Kalstein

Steam Sterilizer

Model Series YR03391

Instruction Manual

Thank you very much for purchasing our Kalstein´s Steam Sterilizer Model Series YR03391

Please read the “Operating Instructions” and “Warranty” before operating this unit to assure proper operation. After reading these documents, be sure to store them securely together with the “Warranty” at a hand place for future reference.

Warning: Before operating the unit, be sure to read carefully and fully understand important warnings in the operating instructions.

Kalstein®

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In any part of the world, receive your induction or training from our specialized team of engineers

Quick Response

Our work team is always available to response all your consults or questions, in order to support you in any situation.

#Letsgivemore 💚

Thanks to your purchase, a donation will be made to a non-profit foundation that fights against breast cancer and helps most vulnerable communities.

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Enjoy of personalized advice for the correct preventive and corrective maintenance of your equipment, thanks to Kalstein's manuals and articles, special catalogues and video tutorials.

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With more than 25 years growing with our customers, Kalstein's multiformat and modern content, is now present in more than 10 countries and increasing.

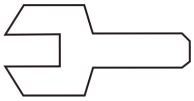
Thank you for choosing our steam sterilizers.

Prior to operating this instrument, please read the operations manual carefully and follow all installation instructions.

IMPORTANT NOTICE:

If you can't open the door, please unlock the door according to the instruction “How to open the door in the case of power outage” in the manual.

Need Maintenance



If this picture appears on the screen when power on, please call your dealer or local service maintenance. Your steam sterilizer needs a regular maintenance.

Document: Version 00K20000 v2.9.0

Table of Contents

1. General

1.1 Scope of Manual

This manual contains information concerning the installation, operation and maintenance of the steam sterilizers. To ensure proper performance of the autoclave, the instructions given in this manual should be thoroughly understood and followed.
Keep the manual near to the sterilization in a readily accessible location for future reference.

1.2 Intended Use

The device designed for total elimination and/or inactivation of microorganisms from medical devices and related products, placed in sterilization wraps/packaging, using pressurized steam(i.e., moist heat) as the sterilizing agent; it is used for products non-sensitive to high temperature, water, or steam.

1.3 General Safety Instructions

-Read and understand this manual before attempting to install or operate the sterilizer.
-Make sure that all the installation conditions are fully complied with.
-Ensure that the supply voltage agrees with the supply voltage specified on the type plate of the sterilizer.
-This appliance must be grounded. Connect only to a properly grounded outlet.
-Do not cover or block any openings on this appliance.
-Use this appliance only for its intended use a described in this manual.
-Do not exceed the maximum weight limit of the loads specified in this manual.
-Do not operate this appliance if it has a damaged cord or plug, if it is not working properly, or if it has been damaged or dropped.
-Never must put into the sterilizer in flammables or explosives products.
-The sterilizer may not be operated in areas in which gas or any other explosive volatile substance is present.
-Installation and repair work should only be performed by authorized service technician. Work by unqualified persons could be dangerous and void warranty.

1.4 Standards and directives

The steam sterilizers were designed and have been produced in conformity with the following directives and standards:
Directives:
2014/68/EC Pressure equipment.
93/42/EEC Medical devices (Class Ⅱb).
Standards:
EN13060 Relative to small steam sterilizers.
EN61010-1 Safety regulations for laboratory devices-Part 1:General regulations.
EN61010-2-040 Safety regulations specific to sterilizers used in the processing of medical material.
EN61326-1 Electromagnetic compatibility regulations for laboratory devices.

1.5 Symbols

For safe operation, please pay close attention to the alert symbols below which can be found in the sterilizer or throughout this manual.

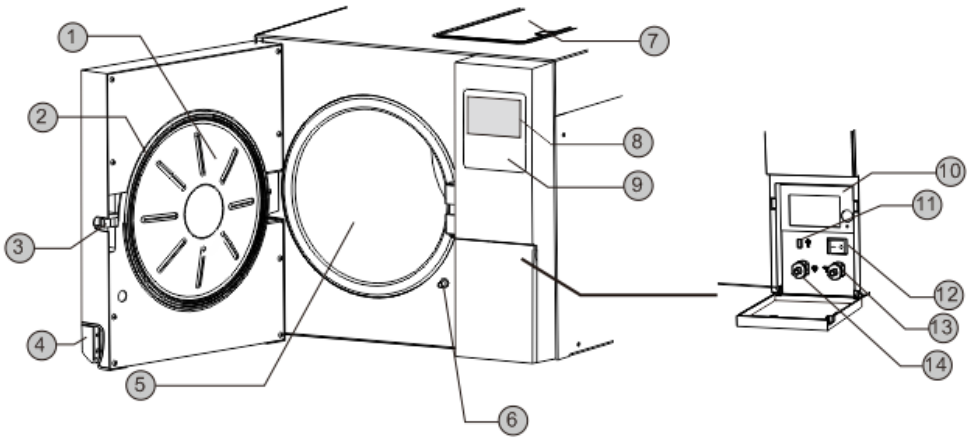
This symbol represents an electrical caution - ground protection.

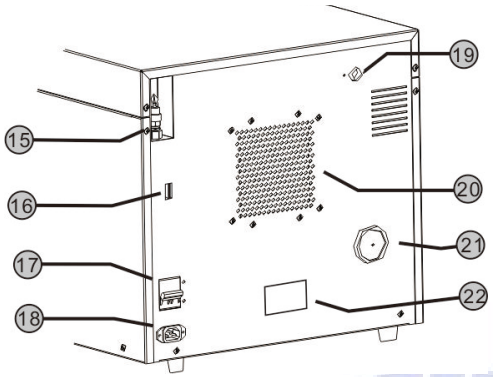
Hot Surface
This symbol represents a warning of a potential hot surface.

Important safety information.
This symbol represents a warning for extra caution.

2. Description of the sterilizer

2.1 Sterilizer views



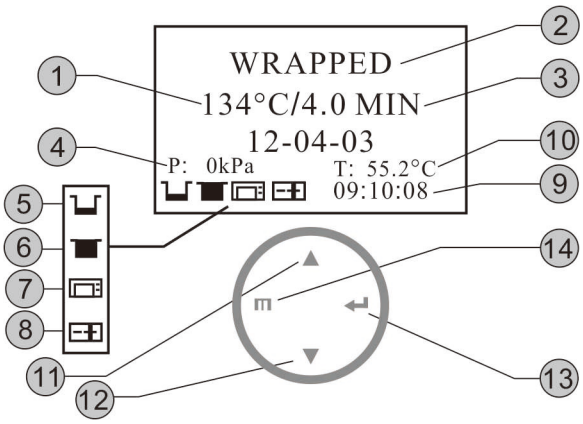


	Date of manufacture
SN	Manufacture number
	Manufacturer Name
	Manufacturer Address
EC REP	EC-Representative Name
	EC-Representative Address

1. Door
2. Seal
3. Door lock
4. Door handle
5. Chamber
6. Door spindle
7. Distilled water tank
8. LCD
9. Control Panel
10. Printer (Optional)
11. USB port
12. Main power switch
13. Drain connector (Distilled water tank)
14. Drain connector (Used water tank)
15. Safety valve
16. Label printer port (Optional)
17 Bacteriological filter
18. Circuit breaker
19. Power socket
20. Used water tank vent
21. Condenser vent
22. Rating plate

2.2 Control panel

.



