

Masteri

Class B Autoclaves

Instruction for Use



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Model: Masteri 18L (AU2027/ AU2028) & 23L (AU2032/ AU2033)

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 case of power outage" in the manual.

NEED MAINTENANCE:



If this picture appears on the screen when power on or E88 appears on the report, please call your dealer or local service maintenance. Your steam sterilizer needs a regular maintenance.

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/package, 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 as 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 inflammables 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 II b).

Standards:

En13060 Relative to small steam sterilizers.

EN 61010-1 Safety regulations for laboratory devices - Part 1: General regulations.

EN 61010-2-040 Safety regulations specific to sterilizers used in the processing of medical material.

EN 61326-1 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.

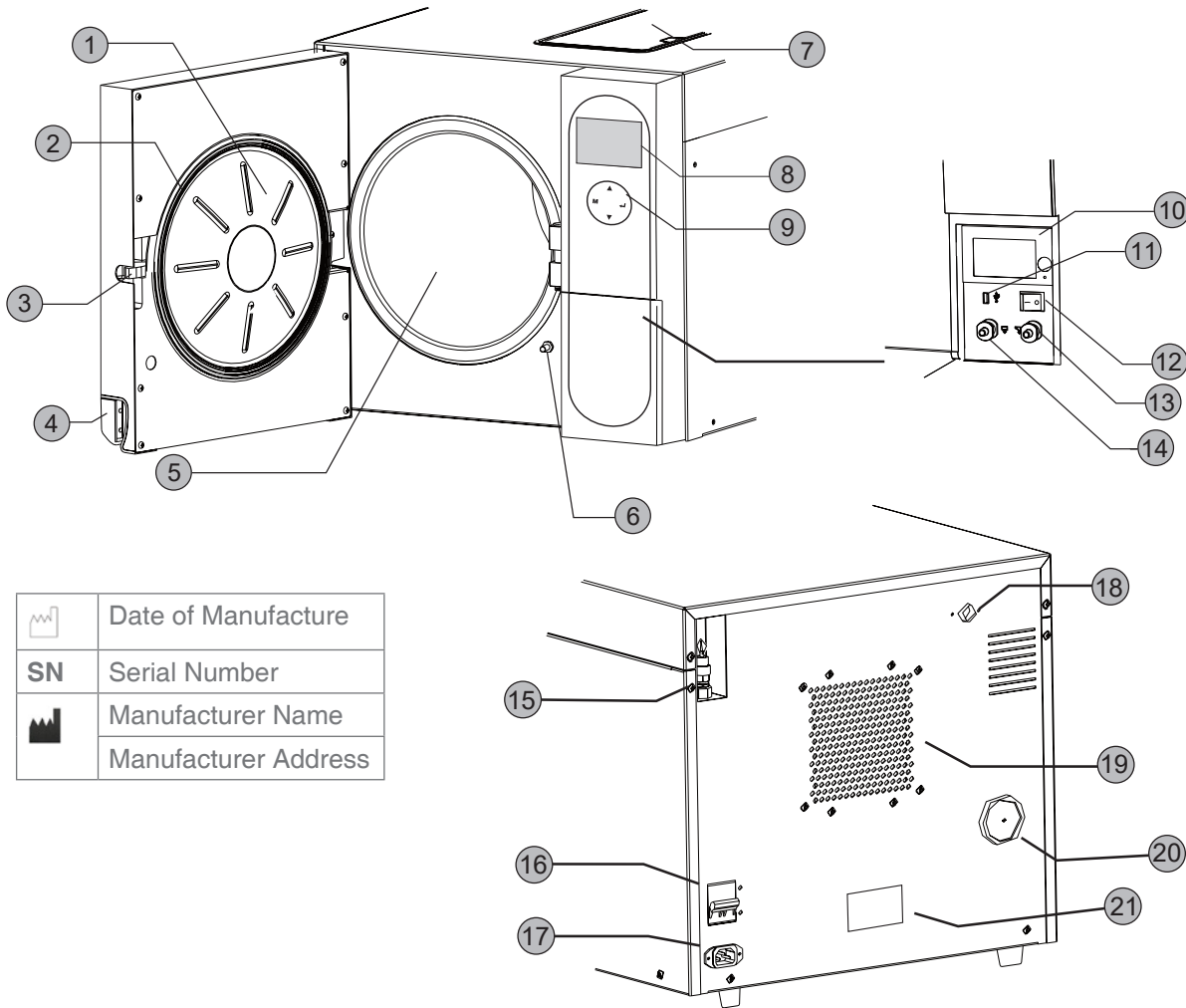
This symbol represents a warning for extra caution.



This product has been tested to the requirements of CAN/CSA-C22.2 No. 61010-1, second edition, including Amendment 1.

2. Description of the sterilizer

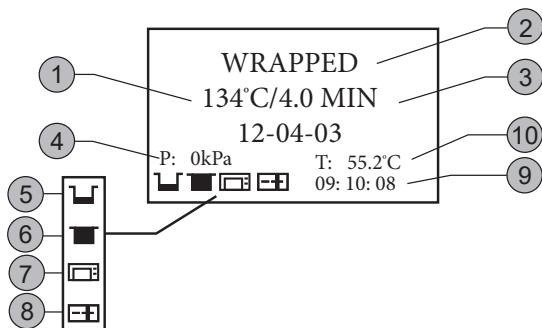
2.1 Sterilizer Views



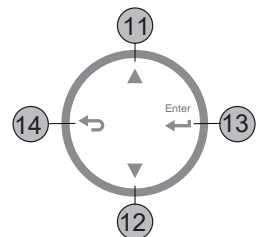
	Date of Manufacture
SN	Serial Number
	Manufacturer Name
	Manufacturer Address

- | | | |
|------------------------|---|---------------------------|
| 1 Door | 8 LCD | 15 Safety Valve |
| 2 Seal | 9 Control Panel | 16 Circuit Breaker |
| 3 Door Latch | 10 Printer (Optional) | 17 Power Socket |
| 4 Door Handle | 11 USB Port | 18 Air Vent |
| 5 Chamber | 12 Main Power Switch | 19 Condenser Vent |
| 6 Door Lock | 13 Drain Connector (Distilled Water Tank) | 20 Bacteriological Filter |
| 7 Distilled Water Tank | 14 Drain Connector (Used Water Tank) | 21 Rating Plate |

2.2 Control Panel



- | |
|--------------------------------|
| 1 Temperature of The Cycle |
| 2 Program |
| 3 Holding Time |
| 4 Pressure |
| 5 Fill Distilled Water Tank |
| 6 The Quality of Water Is Bad |
| 7 The Water Pump Is Working |
| 8 Drain Used Water Tank |
| 9 Printer Is Connected |
| 10 Door Opens |
| Door Is Closed |
| Door Is Locked |
| 9 Time |
| 10 Current Temperature |

