INSTRUCTION MANUAL

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User Registration

On the inscription plate at back of the machine, you may find the unit's model number, serial and reference number. Please double check the number and fill in the form with them and quote the reference number, when you are in contact with your distributors.

Model : _______________  Serial number: ________________
Reference number: ________________

*Before operating the sterilizer, please read carefully all safety cautions and instructions of operation. This operator's manual will help you understand all functions of Autoclaves as far as possible.

*Please follow carefully instructions in this operator's manual While servicing and maintaining the units.

*Please keep this manual safe for your future references.

*Should error occur during operation of the machine, please get in touch with your local distributor or us for our best qualified services and assistance.
Important Information on Safety

Please plug the power in a correct voltage (according to nameplate) electrical socket. Don't use electrical outlets other than the correct voltage; otherwise it might cause fire or electric shock.

Don't wet your hands before plugging or unplugging the power cord.

Don't place your autoclave on an unstable table top, moving desk, tilted or shaking surface.

Don't cover or block the door, ventilation or radiation openings on the autoclave.

Don't put heavy stuff or liquid containers that might spill on the top of the machine.

Please unplug the power cord when the machine isn't used for a long while or when you travel, etc.
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1. Description & Usage

Design and mark pressurized steam autoclaves especially to meet the needs for sterilization of instruments and devices in clinics, departments in a hospital and laboratories. Operators include doctors or his/her assistance under doctors supervisions. The autoclave is computerized, user friendly and easy to operate. Its real time display show all data during the sterilization cycle. The software program provides auto diagnose, protection against over heating or over pressurizing, and thus ensure reliability of the sterilization results. Build-in condenser water collecting system prevents discharge of waste steam and keeps the machine clean and safe.

12L Three times pre-vacuum pressurized steam Autoclave

12L uses the advanced technology of 3 times fractionated -vacuum and Vacuum drying. It enables the hot steam to penetrate in thin tube and porous Material and laboratories to sterilize dental and surgical instruments, dressing and other 135℃ autoclavable stuffs.
2. Specifications

Chamber inner dimensions: (Diameter x Depth) ---------------------------------200Mm x 358mm
Power Supply: ---------------------------------------------------------------According to the nameplate
Sterilizing Temperature/Pressure --121 °C/(1.0-1.3) Bar (Under standard atmospheric pressure)
------------------------------------------134 °C/(2.0-2.4) Bar(Under standard Atmospheric pressure)

Note: Temperature/Pressure here means the chamber temperature and pressure during the phase of sterilization. The value varies under different atmospheric pressure.

Power Fuse ---------------------------------------------------------------T12A
Water reservoir capacity ----------------------------------------------------3.5 liters
Environment temperature-----------------------------------------------------+5 °C ~ +40 °C
Relative Humidity Range------------------------------------------------------30% ~ 75%

Figures

- Package Key
- Test Cycle Key
- Caution & Warning
- Start/Stop key
- Used Water Outlet
- Type B Device
- Select Key
- Cycle Step Key
- Grounding
- Dry Key

Tips: Standard atmospheric pressure: It the atmospheric pressure at sea level. It refers to 1 Standard atmospheric pressure. The value is 0.1Mpa=1000Hpa=1.0 Bar. Atmospheric pressure decreases by higher altitude, for instance; at 3000 meter or lower incremental 1000 meter higher the altitude, the atmospheric pressure decreases by about 0.1bar.
3. Installation

The Autoclave should be installed in a drafty place allowing minimum 10 cm space at all sides and 20 cm at the top. The radiation openings at the side of the machine should not be blocked. The Autoclave should be placed on a leveled counter top. (Fig 3-1)

![Fig 3-1](image1)

![Fig 3-2](image2)

⚠️ Caution:

If the front of the machine is lower than the back Fault “E3” (E3 means it don't dry completely) might occur. You may level up the front to correct this Fault.
Prepare the machine before use

We have installed filtration equipment in the chamber(Fig3-3). You should clean the filtration equipment when use the autoclave for a long time. The instruction how to clean please refer to P16.

Before using the device, you should make electrical connections by using the power cord that comes with the unit. Insert the hollowed end of the power cord into the inlet of the machine and plug the other end on a power outlet. Caution: The power supply can afford 1800VA load. Ok, you can turn on the autoclave now.

Caution: The power supply must afford at least 1800VA load.

Tips: Before using the Autoclave, please check on the local atmospheric pressure. If the pressure is lower than 0.095 Mpa or the Altitude is higher than 500 meters, you will need to contact your distributor who should reconfigure the controller in the device.
4. Control Panel of 12L

Control Panel of 12L (Fig 4-1).