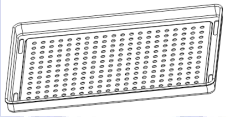
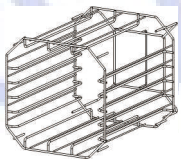
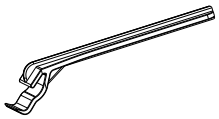
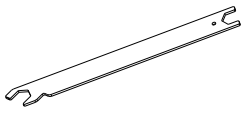
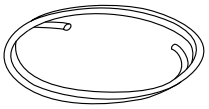
1	Temperature of the cycle
2	Program
3	Holding time
4	Pressure
5	Fill distilled water tank
	The quality of water is bad
	The water pump is working
6	Drain used water tank
7	Printer is connected
8	Door opens
	Door is closed
	Door is locked
9	Time
10	Current temperature
11	Up button
12	Down button
13	Enter button
14	Menu button

2.3 Technical specifications

Item	YR03391	YR03392	YR03393	YR03394

Chamber(mm)	φ170 x 320	φ200 x 360	φ247 x 350	φ247 x 450
Rated Voltage	110-130 VAC; 60 Hz， 220-240 VAC; 50 Hz			
Circuit breaker	F16A， F20A/400V			
Nominal power	1600VA			
Sterilization temperature	121°C /134°C			
Capacity of the distilled water tank	Approx 2.5 L (Water at level Max)			
	Approx 0.5 L (Water at level Min)			
Operation temperature	5°C-40°C			
Operation relative Humidity	Max. 80%, non condensing			
Overall dimensions WxHxD(mm)	420x370x525	420x370x595	490x455x600	490x455x690
Net weight	35kg	38kg	45 kg	50 kg
Max. Noise level	<70 dB			
Atmospheric pressure	76 kPa - 106 kPa			

2.4 Packing content

No.	Accessory	Quantity	
1	Steam sterilizer	1	
2	Instrument tray 	3	For 18/23
		2	For 8/12
3	Instrument tray rack 	1	
4	Instrument tray handle 	1	
5	Door adjustment tool 	1	
6	Draining hose 	2	
7	Instructions manual	1	
8	Door seal	1	

3. Installation

3.1 General conditions

Position the device on a plane surface with minimum capacity 60 kgs.

The sterilizer should be placed on a level worktable.

Improper water level in the chamber could cause a sterilizer malfunction.

Leave at least 10cm between the device rear part and the wall. The clearance required to open the door is 40cm.

Position the autoclave at such a height as to make it possible for the operator to check the whole sterilization chamber and carry out the normal cleaning operations.

The room where the device is installed must be enough ventilated.

Do not install the device near washing basins, taps, etc. where it is likely to be splashed.

Do not lean on the door when it is opened.

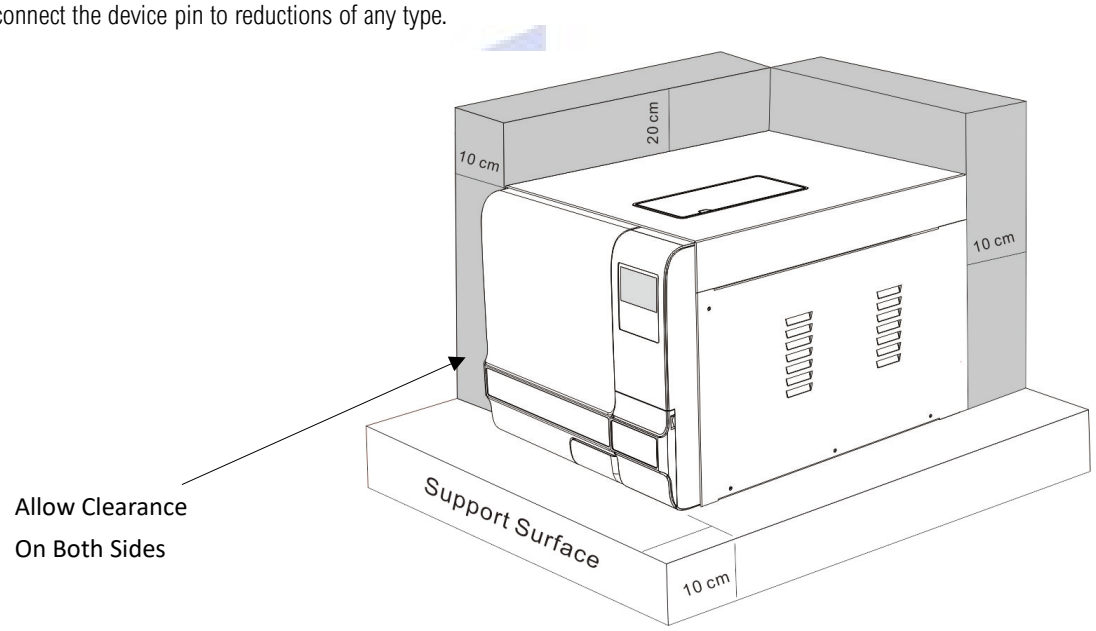
Do not place trays , papers, fluid containers, etc. on the sterilizer.

3.2 Power supply connection

Check the label on back panel o sterilizer to verify voltage rating for the unit. Failure to connect the autoclave to an appropriate power supply could result in damage to the unit, and electrical shock to personnel.

Plug power cord into a properly polarized and grounded receptacle rated. A dedicated circuit only used for the sterilizer is recommended.

Never connect the device pin to reductions of any type.



4 Setup

Open the door and remove all of the inner contents for unpacking.

Connect the power cord to an outlet of the appropriate voltage.

Turn on the main power switch on the right side. After switching on, the machine turns on the LCD and shows the door position, water level, working program, date, time and etc.

Note: The control panel will be locked for the initial 10 seconds after powering up for system initialization.

Notice: Before using the sterilizer or at any time the low water level icon blinks, fill the distilled water tank with distilled water.

4.1 Basic Set

The “Basic Set” Menu permits to set the following options:

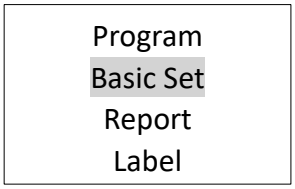
*Date *Time *Language

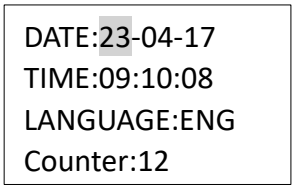
Select the “Basic Set” from the main menu and tap button

Select the item by taping the button. The unit you selected will be lighted.

Adjust the value by taping ⇧⇩ on. Tap button to the next item.

Tap ⏎ button to save and exit.





Note: The Counter (cycle No) can not be set by the operator.