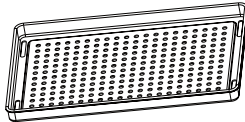
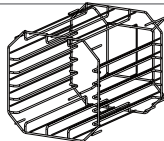
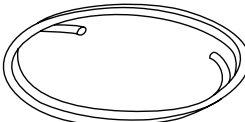
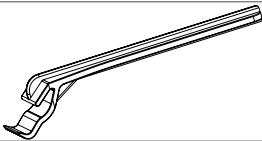
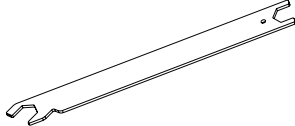


- | |
|------------------------|
| 11 Up Button |
| 12 Down Button |
| 13 Enter/Select Button |
| 14 Escape/Menu Button |

2.3 Technical Specifications

	Masteri 18L (AU2027/AU2028)	Masteri 23L (AU2032/AU2033)
Chamber (DxL)	9.7" x 13.5" (247mm x 350mm)	9.7" x 18" (247mm x 450mm)
Overall Dimensions (WxHxD)	19.5" x 18" x 24" 490mm*455mm*600mm	19.5" x 18" x 27" 490mm*455mm*690mm
Net Weight	104 lbs (47kg)	117 lbs (53kg)
Tray Dimensions (WxD)	7.5" x 11" (192 x 280 mm)	7.5" x 15" (192 x 380 mm)
Rated Voltage	110 VAC,60Hz (AU2028) 220 VAC,50 Hz (AU2027)	110 VAC,60Hz (AU2033) 220 VAC,50 Hz (AU2032)
Circuit Breaker	F20A (AU2028) / F16A (AU2027)	F20A (AU2033) / F16A (AU2032)
Nominal Power	1750VA	
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)	
Operational Temperature	5°C-40°C	
Operational Relative Humidity	Max. 80%, Non Condensing	
Max. Noise Level	<70 dB	
Atmospheric Pressure	76 kPa - 106 kPa	

2.4 Packing Content

Accessories		Quantity
Instrument Tray		3
Instrument Tray Rack		1
Draining hose		2
Instrument Tray Handle		1
Door Adjustment Tool		1
Door Seal		1

Documents		
Instruction Manual	Current Instructions Manual	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 well 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

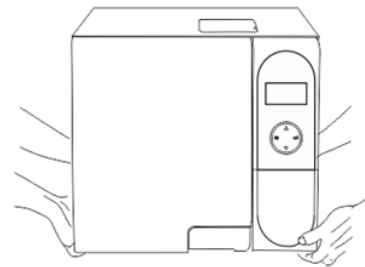
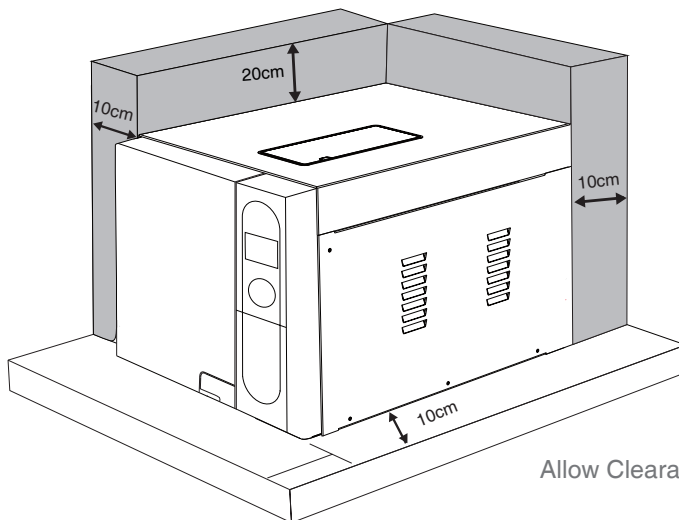
Check the label on back panel of sterilizer to verify voltage rating for the unit. Failure to connect the autoclave to an appropriate power supply could result in damage to the unit, and electrical shock to personnel.

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.

3.3 Location Requirements

To ensure proper air circulation, and to allow access to the reservoir fill port and drain coupling, add here to the minimum clearance requirements listed below.



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 circuit breaker then the main switch on the bottom right of the sterilizer. After switching on, the LCD will display information of the door's 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 that the low water level icon  blinks, fill the distilled water tank with distilled water immediately.

4.1 Basic Set

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

- Date
- Time
- Language

Tap  on the starting interface to access the Program menu, tap  again to access the Main menu.

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

Select the item by tapping  button. The unit you selected will be highlighted..

Adjust the value by tapping   button. Tap  button to the next item.

Tap  button to save and exit after the data is set.

Note: The Counter (number of cycles) cannot be set by the operator.

Abbreviations of the language options:

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

Program
Basic Setting
Report
Label



Date: 23-04-17

Time: 09:10:08

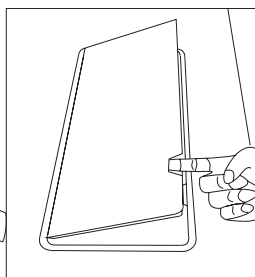
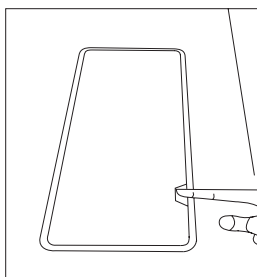
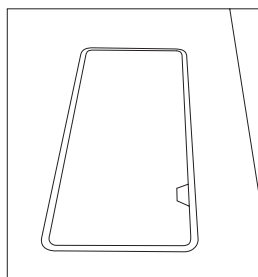
Language: ENG

Counter: 12

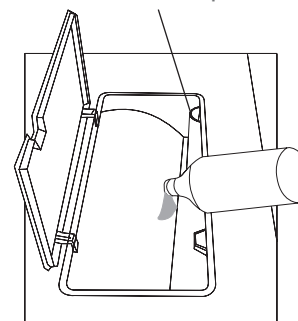
4.2 Fill The Distilled Water Tank

Ensure that the drain valve is closed.

Press the button and open the water tank cover.



The water level should not exceed this port.



Fill distilled water into the tank until it reaches the base of the safety valve holder.

Note: Water must not be filled higher than the base of the safety valve holder under any circumstances.



Caution: 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 the instructions below:

- Clean instruments immediately after use, preferably with an ultrasonic cleaner.
- Residual chemicals left over from the cleaning and disinfecting process may damage and corrode parts of the autoclave. Always rinse off the instruments using distilled water.
- Follow manufacturer's guidelines and recommendations for handling and cleaning instruments prior to sterilization
- Check the manufacturer's instructions for proper guidelines for sterilizing each item.
- Arrange the samples of different materials on different trays or with at least 3cm gap between them.
- Clean and dry instruments thoroughly before placing them into the 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 in an inverted position, to avoid 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.
- Keep metallic clips and pins away as this can jeopardize the operation of the autoclave.
- Don't overload the trays over the stated limit (see appendix 2).

