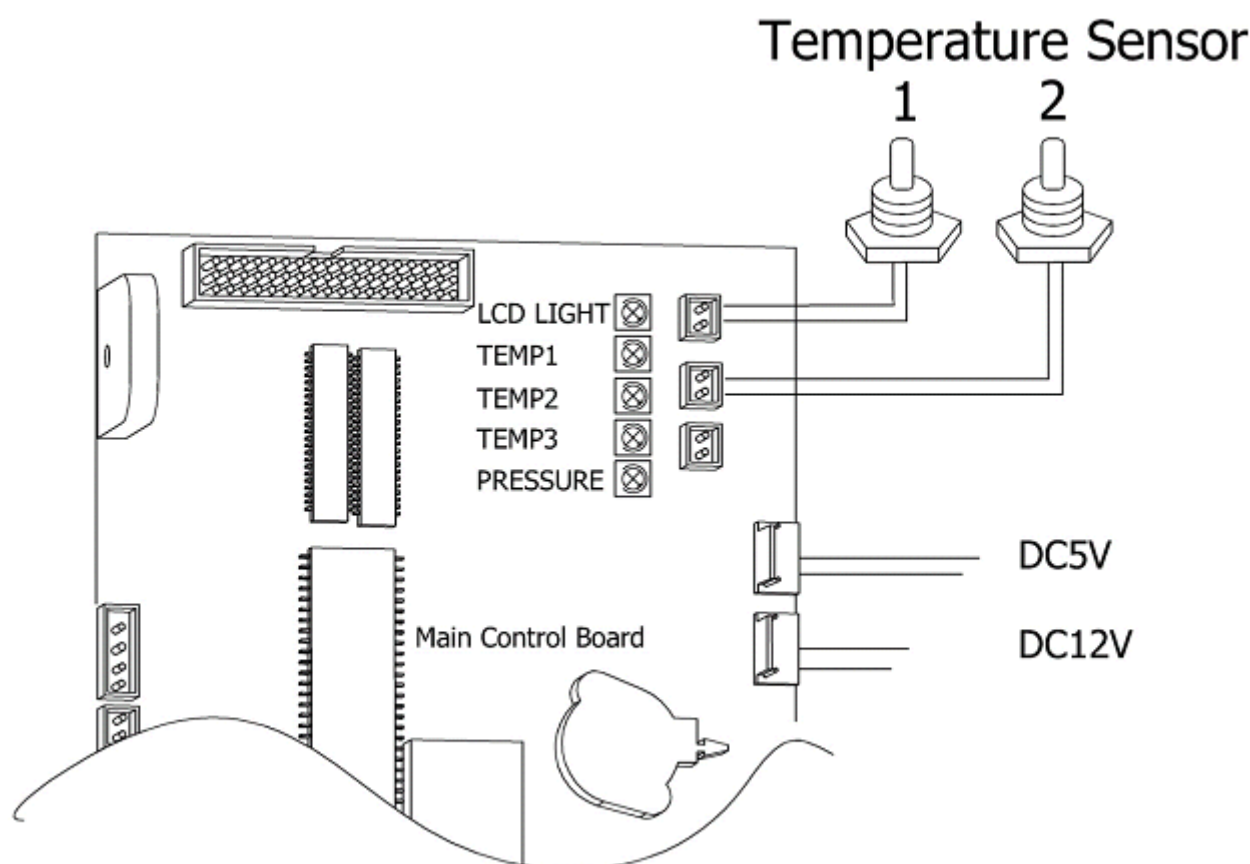
If there is difference generated in the temperature between the pressure gauge indicator and the temperature indicator during the sterilization process, adjust the VR103 of the Main Control Board so that the proportional characteristics of the pressure and temperature can be maintained.

While the temperature at the temperature indicator displays 132°C and if the pressure gauge needle points lower than 2Kgf/cm² during the sterilization process, turn the knob of VR103(TEMP1) slowly to the left. When the VR103 (TEMP1) turns to the left, the Micro computer recognizes the temperature lower than the current one and raises the pressure by operating the heater (sheath heater). The pressure continues to rise until the needle gauge points to 2kgf/cm².