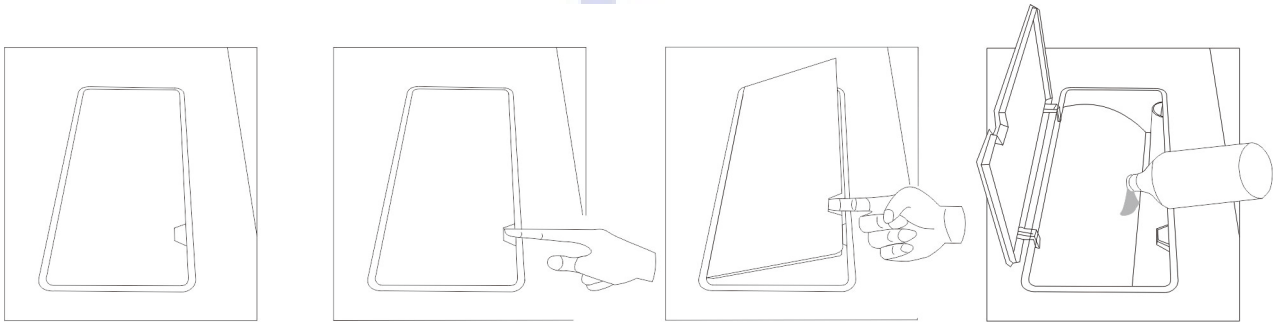
Abbreviation of language options

CHN	Chinese	ENG	English	DEU	German	ESP	Spanish
PL	Polish	FR	French	HUN	Hungary	ROM	Romanian
NL	Dutch	LTU	Lithuanian	LAT	Latvian	CZE	Czech
ITA	Italian	RUS	Russian	PT	Portuguese	HR	Croatian

4.2 Fill the distilled water tank

Ensure that the drain valve is closed.

Tap the button and open the water tank cover.



Use only high quality distilled water. (see Appendix 1)

4.3 Preparation of sterilization materials

For the most effective sterilization and to preserve the sample, please follow below:

*Clean instruments immediately after use.

*Treat the instruments by ultrasound cleaner.

*Residual chemicals left over after cleaning and disinfecting process may damage and corrode parts of the autoclave, always rinse off the instruments using distilled water.

*Follow instrument manufacturer’s guidelines and recommendations for handing and cleaning instruments prior to sterilization.

*Check the manufacturer’s instructions as to proper procedure for sterilizing of each item.

*Arrange the samples of different materials on different trays or with at least 3cm of space between them.

*Clean and dry instruments thoroughly before placing them into tray.

*Always insert a sterilization paper or cloth between the tray and sample to avoid direct contact.

*Arrange the containers (glasses, cups, test-tubes, etc) on one side or inverted position, avoiding possible water stagnation.

*Don’t stack the trays one above the other or put them in direct contact with the walls of the sterilization chamber.

*Always use the instrument tray handle.

*Wrap the samples one by one or, if more tools have to be set in the same bag, verify that these are made of the same material.

*Don’t use metallic clips, pins or other, as this jeopardizes the maintenance of the autoclave.

*Don’t overload the trays over the stated limit (see appendix 2).

5. Operation

5.1 Select the program

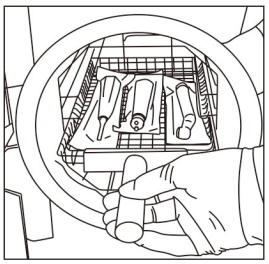
Tap M button to the main menu, select “Program”. You will see the available sterilization programs. See Appendix 2.

Program
Basic Set
Report
Label

Solid(121℃)
Solid(134℃)
Wrapped(121℃)
Wrapped(134℃)

Select the program by ⇧⇩ buttons and confirm it by taping bu M. If you don’t want to select a program you may Tap button to exi ⏎

5.2 Running the sterilization program.

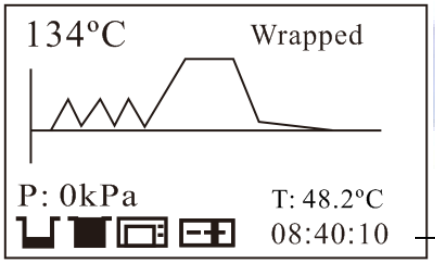


After selecting program, the materials to be sterilized can now be placed on the tray, placed inside the chamber by the tray handle.

After the instruments are loaded, you may close the door.

5.3 Start the sterilization program.

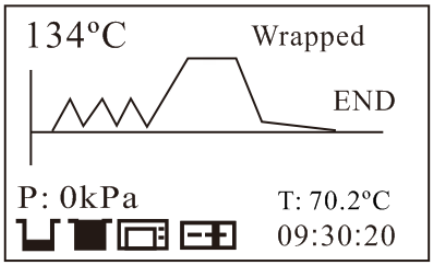
After the ⏎ utton is taped, the stage and the status of the current cycle will appear on the display. The sterilizers will perform the program automatically. (see appendix 2).



Total time or count down until completion

5.4 End of cycle

After cycle is completed, the printer will be activated and print out a report of the cycle (if the optional printer has been connected) or save the report in the USB drive (optional).



⚠ Caution: Always use the tray handle to load or unload the tray into the autoclave. Failure to do so can result in burning.

⚠ Note: If the power shut off during the cycle is working, the screen will show a special picture when power on again.

Power failure restoring…

5.5 Manual abort of the program

It is possible to interrupt a started cycle prematurely. If you need to interrupt a cycle and remove the items urgently, you may hold the button for 3 sec ⏎ during the drying time to skip the dry cycle.

If you interrupt a cycle before it reaches the “Drying” step, the items inside the autoclave must be considered not be sterilized. If you need to interrupt a cycle after the holding time of the sterilization cycle and during the drying step, the items inside the autoclave can be considered sterilized.

Caution: Depending on the status of the Cycle, steam can escape from the sterilization chamber when you open the door.

5.6 Report of the cycle

USB Flash memory (Optional)

A USB drive can be used as a method of storing a report of the cycle. To do so, insert the USB drive into the slot located on the service door of the sterilizer.

The information will automatically output directly to the USB drive after the cycle has completed. The name of the file is determined by the serial number of the machine and the cycle number.

For example:

The serial number is A12345. The cycle number is 00012.

The file name in the USB stick is A12345_00012E00.txt.

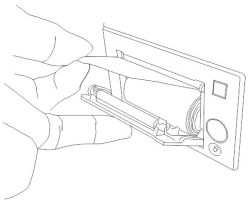
The last three numbers represent error code.

For example, E00 means no error. E01 means error E01.

5.7 Printer (Optional)

If installed you can see the Icon in the screen stop flashing.

The printer (Optional) will print a report of the cycle that just ended. At the end of each cycle the printer will print out a report of the cycle.



5.8 Report

Internal Memory

In this menu you can find the reports stored in the internal memory of the sterilizer

5.8.1 Select “Report” from the main menu and Tap bu M, you will see the list of records.

5.8.2 Select the record by taping ⇧⇩ on.

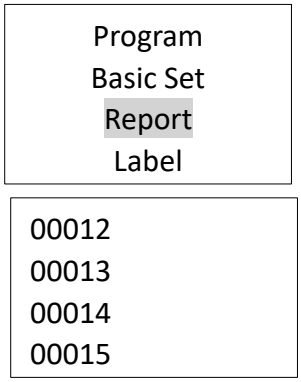
5.8.3 Tap M button.

Then the record is printed(if the optional printer has been connected) the report or/and is saved in the USB drive (optional).