5. Operation

5.1 Select The Program

Press  button to access the "Program" menu, you will see the available sterilization programs. (See Appendix 2).

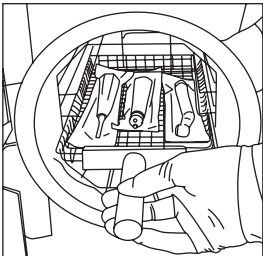
Program	Unwrapped(134°C)
Basic Setting	Wrapped(121°C)
Report	Wrapped(134°C)
	Prion(134°C)

Select the program by tapping the ▲ ▼ buttons followed by .

5.2 Running The Sterilization Program

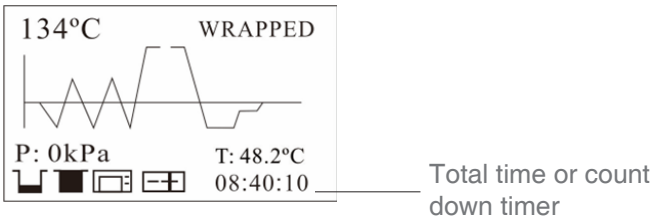
After selecting the program, the instruments to be sterilized can now be placed on the tray inside the chamber. After the instruments are loaded, close the door and hold for about three seconds. Door will lock automatically.

 **Caution:** The door cannot be locked if the pressure is higher than 0 kPa. Please wait for the chamber to cool down.



5.3 Start The Sterilization Program

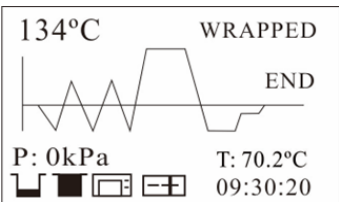
After pressing the  button, the stage and the status of the current cycle will appear on the display. The sterilizers will perform the program automatically. (See appendix 2).



5.4 End of Cycle

After the cycle is completed, the printer will be activated and will 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.



5.5 Manual Abort of The Program

It is possible to abort a started cycle prematurely. If you need to interrupt a cycle and remove the items urgently, you may hold the  button for 3 seconds anytime during a cycle to stop the cycle prematurely.

 If you interrupt a cycle before it reaches the “Drying” step, the items inside the autoclave must be considered non 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.

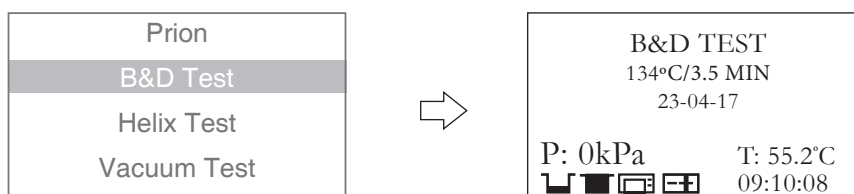
 Depending on the stage of the cycle, steam can escape from the sterilization chamber when you open the door.

5.6 Test Programs

Bowie & Dick Test

Tap  button to access the "Program" menu, tap  button and select the “B&D Test” and tap  button to confirm. Put the Bowie-Dick pack in to the chamber and follow the instructions of the test pack manufacturer. Then close the door and tap  button to start.

After the cycle is finished you may check the indicator and evaluate the result.



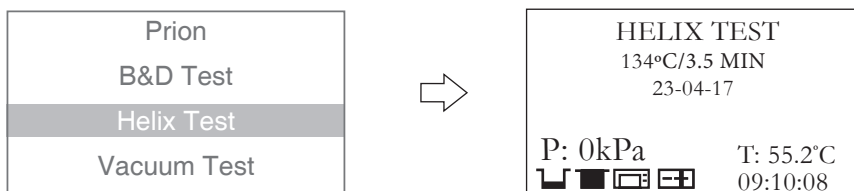
Helix Test

Select the “Helix Test” from the "Program" menu.

Following the instructions of the Helix test manufacturer. Put the indicator paper in the capsule.

Put the Helix test into the chamber, then close the door and tap  button.

After finishing the cycle, you may check the indicator and evaluate the result in accordance with the instructions given by the test kit's manufacturer.



Vacuum Test

Select the "Vacuum Test" cycle from the "Program" menu.

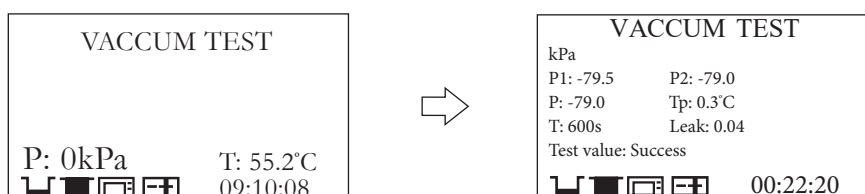
Close the door and tap  button.

In compliance with EN 13060, the test requires that the air leakage rate must be less than or equal to 0.13kPa/min during the 10-minute cycle.

If leakage rate is lesser than 0.13kPa/min, it will show Success.

If the difference between the maximum and the minimum temperature is above 3°C, it will show VOID. That means the test has failed. Rerun the vacuum test after the chamber has cooled down.

 **Caution:** The “Vacuum Test” must be carried out with the chamber of the sterilizer dry and cold.



Discretion

The Bowie-Dick test, Helix test, and vacuum test are not mandatory, and are recommended to ensure proper function of your autoclave unit. Please also check with your region's regulators for your local guidelines and regulations.

5.7. Record of The Cycle

USB Flash drive (Optional)

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

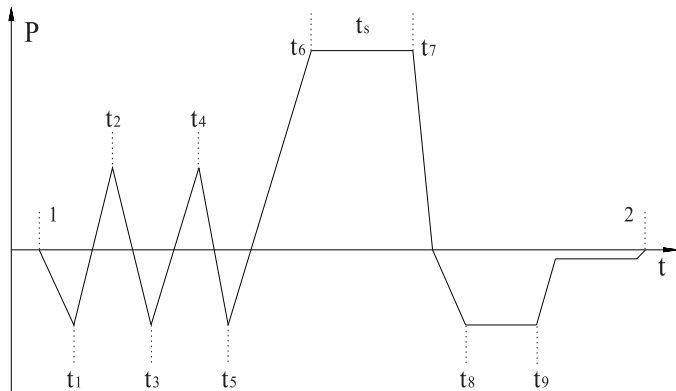
For example:

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

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

The last three characters represent error code.