While the temperature displays 132°C at the temperature indicator and if the pressure gauge needle point to the higher than 2Kgf/cm², turn the knob of the VR103(TEMP1) to the right slowly. When the VR103(TEMP1) turns to the right, the Micro computer recognizes the temperature higher than the current one and turn the Heater(Sheath Heater) off. The pressure continues to drop slowly until the

pressure gauge needle point to the center of graduation at 2kgf/cm^2 .

※ However, make a fine tune adjustment so that the adjustment cannot exceed the range of 1°C . If the adjustment exceeds the range of 1°C , it can cause an error.



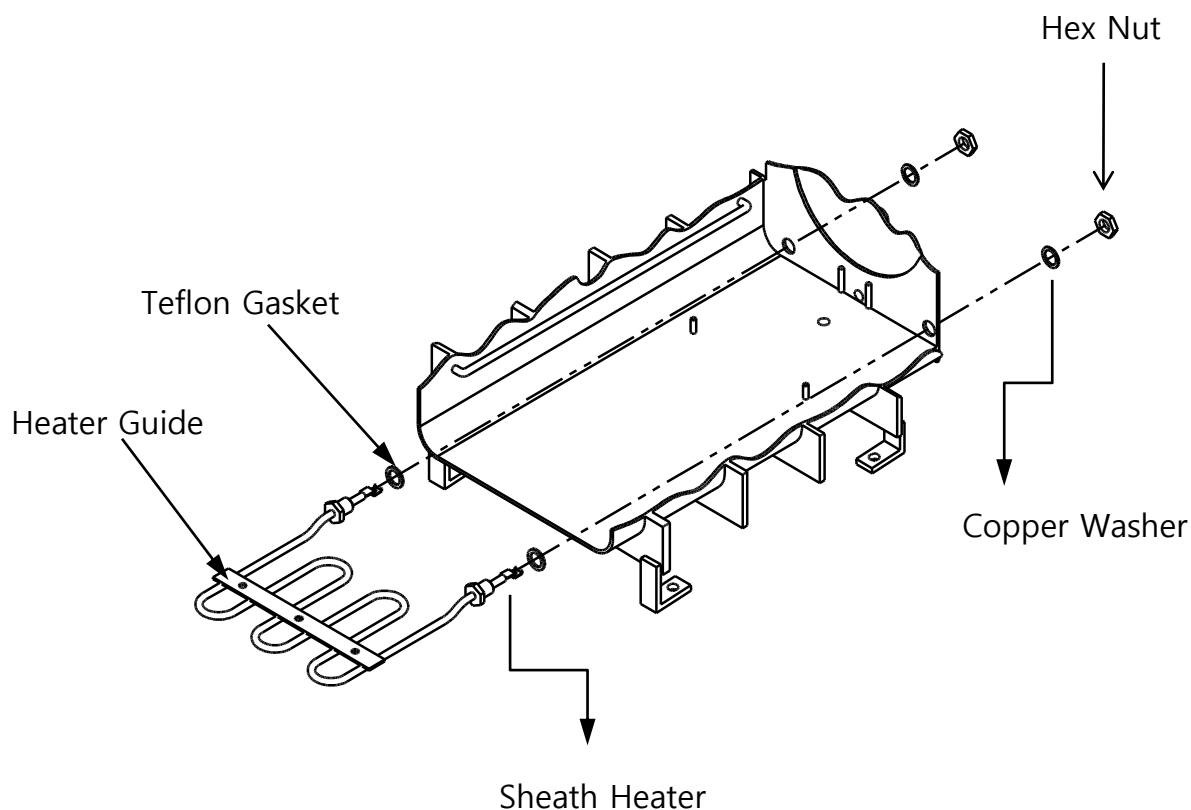
B. Disassemble and assembly of Sheath Heater)