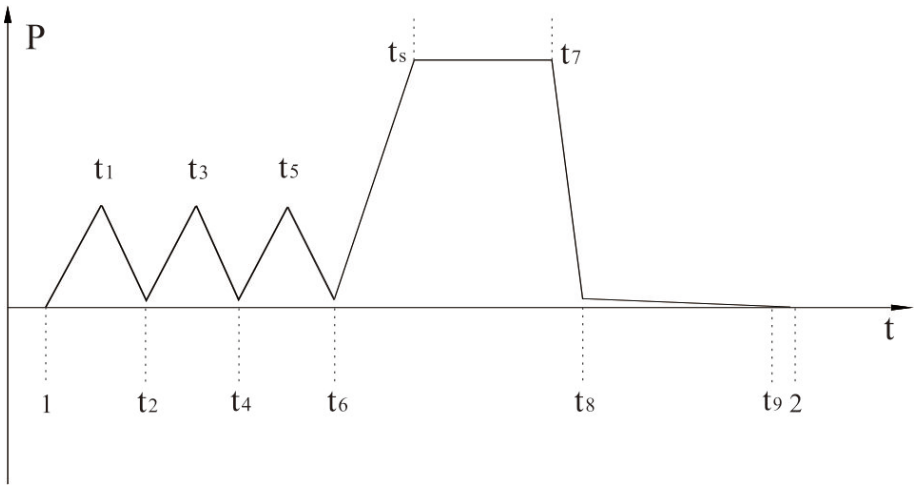
Note: It can save in the internal memory only the reports of the last 20 cycles.

Note: The storage system is based on the principle of “first In-first-\out”.

Tap ⏎ button to exit.



When vising printed data records, refer to the diagram below:



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Program: Wrapped
Temperature: 134 C
Pressure: 204 kPa
Drying Time: 2.0 MIN
Holding Time: 04.0 MIN

	Time	Temp.	Pressure
	HH:MM:SS	C	kPa
Start	11:38:02	028.2	002.5
T1:	11:50:46	115.9	081.0
T2:	11:51:17	107.2	020.6
T3:	11:51:29	111.0	058.8
T4:	11:51:52	107.3	020.1
T5:	11:52:26	112.8	069.3
T6:	11:52:52	107.5	020.1
TS:	11:57:47	134.5	211.9

Max Temperature: 135.4
Min Temperature: 134.2
Max Pressure: 221.1
Min Pressure: 210.7

T7:	12:01:48	135.2	218.8
T8:	12:08:01	100.6	000.1
T9:	12:17:45	098.7	001.1
End	12:17:47	098.7	001.6

Cycle No.: 00022
Ster. Value: Success
Water quality: OFF, 000
Date: 20-05-2019
SN:A00001
Operator:
3BN23D 11100010V2.9.1.3
0000

==========

5.9 Label printer (Optional)

5.9.1 Connect the label printer and switch on.

5.9.2 Select “Label”, Tap button.

5.9.3 Select the records by taping button.

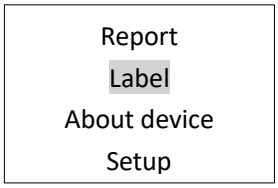
5.9.4 Tap the button to the interface for setting the quantity.

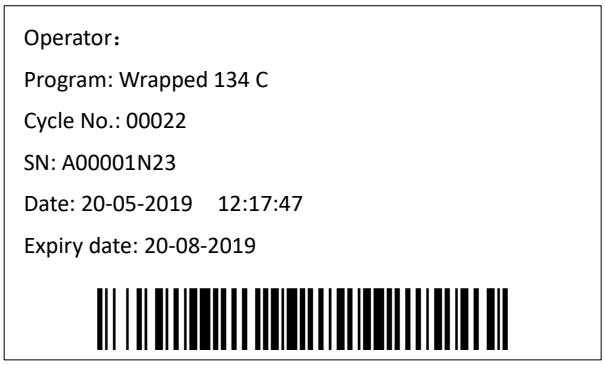
5.9.5 Change the quantity of the label that you want to print by taping button.

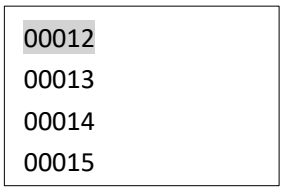
The range is 1-99.

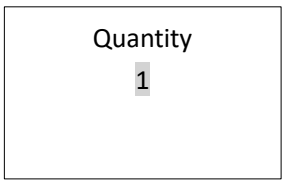
5.9.6 Tap button to print.

5.9.7 Tap button to go back.









5.10 About device

5.10.1 Select “About device”, Tap on.

5.10.2 It will show the version of the firmware and the serial number.

5.10.3 Tap button to go back.

6. Advance setting

The advance setting interface permits to set the following

Options:

***Parameter:** Permits to change the time of Holding time and Drying time.

***Unit:** Permits to change the unit of measure temperature and pressure.

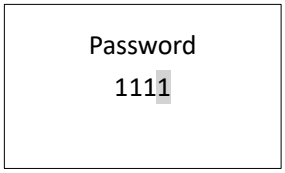
***Preheat:** This option allows you to maintain the required temperature in the sterilization chamber and the steam generator to start a new cycle immediately for the next 60 minutes so to run a new cycle should expect preheating time from 3 to 5 minutes upon start.

If the option is disabled (OFF) once the sterilization cycle end immediately the Autoclave is no longer heated, so when you start a new cycle should expect a preheating time between 3 to 5minutes upon start.

Note: To maintain the temperature for longer time it is recommended that after each cycle hold the door closed.

Enter the setting

Select the “Setup”, tap the button. Input the password 1111. Tap the button to change the number, tap the button to change the position. Tap the button will enter the setting interface after inputting the 4 passwords.



6.1 Parameter

Tap button to select Parameter. Tap button to enter the menu.

Select the program that you need to change by taping button. Tap button enter the setting.

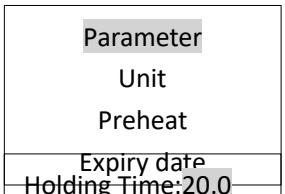
Adjust the parameter by taping the button.

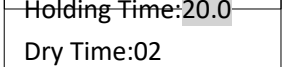
Drying time:0-60 minutes

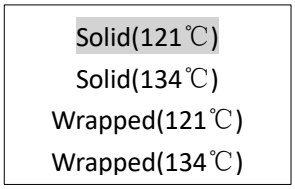
121℃ holding time: 1-60 minutes

134℃ holding Time: 1-20 minutes

After you finish adjusting the parameter Tap button to save and return to the above menu.







6.2 Unit

Select the “Unit” to adjust the unit of temperature and pressure.

Tap M button to enter the menu.

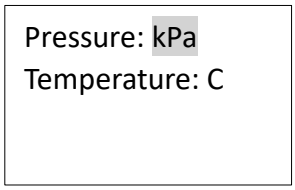
Select the item by taping Mtton.

Change the unit by taping ⇧⇩on.

Pressure: kPa/bar/psi

Temperature: ℃/°F

Tap ⏎ button to save and exit.