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



```
=====
Program: Vacuum test
Tp:1°C
P1:-75.0kPa
P2:-74.0kPa
rate of pressure rise:
0.10 kPa/min
Start Time:08:22
End Time:09:01
Date:2017-07-19
Test Value: Success
SN:E00001
Operator:
3AB16B 11100110V2.9.1.2
0000
=====
```

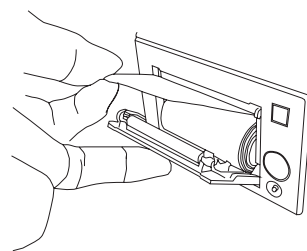
```
=====
Program: Wrapped
Temperature: 134°C
Pressure: 2.04 bar
Drying Time: 20.0 MIN
Holding Time: 4.0 MIN
=====
```

	Time HH:MM:SS	Temp. °C	Pressure bar
Start	14:48:10	077.7	0.00
T1:	14:52:29	072.1	-.769
T2:	14:53:30	107.4	0.58
T3:	14:57:22	078.8	-.796
T4:	14:58:40	112.1	0.60
T5:	15:01:39	080.5	-.764
T6:	15:05:32	134.3	2.10
TS:	15:05:36	134.9	2.22
Max Temperature:	136.1		
Min Temperature:	134.9		
Max Pressure:	2.26		
Min Pressure:	2.15		
T7:	15:11:37	136.0	2.24
T8:	15:14:58	092.2	-.716
T9:	15:33:08	091.2	-.015
End	15:33:10	091.2	-.005

```
=====
Cycle No.: 00012
Ster. Value: Success
Date: 11-09-2019
SN:A00001
Operator:
3BB23D 11100110V2.9.1.2
0000
=====
```

5.8 Printer (Optional)

If the printer is installed properly the printer icon on the screen will 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.



5.9 Report

Internal Memory

In this menu you can read the latest information of the last 20 cycles stored in the internal memory of the sterilizer.

On the main menu select "Report" and tap  button, you will see the list of records.

Select the records by tapping  .

Tap  button. Then the record will be printed (if the optional printer has been connected) or if a USB drive is connected, the report will be saved to the USB drive (optional).

Note: The internal memory can only save the reports of the most recent 20 cycles.

Note: The storage system is based on the principle of "first in-/first-out".

Tap  button to exit.

Report
Label
About Device
Setup

00012
00013
00014
00015

5.10 Label (Optional)

Connect the label printer and switch on.

Select the "Label" and tap  button to see the list of records.

Select the record by tapping   and press .

Select the quantity of the label that you want to print by tapping  . The range is 1-99.

Tap the  button to print the label.

Tap the  Button to exit.

Operator:
Program: Wrapped 134 C
Cycle No.: 00022
SN: A00001N23
Date: 20-05-2019 12:17:47
Expiry date: 20-08-2019



5.11 About Device

Select the "About device".

Tap the  button to enter the interface.

There is the version of the firmware.

Tap the  button to exit.

About Device
3BB23Z 11110010
V2.9.0.0 -- 00
SN: A23456B45

6. Advanced Setting

The advanced settings interface lets the user customize the following settings:

- **Parameter:** Change the holding time and drying time of cycles.
- **Unit:** Change the unit of measure of temperature and pressure.
- **Preheat:** This option allows the sterilizer to maintain the required temperature in the sterilization chamber and the steam generator for the next 60 minutes. If the option is disabled (OFF), the autoclave cools down once the sterilization cycle ends. It is recommended to keep preheat ON, otherwise every new cycle has a preheating time of 3 to 5 minutes.

Note: To maintain the temperature for longer periods of time, it is recommended to keep the door closed after each cycle.

Enter The Setting

On main menu select the “Setup”, tap  button to enter the password interface.
Input the password “9457” using   buttons followed by  button to move onto the next position. After inputting the 4 digits and pressing , it will enter the settings menu.

Password
9457

6.1 Parameter

Tap   button to select Parameter. Tap  button to enter the menu.
Select the program that you need to change by tapping   button. Tap  button to enter the setting.
Adjust the parameter by tapping   button.

- Drying time: 0-30 minutes
- 121°C holding time: 20-60 minutes
- 134°C holding Time: 4-20 minutes

After adjusting the parameters, press  button to save and exit.



6.2 Unit

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

Tap  button to enter the menu.

Select the item by tapping  button.

Change the unit by tapping   button.

- Pressure: kPa / bar / psi
- Temperature: °C / °F

Tap  button to save and exit.

Pressure: kPa
Temperature: C

6.3 Preheat

Select the “Preheat” to adjust the preheat setting.

Tap  button to enter the menu.

If preheat is not needed when powered on, set the value to OFF by tapping   button.

Tap  button to save and exit.

Preheat: ON

6.4 Expiry Date

Select the “Expiry Date” to adjust the expiry date on the printed labels.

Tap  button to enter the menu.

Adjust the value by tapping   button. The range is 1-12.

Tap  button to save and exit.

Month: 03

6.5 Water Quality (Optional)

Select the “Water Quality” to set ON/OFF of the water quality alarm.

Tap  button to enter the menu.

If the water quality alarm is not needed, set the value to Off by tapping   button.

Tap  button to save and exit.

Water Quality
On

6.6 Last Error

Select the “Last Error” to see the information of the most recent failed cycle.
Tap  button to enter the interface.
It will record the parameters of the sensors when the alarm appears.
Tap  button to save and exit.

LAST ERROR: E30
2019-06-06 13:40
PC:13 ST:03 CN:00011
Pressure:101kPa
T1:153.9 T3: 093.2°C
T2:028.1 T4: 220.5°C

6.7 Factory Reset

Select the “Factory reset” to recover the parameters of the programs.
Tap  button to enter the interface.
Change Yes/No by tapping   button.
Tap  button to confirm and exit.
The value of holding time and drying time will restore the default value if you confirm “Yes”.

Factory Reset


7. Maintenance

To ensure proper operation and to maximize the lifespan of the sterilizer, carefully follow all recommendations for periodic maintenance. One of the MOST important steps to prevent problems with the sterilizer is to ONLY use distilled water.

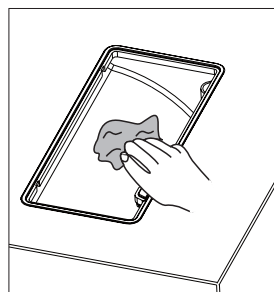
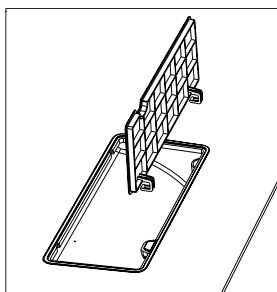
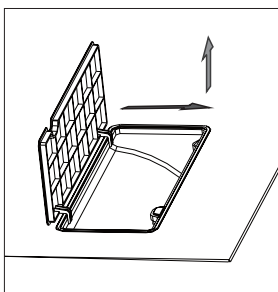
Frequency	Number of cycles	Maintenance operation
Daily		Clean the door seal.
Monthly	50	Clean the filters inside the chamber and in the clean water tank.
		Clean the chamber, trays and the rack.
		Clean the external surface.
Every 3 months	200	Clean the distilled water tank.
		Replace the bacteriological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

IMPORTANT NOTE:

Check the door tension by opening the door and verifying that it is properly adjusted. If the door is loose or too difficult to close, adjust the door tension by following the procedure in Section 7.4 - Door Adjustment.