B-1. Disassembly order

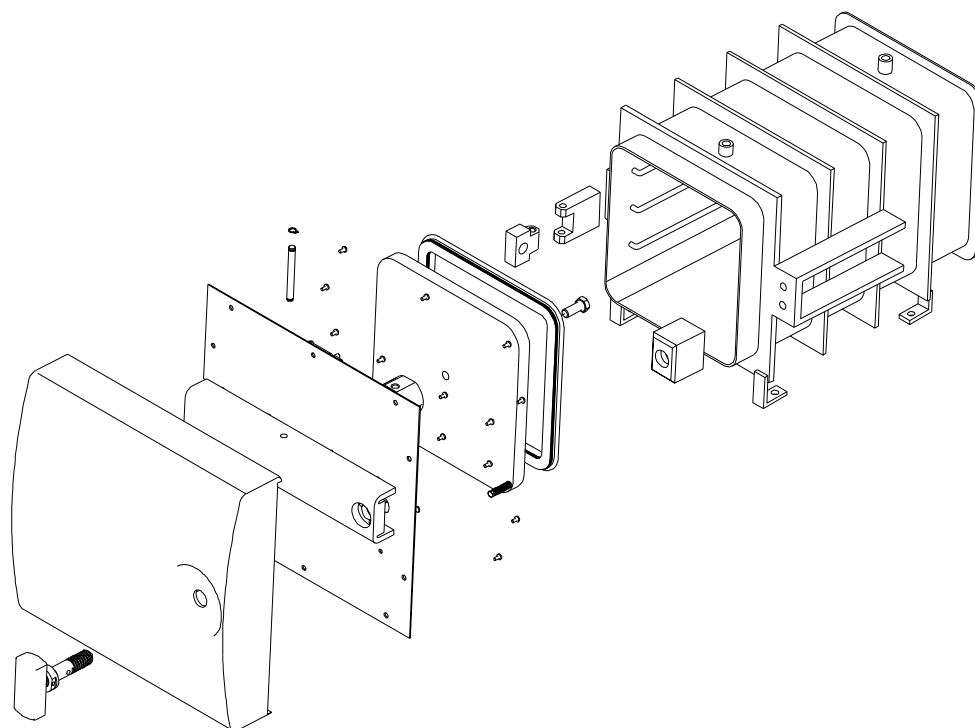
- Remove the rear cover at the sterilizer. (Screws 10EA)
- Separate the wires linked to the Heater (Sheath Heater).
- Unscrew the hexagonal nut and copper washer.
- Separate the Air nozzle.
- Separate the Heater fixing Band.
- Pull Heater (Sheath Heater) forward and separate it.

B-2. Assembly order

- Put the Heater (Sheath Heater) into the hole of inner Chamber.
- Fasten the Heater fixing Band loosely..
- Fasten the copper washer and the hexagonal nut.
- (To fasten the hexagonal nut, the heater must be fixed tightly to prevent the heater from being twisted inside the sterilization chamber.)
- After fastening the hexagonal nut, connect the wires.
- Fasten the Heater fixing Band tightly.
- Fasten the Air nozzle.



C. Disassembly and assembly of Door Assembly



C.1 Disassembly

When the mounting screws are removed from the door handle, the door handle can be separated from the latch bracket.

When the Door Cover Mounting Screws are removed from the Arm, the Door Cover can be separated from the Arm.

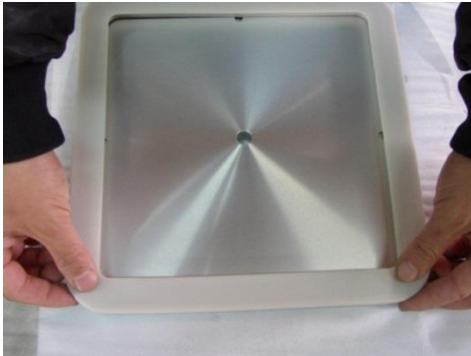
. The Gasket Retainer can be removed when the nuts fixed to Door pan are removed. When the Ceramic Gasket is taken out and the Door pan Mounting Screws are removed, the Door pan is separated from the arm.