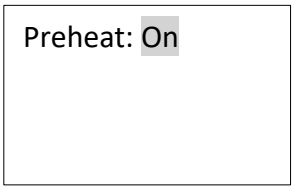
6.3 Preheat

Select the “Preheat” to adjust the Preheat.

Tap M button to enter the menu.

If you don’t want to preheat after switch on, set the value to Off by taping button.⇧⇩

Tap ⏎ button to save and exit.



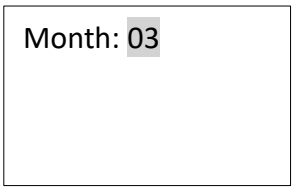
6.4 Expiry date

Select the “Expiry date” to enter the setting interface.

Tap M button to enter the menu.

Adjust the value by taping the ⇧⇩ton. The range is 1-12

Tap ⏎ button to save and exit.



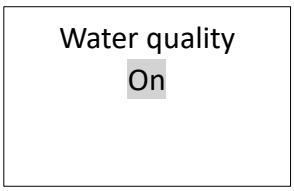
6.5 Water quality

Select the “Water quality” to change the function.

Tap M button to enter the menu.

If you don’t want to have a alarm if the quality of water is bad, set the value to Off by taping ⇧⇩ button.

Tap ⏎ button to save and exit.



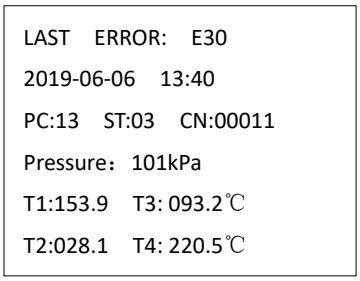
6.6 Last error

Select the “Last error” to adjust the Preheat.

Tap M button to enter the interface.

It will record the parameters of the sensors when the alarm appears.

Tap ⏎ button to save and exit.



6.7 Factory reset

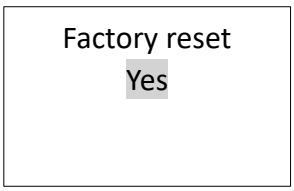
Select the “Preheat” to adjust the Preheat.

Tap M button to enter the interface.

Change Yes/No by taping ⇧⇩ton.

Tap ⏎ button to confirm and exit..

The value of holding time and drying time will restore the default value if you confirm “Yes”.



7.Maintenance

To assure proper operation and maximum autoclave life, carefully follow all recommendations for periodic maintenance.

One of the MOST important steps you can take to prevent problems with your sterilizer is to use ONLY distilled water.

Frequency	Number of cycles	Maintenance operation
Monthly	50	Clean the door seal
		Clean the filter inside the chamber and in the clean water tank
		Clean the chamber the trays and the rack
		Clean the external surface
Every 3 months	200	Clean the distilled water tank
Every year	800	Replace the door seal

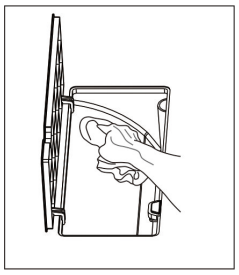
7.1 Clean the distilled water tank

Disconnect the main cable.

Drain the tank completely using the drain tube and leave it connected into the connector in a open position.

Clean the internal surface with a soft sponge and a small soft brush for the areas that are difficult to reach using and a mild soap.

Remove the filter and clean it with a small soft brush and mild soap, rinse it with distilled water and put it back in to the position.



7.2 Clean Chamber, door seal, trays and tray Rack.

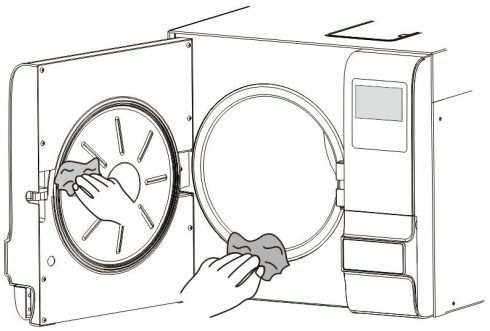
Remove the trays and tray rack from the chamber.

Clean trays, rack and inside of chamber with mild soap.

Rinse the trays, rack and inside of chamber with a smooth cloth and distilled water.

Examine door seal for possible damage.

Clean door seal and mating surfaces with a damp cloth.



Note: Do not use bleaching agents or any abrasive materials / substances in chamber. Failure to comply may result in damage to the chamber and/or other components.

Caution: To prevent burns, let unit to cool before cleaning gaskets and touch the surface.

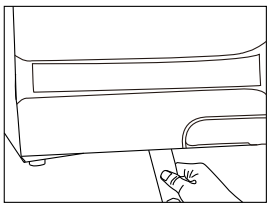
7.3 Door adjustment

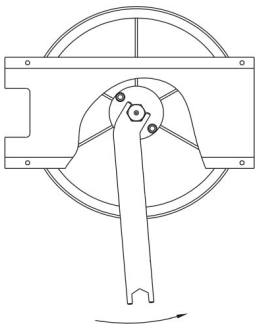
Under normal circumstances the chamber door does not require adjustments. However, if the seal fails (resulting in steam leaking from the front of the chamber), you may use the spanner tool to tighten the door seal.

Open the door.

Insert the spanner tool in the gap beneath the plastic cover; use the spanner to grip the adjusting nut. Turn the nut counter clockwise as the figure below. This will tighten the sealing plate.

Turn the nut until the sealing plate is tight. If the door knob is too tight, you may also turn the nut clockwise to loosen it.





Caution: Never adjust the chamber door while the door is closed.

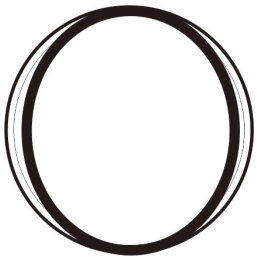
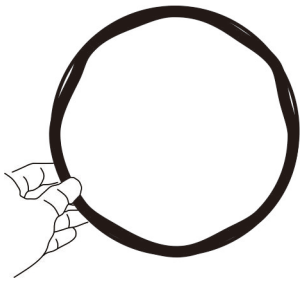
7.4 Replacement of the door seal

Open the chamber door. Remove the door seal ring carefully by hand.

Clean the door seal ring carefully with a smooth cloth with distilled water.

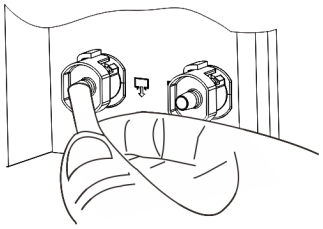
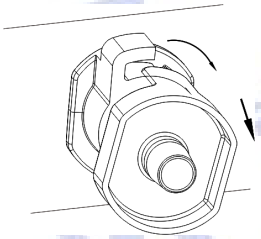
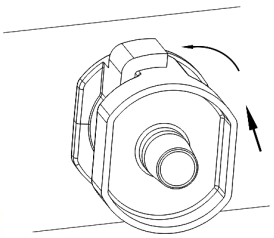
Moisten the new seal with distilled water.