7.1 Clean The Distilled Water Tank

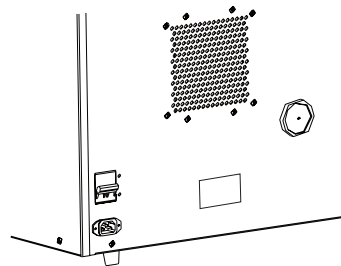
Disconnect the main cable.
Drain the tank completely by connecting the draining tube to drain valve. Then open the drain valve by turn it clockwise.
Clean the internal surface with a soft sponge and a mild soap. Use a small soft brush for areas that are hard to reach.
Remove the filter and clean it with a small soft brush and mild soap, rinse it with distilled water and put it back in position.



7.2 Replacement of The Bacteriological Filter

The bacteriological filter is in the back of the sterilizer. Unscrew the filter by hand turning in counter clockwise direction. Place the new bacteriological filter. Screw the new filter in by turning in clockwise direction.

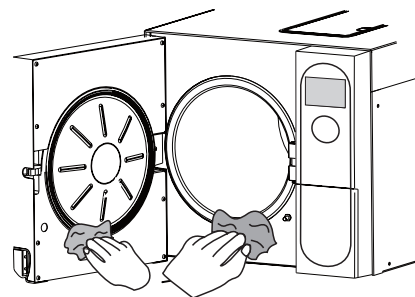
Note: Do not operate sterilizer without filters in place.



7.3 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.
Wipe 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, allow the unit to cool down before attempting to open the chamber for cleaning.

7.4 Door Adjustment

Under normal circumstances the chamber door does not require adjustments. However, if the door 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 (Fig. 1). Turn the nut in the counter-clockwise direction as shown in the figure below (Fig 2). 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 need to loosen it by adjusting the nut.



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

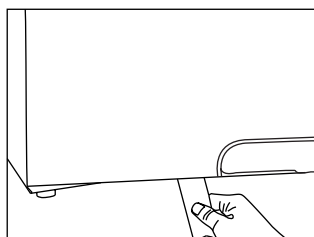


Fig. 1

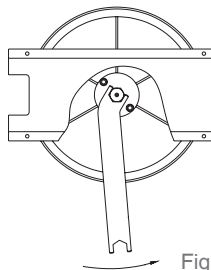
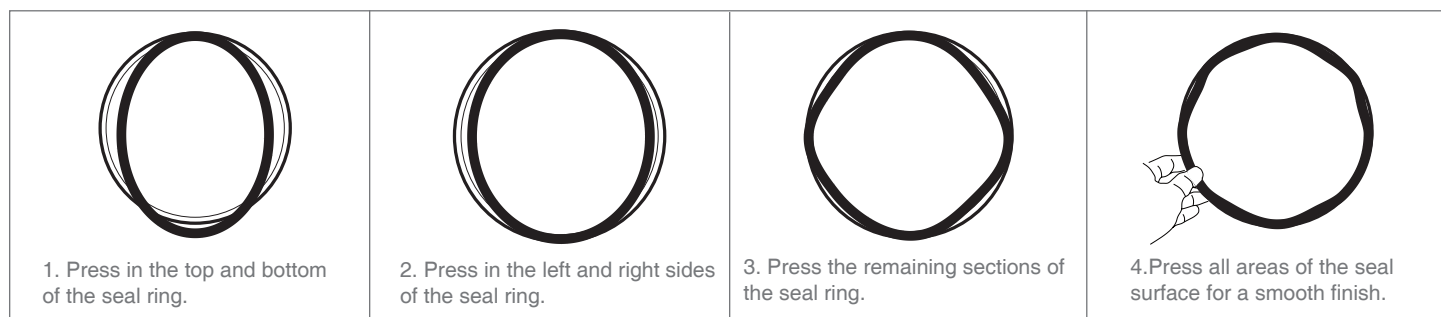


Fig. 2

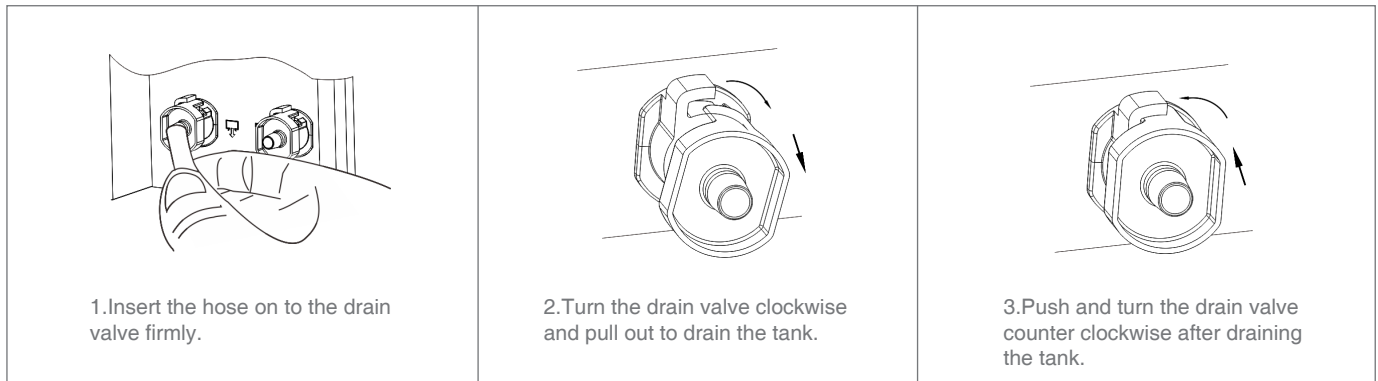
7.5 Replacement Of The Door Seal

Open the chamber door and remove the door seal ring carefully by hand. Wipe the door clean with a smooth cloth and distilled water. Moisten the new seal with distilled water and insert in sequence as shown below:

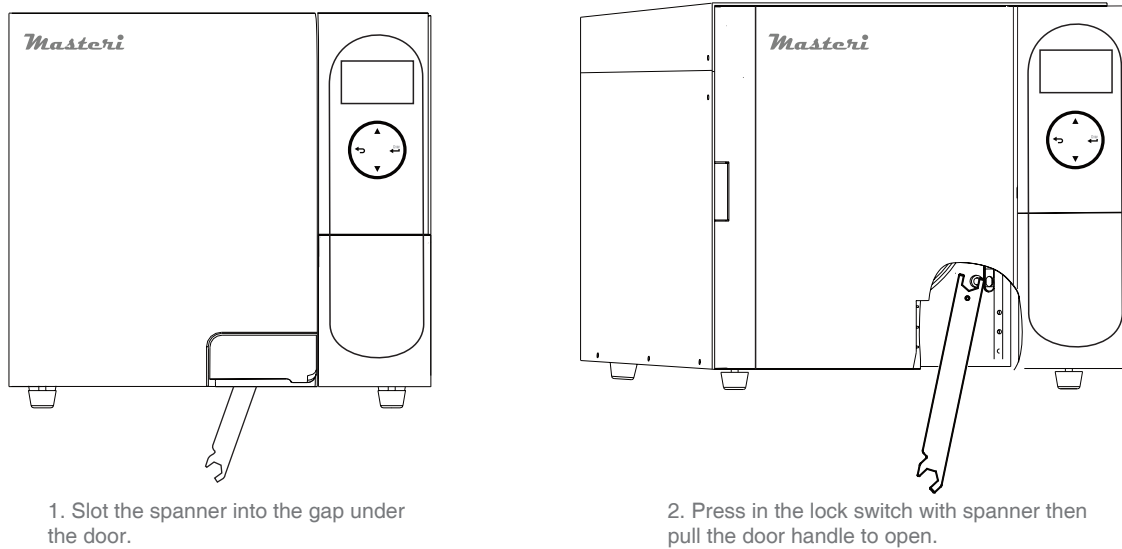


Caution: Please ensure the chamber and the door are cooled down prior to replacing the seal ring.