- . When the Bracket Mounting Screws are taken out, the Latch Bracket is separated.
- . When the Hinge pin is taken out, after removing the Retaining Ring from the left Hinge pin of the chamber, the Arm is separated from the Hinge.

C.2 Assembly

The assembly should be made in the reverse order of the disassembly.

C.3 Door Gasket



Door Gasket will be separated when the Door is opened and the Gasket is pulled lightly from the groove of Retainer.

When the Gasket is damaged or broken and needs to be replaced, insert the Door Gasket into the groove of Gasket Retainer and push gently it.

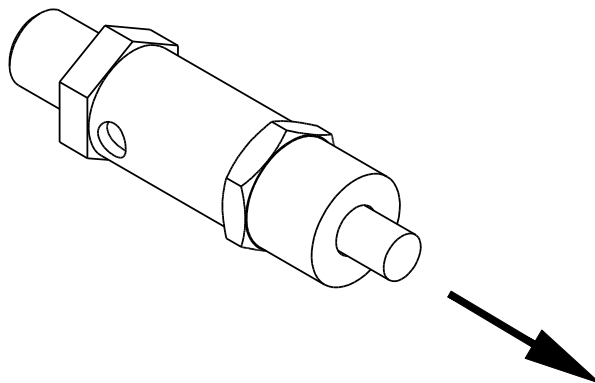
D. Checkup and replacement of safety valve

D.1 Checkup of safety valve

Remove the rear Cover of sterilizer.

Stop the sterilization cycle and pull it lightly with the pull ring valve when the pressure of the chamber reaches 2.7kgf/cm^2 .

- . If the safety valve does not operate in normal way, replace it.



D.2 Replacement of safety valve



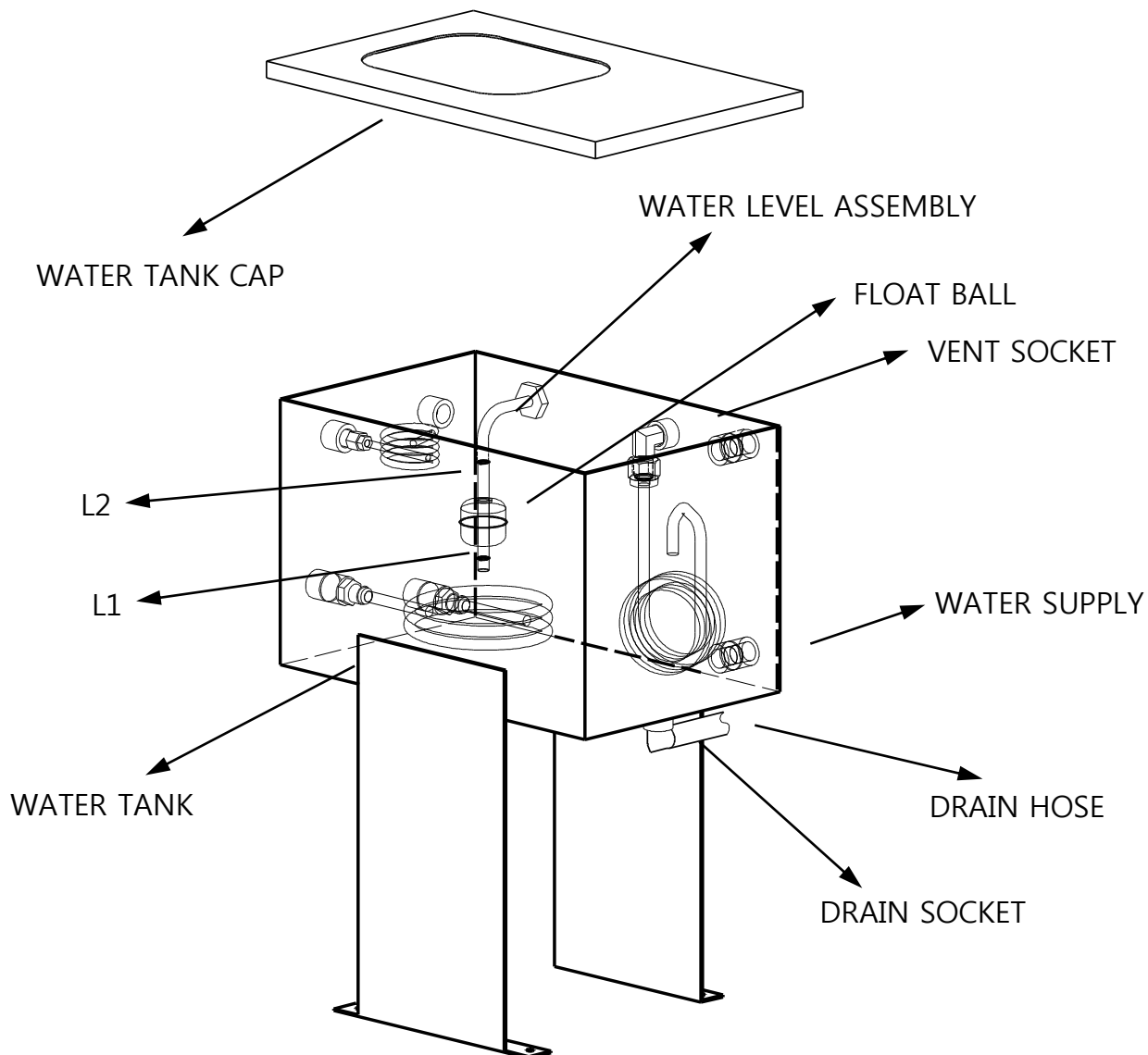
Before replacing the Pressure Relief Valve, check if the pressure and temperature of the chamber have dropped enough and then replace the valve.