Insert the new seal and tap in sequence as follows:

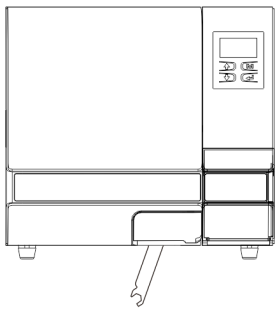
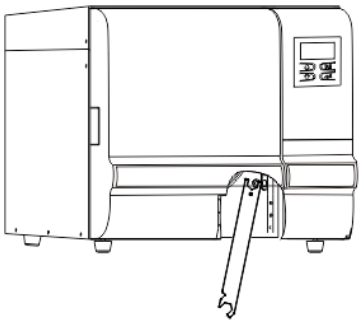
		
1) Press in the top and bottom of the door seal.	2) Press in the left and right sides of the door seal.	3) Press the remaining sections of the seal.

Caution: Please ensure the chamber and the door are cooled prior to replacing the seal ring.

7.5 The drain valve

		
1.Press the included hose on to the drain valve firmly.	2.Turn the drain valve clockwise to drain the tank.	3. Push and turn the drain valve anticlockwise after draining the tank.

7.6 How to open the door in the case of power outage

	
1.Put the spanner into the door.	2.Press the button by the spanner and pull the door handle at the same time.

8.Error codes

Code	Description	Proposed solution
E1	Steam generator temperature sensor error	Power off & run a new cycle Contact your supplier if error persists.
E2	Inner temperature sensor error	Power off & run a new cycle Contact your supplier if error persists.
E3	Temperature sensor of the chamber wall error	Carefully ensure that the chamber wall is heated and contact your supplier
E5	Fail to release the pressure	Power off & run a new cycle Contact your supplier if error persists.
E6	Door lock problem during the cycle	Make sure you had closed the door properly. check the door switch
E7	The pressure is too lower during holding time.	Contact your supplier if error persists.
E8	The pressure is too high during holding time.	Contact your supplier if error persists.
E9	Failure to hold temperature	Ensure the distilled tank isn't empty. Check the inner temperature sensor. Check somewhere for leaking.
E10	The door locking system doesn't work.	The electromagnet of locking system doesn't work. The switch of locking system doesn't work.
E11	Failure to preheat the steam generator	Power off & run a new cycle Contact your supplier if error persists.
E12	Failure to preheat the chamber	Power off & run a new cycle Contact your supplier if error persists.
E16	The pressure doesn't reach 0 in 5 minutes after drying period.	Contact your supplier if error persist
E18	The filling water pump working time is overime	Check the water pump or Contact your supplier if error persist
N20	Program manually interrupted	Holding the M button for 3 seconds
E24	It takes too long time to enter the next status.	Check somewhere leaking. Or contact your supplier if error persists.
E28	The pressure is overload.	Power off and contact your supplier if error persists.
N29	Power failure during working.	A notification message.
E34	The pressure is higher than 50kPa during drying.	The solenoid valves are blocked.

Caution: You may cancel the voice of alarm by taping any button. And cancel the alarm by holding the button for M seconds after you repair it. Then swith off and switch on again.

9. Transportation and storage

9.1 Switch off the sterilizer before transportation or storage.

9.2 Pull out the plug. Let the machine cool down.

9.3 Drain the distilled water tank and the used water tank.

Condition for transport and storage

Temperature: -20°C ~ +50°C

Relative humidity: ≤ 85%

Atmospheric pressure: 50kPa~ 106kPa.

10. Safety devices

1.Main fuses: Protection the instrument against possible failures of the heating resistor.

Action: Interruption of the electric power supply.

2.Thermal cutouts on the main transformer winding: protection against possible short circuit and main transformer primary winding overheating

Action: Temporary interruption of winding.

3.Safety valve: Protection against possible sterilization chamber over-pressure.

Action: Release of the steam and restoration of the safety pressure.

4.Safety micro-switch for the door status: Comparison for the correct closing position of the door.

Action: Signal of the wrong position of the door

5.Thermostat on chamber heating resistors: Protection for possible over heating of the chamber heating resistors.

Action: Interruption of the power supply of the chamber resistors.

6.Thermostat on steam generator heating resistors: Protection for possible overheating of the steam generator heating resistors.

Action: Interruption of the power supply of the steam generator resistors.

7.Door safety lock: Protection against accidental opening of the door.

Action: Impediment of the accidental opening if the door during the program.

8.Self-leveling hydraulic system: Hydraulic system for the natural pressure leveling in case of manual cycle interruption, alarm or black-out.

Action: Automatic restoration of the atmospheric pressure inside chamber.

Appendix 1

Water properties / Characteristics

Description	Feed water	Condensate
Evaporate residue	≤ 10mg/ l	≤ 1.0mg/kg
Silicium oxide sio2	≤ 1mg/ l	≤ 1.0mg/kg
Iron	≤ 0.2mg/ l	≤ 0.1mg/kg
Cadmiun	≤ 0.005mg/ l	≤ 0.05mg/kg
Lead	≤ 0.05mg/ l	≤ 0.1mg/kg
Rest of heavy metals	≤ 0.1mg/ l	≤ 0.1mg/kg
Chloride	≤ 2mg/ l	≤ 0.1mg/kg
Phosphates	≤ 0.5 mg/ l	≤ 0.1mg/kg
Conductivity	≤ 15μs /cm	≤ 3 μs /cm
PH Value	5 – 7.5	5-7
Appearance	Colorless, clean	Colorless, clean
Hardness	0.02 mmol/ l	0.02 mmol/ l

Appendix 2

Diagrams of the sterilization programs(YR03394)

Programs	Te	a) kP Pre	Ho	Tota	Type	Ma	Max
SOLID	134	210	4	17-30	Unwrapped solid material	5.00	1.50
	121	110	20	30-40			
WRAPPED	134	210	4	20-30	Unwrapped solid material	5.00	1.50
	121	110	20	30-35	Single-wrapped solid or hollow material	4.00	1.20
TEXTILE	134	210	8	24-34	Unwrapped porous material	1.25	0.40
					Single-wrapped porous material	1.10	0.30
	121	110	30	40-45	Dual-wrapped porous material	0.75	0.25
					Single-wrapped hollow material	4.00	1.25
					Dual-wrapped solid and hollow material	2.00	0.60
PRION	134	210	18	34-44	Unwrapped porous material	1.25	0.40
					Single-wrapped porous material	1.10	0.30
					Dual-wrapped porous material	0.75	0.25
					Single-wrapped hollow material	4.00	1.25
					Dual-wrapped solid and hollow material	2.00	0.60
LIQUID (optional)	121	110	30	45-55	Liquid	1.20	0.40
Drying (optional)	—	—	—	1-20	—	—	—

Diagrams of the sterilization programs(YR03393)

Programs	Te	Pre	Ho	Tota	Type	Ma	Max
SOLID	134	210	4	17-27	Unwrapped solid material	4.50	1.20
	121	110	20	27-37			
WRAPPED	134	210	4	22-32	Unwrapped solid material	4.50	1.20
	121	110	20	32-42	Single-wrapped solid or hollow material	3.50	1.10
TEXTILE	134	210	8	26-36	Unwrapped porous material	1.00	0.30
					Single-wrapped porous material	0.80	0.25
	121	110	30	42-52	Dual-wrapped porous material	0.60	0.20
					Single-wrapped hollow material	3.50	1.00
					Dual-wrapped solid and hollow material	1.50	0.50
PRION	134	210	18	36-46	Unwrapped porous material	1.00	0.30
					Single-wrapped porous material	0.80	0.25
					Dual-wrapped porous material	0.60	0.20
					Single-wrapped hollow material	3.50	1.00
					Dual-wrapped solid and hollow material	1.50	0.50
LIQUID (optional)	121	110	30	43-53	Liquid	1.00	0.30
Drying (optional)	—	—	—	1-20	—	—	—