7.6 The Drain Valve



7.7 How To Open The Door In Case of Power Outage



8. Error Codes

Code	Description	Proposed Solution
E1	Steam generator temperature sensor error.	Power off & run a new cycle. Contact your supplier if error persist.
E2	Inner temperature sensor error	Power off & run a new cycle. Contact your supplier if error persist.
E3	Temperature sensor of the chamber wall error	Carefully ensure that the chamber wall is heated. If not then contact your supplier.
E5	Failure to release pressure	Power off & run a new cycle. Contact your supplier if error persists.
E6	Door lock problem during the cycle	Check the door close switch.
E7	The pressure is too low 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 for leaks.

Code	Description	Proposed Solution
E10	The door locking system doesn't work	The electromagnet or the switch of the locking system is faulty.
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.
E13	Vacuum failure	Power off & run a new cycle. Contact your supplier if error persists.
E16	The pressure doesn't reach 0 in 5 minutes during drying cycle	Contact your supplier if error persist.
E18	The water pump continues pumping even after filling tank	Check the water pump. Contact your supplier if error persists.
N20	Program manually interrupted	Hold the ⏮ button for 3 seconds after the pressure is lower than 10kPa.
E22	Vacuum test failure	Check for leaks. Check the door seal for leak. Contact your supplier if error persists.
N23	Result of vacuum test is void. (Failed test)	The temperature of the chamber is high. Try again after the chamber has cooled down.
E24	It takes too long time to enter the next stage in cycle	Check for leaks. Contact your supplier if error persists.
N27	Vacuum test is prohibited. (Machine won't allow vacuum test to start)	Switch off the machine and let the chamber cool down. Try again later.
E28	The pressure is over 240kPa	Power off and contact your supplier if error persists.
N29	Power failure while working	A notification messages.
E30	Vacuum test failure during the first 300 seconds (Test stops before finishing)	Check for leaks. Check the door seal for leaks. Contact your supplier if error persists.
N32	The pressure is not lower than -1 kPa in 30 seconds when door is locked	Open the door and try again. Contact your supplier if error persists.
N33	The pressure is not lower than 1 kPa in 30 seconds during unlocking the door	Open the door and try again. Contact your supplier if error persists.
E34	The pressure is higher than 50kPa during drying cycle	The solenoid valves are blocked.



Caution: You may cancel the alarm sound by pressing any button. After repairs and provided the pressure is lower than 10kPa; the alarm can be cancelled by holding the ⏮ button for 3 seconds.

9. Transportation and Storage

Switch off the sterilizer and unplug it from the power source.

Allow the machine to cool down.

Drain the distilled and used water tanks.

Condition for transport and storage.

- **Temperature:** -20°C ~ +50°C
- **Relative humidity:** ≤ 85%
- **Atmospheric pressure:** 50kPa~ 106kPa

10. Safety Devices

- 1. Main fuse:** Protects the instrument against possible failure of the heating resistor.
Action: Interruption of the electric power supply.
- 2. Thermal cutouts on the main transformer windings:** protection against possible short circuit and main transformer primary winding overheating
Action: Temporary interruption of winding.
- 3. Safety valve:** Protection against possible over-pressure in the sterilization chamber.
Action: Release of the steam to restore safe pressure levels.
- 4. Safety micro-switch on the door:** Ensures door is locked and in closed position before program proceeds.
Action: Sends signal if the door is not locked/closed or in wrong position.
- 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: Prevents accidental opening of the door during the program cycle.
- 8. Self-leveling hydraulic system:** Hydraulic system for 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
Silicon dioxide SiO ₂	≤ 1mg/l	≤ 1.0mg/kg
Iron	≤ 0.2mg/l	≤ 0.1mg/kg
Cadmium	≤ 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	0.02mmol / l	0.02mmol / l

Appendix 2:

Diagrams of The Sterilization Programs, 18L (AU2032/AU2033)

Programs	Temperature (°C)	Pressure (kPa)	Holding time (min)	Total time (min)	Type	Max. Load (kg)	Max. Load per tray (kg)
Unwrapped	134	210	4	21-33	Unwrapped instruments	4.50	1.20
	121	110	20	30-50	Unwrapped delicate instruments		
Wrapped	134	210	4	25-45	Wrapped instruments	4.50	1.20
	121	110	20	35-55	Wrapped delicate instruments	3.50	1.10
Prion	134	210	18	45-70	Unwrapped porous material	1.00	0.30
					Single-wrapped porous material	0.75	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
B&D Test	134	210	3.5	22-35	-	-	-
Helix Test	134	210	3.5	22-35	-	-	-
Vacuum Test	-	-	-	19-22	-	-	-

The time required for sterilizer to be ready for routine use after the power is switched on 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