Separate the defective safety valve from the Chamber.

Replace it with new safety valve. Stop the sterilization cycle and pull the pull ring valve forward lightly when the chamber pressure points to the 2.7kgf/cm^2 .

When the valve operates regularly with problem, assemble the recover of the sterilizer.

E. Structure and checkup of water Reservoir



Water Reservoir

The water reservoir should contain appropriate quantity of water to supply it to the chamber during the Fill process. (About 5 liters)

The water drain should be made using the drain hose when the user wants to drain the water from the water reservoir tank.

The Micro computer recognizes the water quantity of the reservoir by the position of float ball linked to the Water Level Assembly. If the Flout Ball points to the "L1", the "Add lamp" flickers, and the if the Flout Ball stands at the "L2", the "Full" lamp is on. When the Flout Ball points to the position between "L1" and "L2", the "Good" lamp is lighted..

Condensing Coil

The Condensing Coil condenses the steam discharged from the chamber during the Vent process and turns it into the water, storing it into the water reservoir tank.

When supplying the water to the water reservoir, use the distilled water or soft water.

And the water in the reservoir should be replaced more than once per 2 weeks.

When cleaning the water reservoir tank, put a small quantity of soft detergent into the water reservoir and brush it. After that, clean it with pure water.



WARRANTY

ITEM	Table Top Stem Sterilizer	MODEL	
DATE OF INSTALLATION	mm-dd-year	SUPPLIER	
SERIAL NO.		PERIOD	1 year

N-BIOTEK provides a warranty on all parts and factory workmanship. The warranty includes areas of defective material and workmanship, provided such defect results from normal and proper use of the equipment.

1. The free warranty service will be provided once the unit is proved to be defective by wrong workmanship after N-BIOTEK or reliable distributor's examination.
2. The warranty period is 1 year from date of installation or 16Month year from the date of shipment from N-BIOTEK, whichever is sooner as indicated in above table. This period is proved by serial no.
3. N-BIOTEK will not be responsible of free warranty service for the faulty caused by user's improper operation, excessive use, use of incorrect voltage & frequency, storage in wrong environment mentioned in Manual.
4. Complete the above table after installation and keep this card. Then, present it to a dealer or N-BIOTEK when warranty repair is needed.

Signed By



President Daeyong Kim
N-BIOTEK, INC.

Service Contact

Contact local distributor or international sales team if you have any service issue.

E-mail : export@n-biotek.com Phone : +82-32-321-2100(ext.9)