Diagrams of the sterilization programs(YR03392)

Programs	Te	a) kP Pre	Ho	Tota	Type	Ma	Max
SOLID	134	210	4	15-25	Unwrapped solid material	3.00	1.00
	121	110	20	25-36			
WRAPPED	134	210	4	15-25	Unwrapped solid material	3.00	1.00
	121	110	20	27-30	Single-wrapped solid or hollow material	2.50	0.80
TEXTILE	134	210	8	20-30	Unwrapped porous material	0.75	0.25
					Single-wrapped porous material	0.50	0.15
	121	110	30	37-40	Dual-wrapped porous material	0.30	0.10
					Single-wrapped hollow material	2.50	0.80
					Dual-wrapped solid and hollow material	1.20	0.40
PRION	134	210	18	30-40	Unwrapped porous material	0.75	0.25
					Single-wrapped porous material	0.50	0.15
					Dual-wrapped porous material	0.30	0.10
					Single-wrapped hollow material	2.50	0.80
					Dual-wrapped solid and hollow material	1.20	0.40
LIQUID (optional)	121	110	30	40-50	Liquid	0.80	0.25
Drying (optional)	—	—	—	1-20	—	—	—

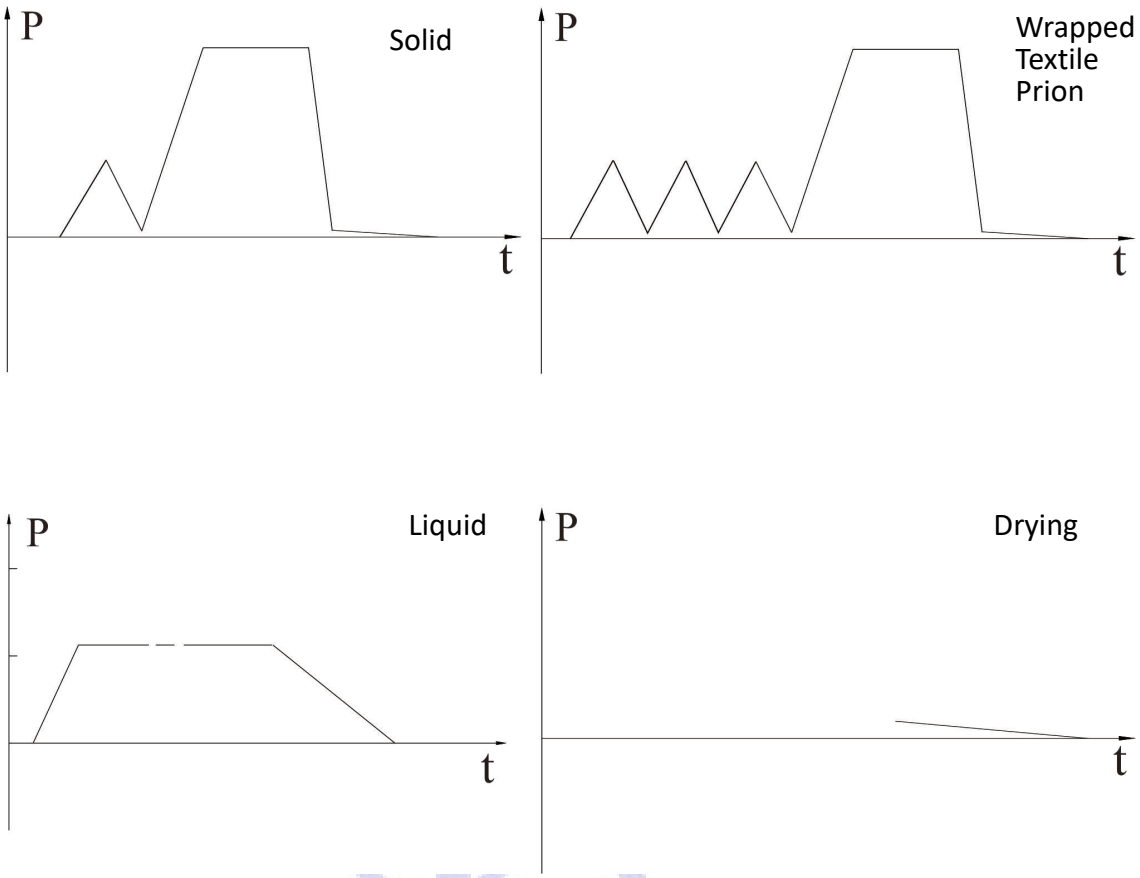
Diagrams of the sterilization programs(YR03391)

Programs	Te	a) kP Pre	Ho	Tota	Type		Ma	Max
SOLID	134	210	4	15-25		Unwrapped solid material	2.00	0.60
	121	110	20	25-35				
WRAPPED	134	210	4	15-25		Unwrapped solid material	2.00	0.60
	121	110	20	25-30		Single-wrapped solid or hollow material	1.50	0.50
TEXTILE	134	210	8	19-29		Unwrapped porous material	0.50	0.15
						Single-wrapped porous material	0.35	0.10
	121	110	30	35-40		Dual-wrapped porous material	0.25	0.10
						Single-wrapped hollow material	1.50	0.30
						Dual-wrapped solid and hollow material	1.00	0.30
PRION	134	210	18	29-39		Unwrapped porous material	0.50	0.15
						Single-wrapped porous material	0.35	0.10
						Dual-wrapped porous material	0.25	0.10
						Single-wrapped hollow material	1.50	0.30
						Dual-wrapped solid and hollow material	1.00	0.30
LIQUID (Optional)	121	110	30	25-35		Liquid	0.60	0.20
Drying (Optional)	—	—	—	1-20		—	—	—

The time required for sterilizer to be ready for routine use after the power is switched is less than 5 minutes.