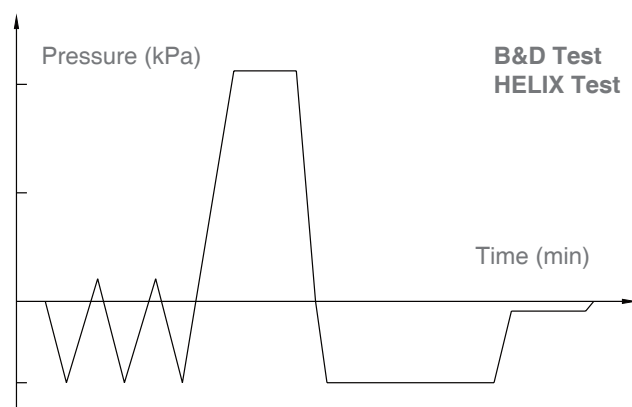
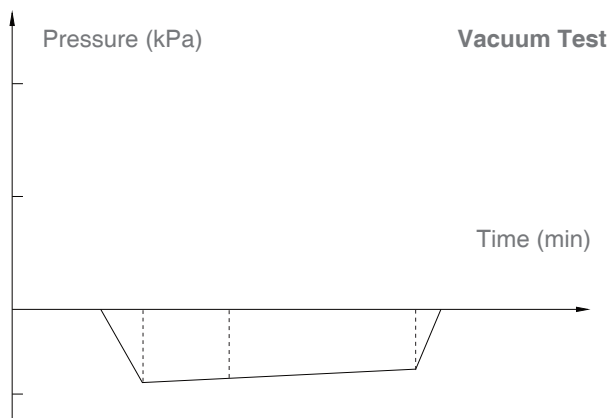
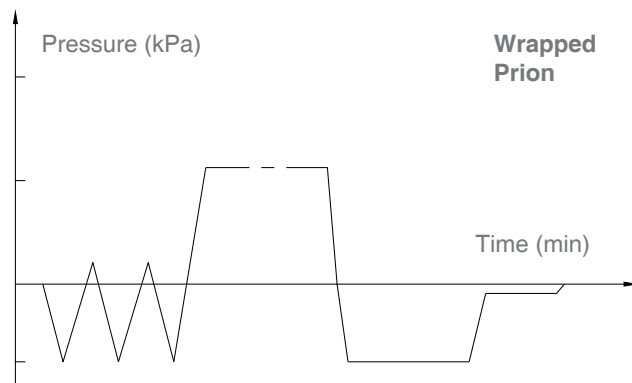
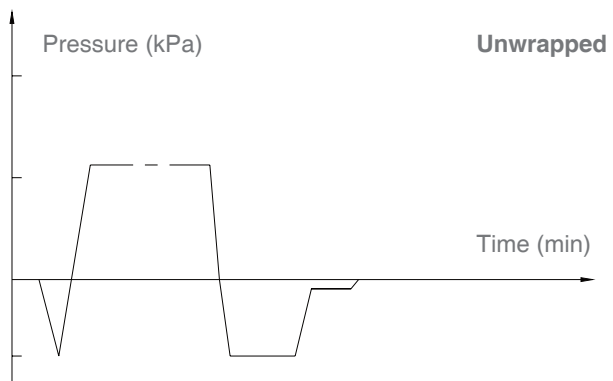
Diagrams of The Sterilization Programs, 23L (AU2027/AU2028)

Programs	Temperature (°C)	Pressure (kPa)	Holding time (min)	Total time (min)	Type	Max. Load (kg)	Max. Load per tray (kg)
Unwrapped	134	210	4	22-35	Unwrapped instruments	5.00	1.50
	121	110	20	30-60	Unwrapped delicate instruments		
Wrapped	134	210	4	30-50	Wrapped instruments	5.00	1.50
	121	110	20	35-65	Wrapped delicate instruments	4.00	1.20
Prion	134	210	18	50-75	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
B&D Test	134	210	3.5	28-35	-	-	-
Helix Test	134	210	3.5	28-35	-	-	-
Vacuum Test	-	-	-	20-25	-	-	-

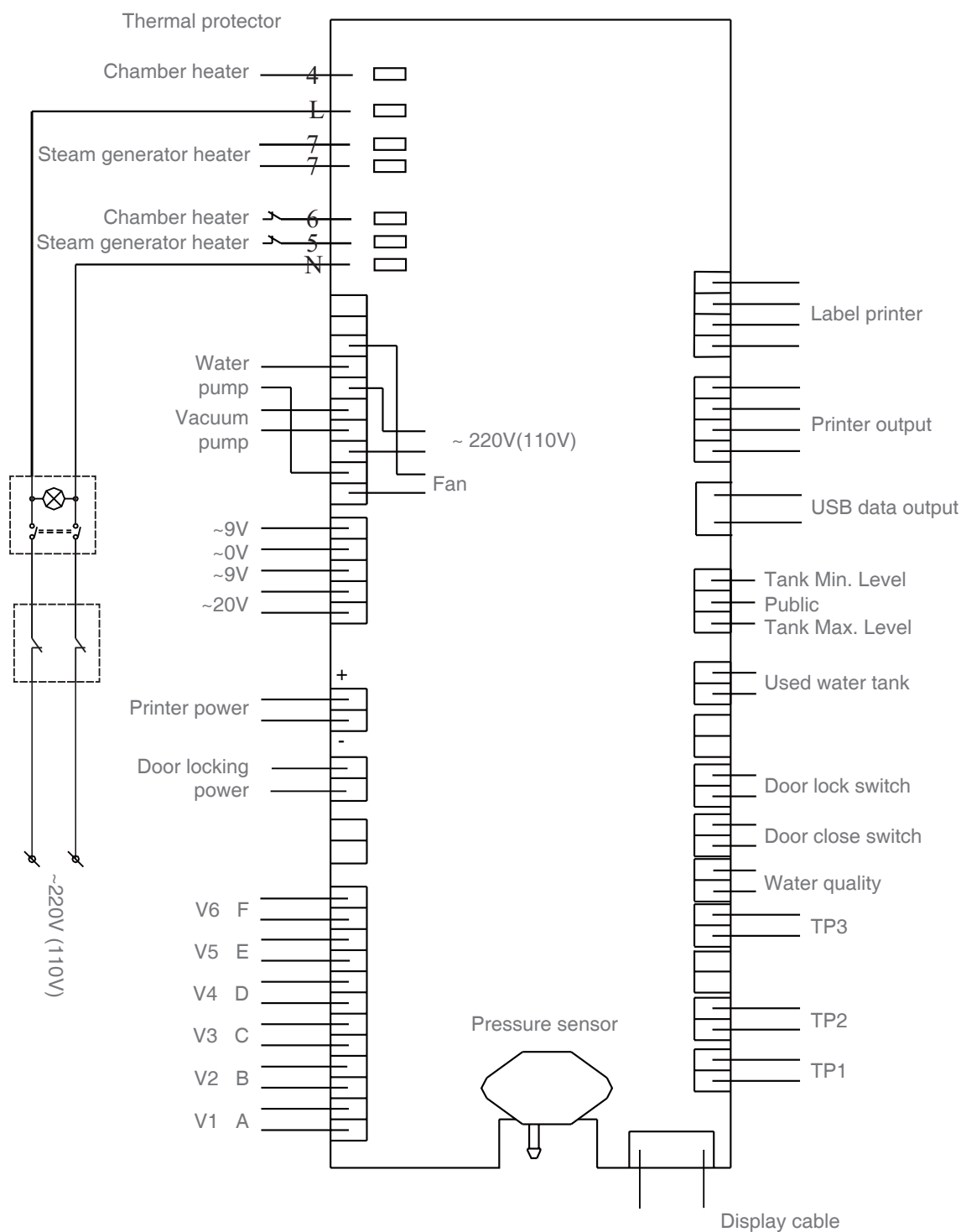
The time required for sterilizer to be ready for routine use after the power is switched on less than 5 minutes.