The max. Temperature of the 134°C sterilization cycle is 137°C

The max. Temperature of the 121°C sterilization cycle is 124°C


P
Solid
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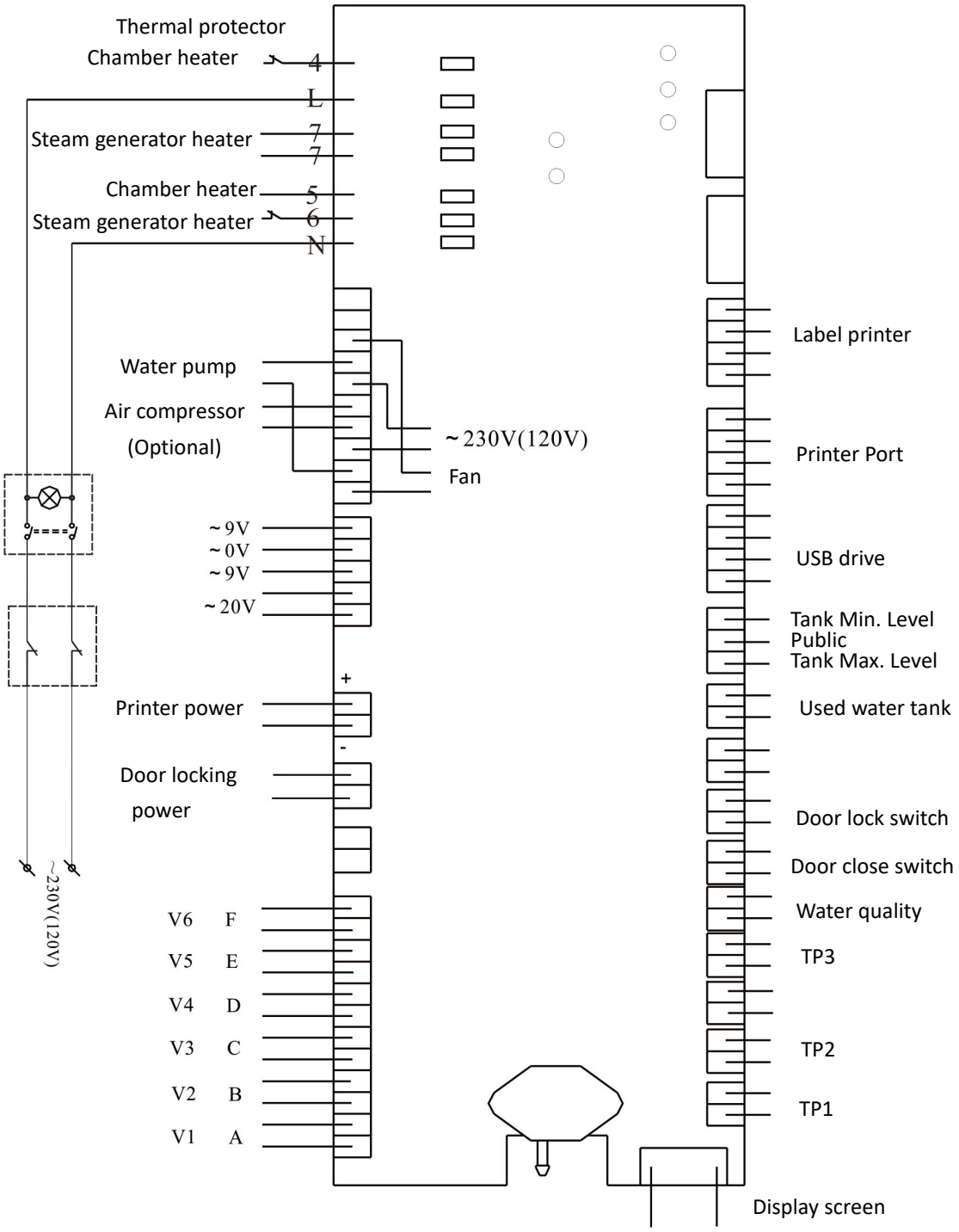
Appendix 3

Wiring diagram



TP1: Steam generator temperature sensor

TP2: Inner temperature sensor 1

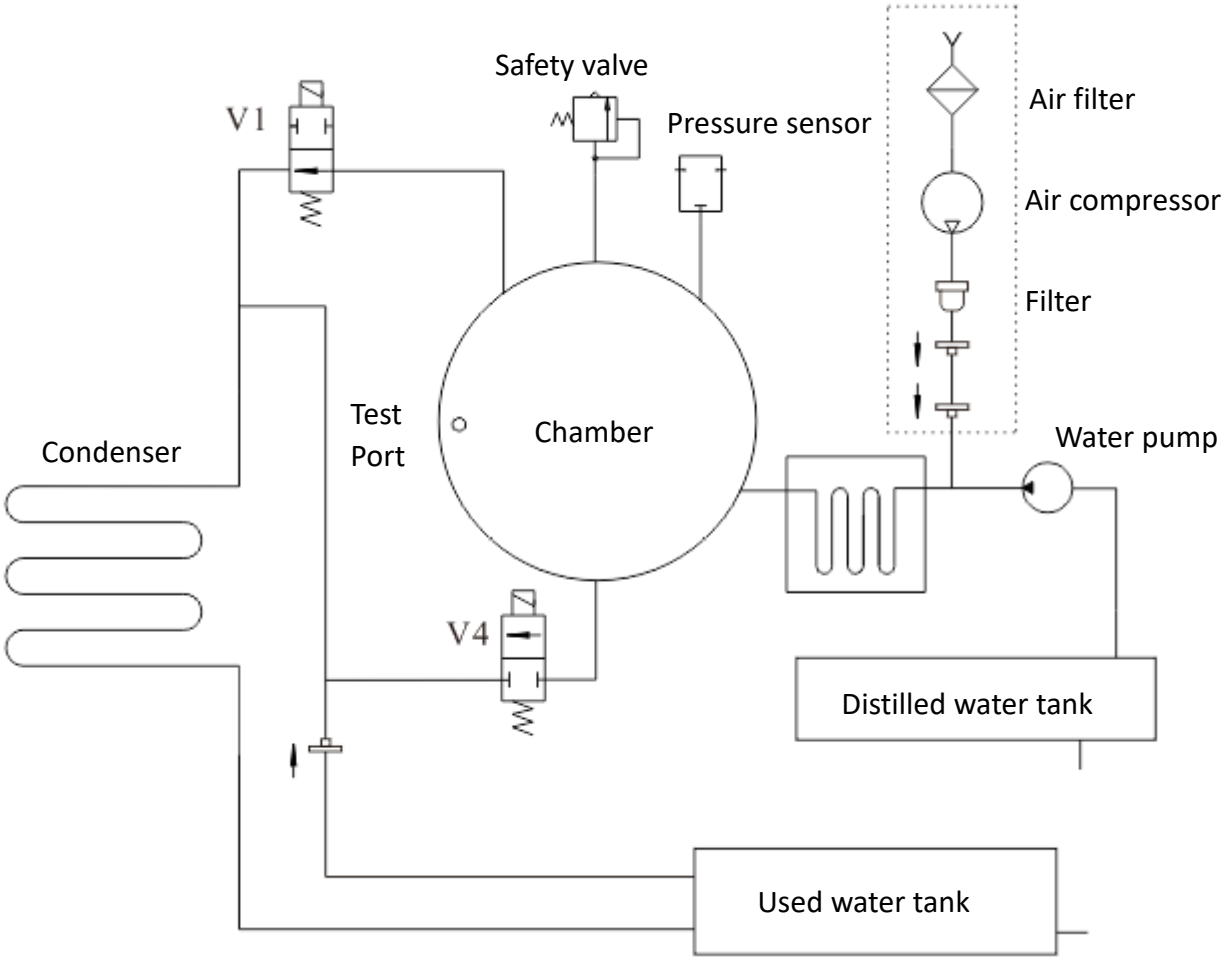
TP3: Temperature sensor of chamber wall

V1: Air release valve

V4: Water release valve

Appendix 4

Hydraulic diagram



V1: Air release valve

V4: Water release valve