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

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



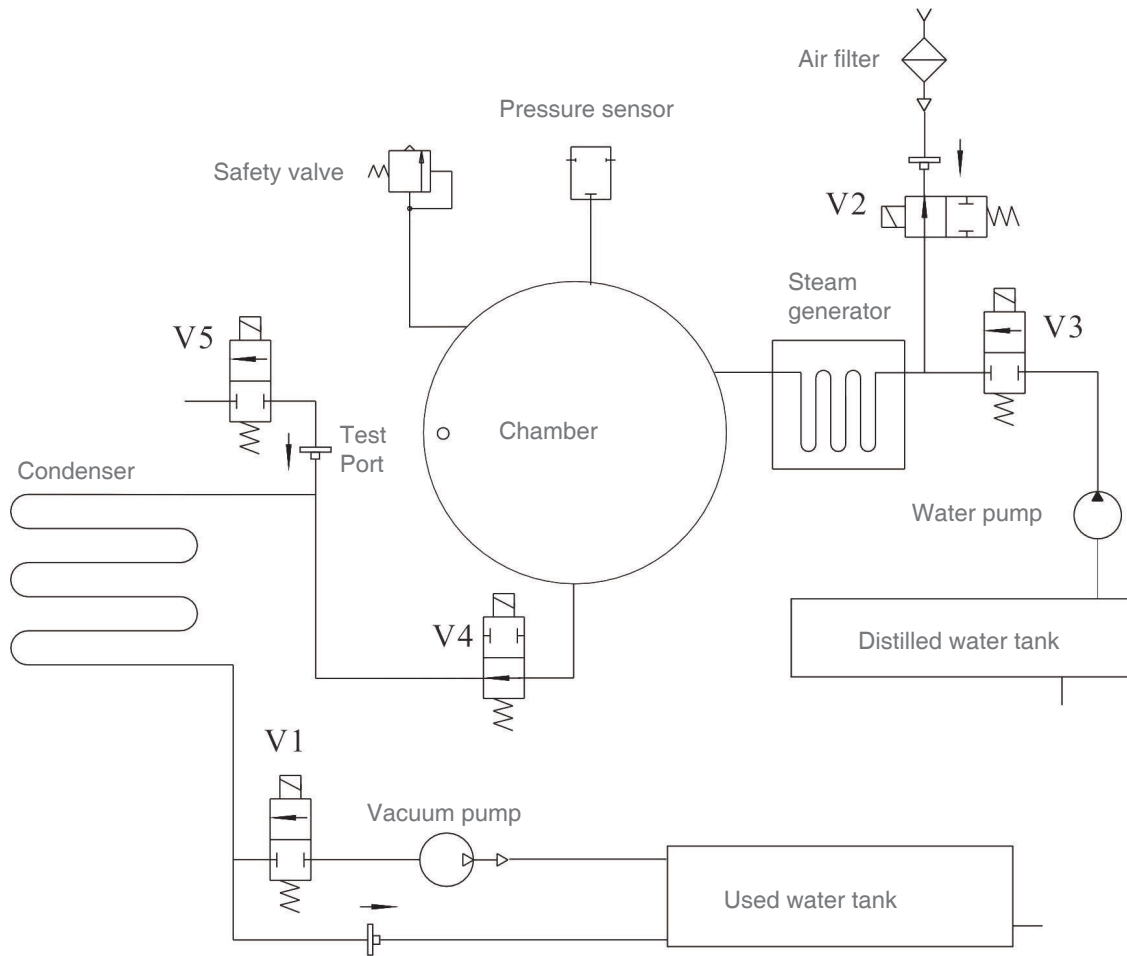
Wiring Diagram



TP1: Steam generator temperature sensor
 TP2: Inner temperature sensor 1
 TP3: Temperature sensor of chamber wall

V1: Vacuum pump valve
 V2: Air filter valve
 V3: Water pump valve
 V4: Water release valve
 V5: Vacuum pump start valve
 V6: Vacuum pump fan

Hydraulic Diagram



- V1: Vacuum pump valve
- V2: Air filter valve
- V3: Water pump valve
- V4: Water release valve
- V5: Vacuum pump start valve

11. Beyes Limited Warranty Statement

11.1 Scope of Warranty

BEYES Dental Canada Inc. ('BEYES') warrants to the original retail purchaser that it will be at BEYES option to repair or replace components of the dental products manufactured by BEYES (except for components not warranted under 'Exclusions') that are defective in material or workmanship under normal use and service. BEYES' obligation under this limited warranty is limited to the repair or replacement of the applicable components. This limited warranty shall only apply to defects that are reported to BEYES within the applicable warranty period and which, upon examination by Beyes, prove to be defective. This warranty extends only to the first retail purchaser of a product and is not transferable or assignable. Replacement components or products may be used and/or refurbished components or products, provided they are of like quality and specifications as new components or products.

11.2 Applicable Warranty Period

The applicable warranty period, measured from the date of invoice to the original user, shall be warranted for a period of 25 months

11.3 Exclusions

This limited warranty does not cover and BEYES shall not be liable for the following;

- (1) defects, damage or other conditions caused, in whole or in part, by misuse, abuse, negligence, alteration, accident, freight damage, negligent storage, tampering or failure to seek and obtain repair or replacement in a timely manner;
- (2) products which are not installed, used, and properly cleaned and maintained as required or recommended in the BEYES 'Installation' and/or 'Installation/User's Manual' for the applicable product, including the specified structural and operational environment conditions and electrical power requirements;
- (3) Products considered to be of a consumable or sterile nature;
- (4) Accessories or parts not manufactured by BEYES;
- (5) charges by anyone for adjustments, repairs, replacement parts, installation or other work performed upon or in connection with such products which are not expressly authorized in writing in advance by BEYES;
- (6) Costs and expenses of routine maintenance and cleaning;
- (7) Representations and warranties made by any person or entity other than BEYES;
- (8) Matching of color, grain or texture except to commercially acceptable standards;
- (9) Changes in color caused by natural or artificial light;
- (10) Custom manufactured products;
- (11) Alterations or modifications to the product by any person or entity other than BEYES;
- (12) Products that would otherwise be covered under Sections 1 and 2 of this limited warranty, but are acquired: (i) from a person or entity that is not BEYES or one of its authorized dealers; or (ii) from a BEYES dealer that is not authorized to sell the product at issue in the geographic territory where the purchaser is located, or is not authorized to sell the product at issue within the medical, animal health or dental market, as the case may be, in which purchaser intends to use the product.

11.4 Exclusive Remedy; Consequential Damages Disclaimer

BEYES' OBLIGATION UNDER THIS LIMITED WARRANTY IS THE REPAIR OR REPLACEMENT OF DEFECTIVE PARTS. BEYES SHALL NOT BE LIABLE FOR AND HEREBY DISCLAIMS ANY DIRECT, SPECIAL, INDIRECT, INCIDENTAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES OR DELAYS, INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFITS OR INCOME, LOSS OF USE, DOWNTIME, COVER AND EMPLOYEE OR INDEPENDENT CONTRACTOR WAGES, PAYMENTS AND BENEFITS.

11.5 Warranty Disclaimer

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