1. Pressure Display
   It displays chamber relative pressure in real time during a cycle. The unit is per Bar.

2. Temperature
   It displays chamber temperature during a cycle. The unit is per Degrees Centigrade °C

3. State display/Error Codes
   It displays all the states of autoclave. (Look at the state form) Error Codes when alarm goes on. You may correct the error accordingly by looking it up in the page of error codes and its corrections.

   Caution: In case of faults, please contact your distributor or the manufacturer immediately.

4. “SELECT” key
   Program choose key. It is used for choosing the temperature. You can choose the right program according to the temperature that instrument can afford. You can also choose B’ program, it can sterilize medical cotton.

5. “PACKAGE” key
   Package choose key. It is used for choosing two types mode of package. According to fact, you can choose wrapped or unwrapped. Non-package use 3 times vacuumize, package use B-standard vacuumize.

6. “Test” key
   It is used for choosing the test program. If you push the button the indication light of B&D goes on, and it means that you have chosen this testing program when you push again, the indication light of Leak goes on, it means that you have chosen this program.
7、 “DRY” key
This key selects the Fast sterilization cycle. With unwrapped instruments, you may use the fast cycle by pressing the DRY key once, the indication light goes on and it indicates that machine is in fast cycle mode. Using autoclave made by us, you may still use this selection to shorten the cycle time.

8、 “STEP” key
This is a post cycle selection key. When a sterilize cycle completes, you may press this key to keep on working or stop working The indication light goes on, and it means that when the cycle is complete, the heating element will stop before the chamber door is opened. When the indication light is off, it means that the chamber will be kept warm after completing a cycle and heating up time is shorter during next cycle. If you don’t want to start the last cycle, you need to press “STEP” key once. Then the indication light will be off.

9、 “START/STOP” key
When you choose the right program, push this button then it starts a cycle. Keeping pressing the key 3 seconds before desiccation phase, the cycle of sterilization will be quitted. Then it will enter 3 minutes dryness. In this program if you press the key again, the program of dryness will be over at any moment. If you press the key at the end of dryness, the cycle will be quitted directly.

10、 “WATER” indication light
When the water volume is low, the light is glinting.

11、 “READY” indication light
When the light goes on, the machines gets ready for sterilization, and the operator can press “start” key to start a cycle.

12、 “RUNNING” indication light
Working light. It means sterilize program is working.
5. Operation of SEA 12L

Please connect the power cord before you start the operation. Press the main power switch at right lower corner of the front panel. The power switch light turns on indicating that power is connected. It will indicate “Ld” when pass examination.

5.1 Fill water
If the water level is lower than the lowest water level. When the power switch is on, select the sterilize program, the “water” indication light may glitting while alarm Beeps. At this time, you need to refill the water reservoir. Please open the water tank and pour water into it by container. Please pay attention to the water level during filling water, you should stop filling when the surface is close to the red water level mark.

![Fig 5-1](image)

**Caution:**
1. Distilled water must be used to prolong life of the machine.
2. Don't tilt the autoclave when there is water in the water reservoir.
3. The condenser water collector should be emptied frequently. It is suggested that the collector be emptied when refilling the water reservoir.
   (Please refer to item 9.2 draining the water.)
5.2 Start a cycle
When water indication light is off, the machine can be started.

5.2.1 Press “SELECT” to set one of the cycles. The key toggles between the cycles at 121°C, 134°C and cotton mode. One of the indication lights turns on to show the cycle you selected. (Fig 5-2)

5.2.3 You may select “DRY” key whether starts the fast sterilization cycle. Press “DRY” key, it will reduce the sterilization time. If you press the button "DRY" on the panel, there are three selections, 1min(with 1min LED on), 5min(with 5min LED on), and 10min(with two LEDs off).

5.2.4 After select above settings, put the instruments into the autoclave which need sterilize.

Caution: Instruments that are ready to sterilize should be placed in the tray not touching one another allowing space for steam to pass through. It is suggest that the tray holder be used to put the tray with instruments inside the chamber to avoid scald. (Fig 5-3)
5.2.5 After the instruments are loaded, you may close and lock the chamber door by turning the door knob clockwise to its locking position. The “READY” indication light goes on. (Fig 5-4)

Caution: The door knob must be turned to its lock position, otherwise, there might be steam leak during a cycle and the alarm appears and displays error code “E6”. If the chamber is in keep warm mode, sometimes it is difficult to close the chamber door because there is still steam inside. You can keep the door open for a while until steam and moisture is vaporized, and the door is easy to close. You may also push the door inwards with some force while turning the door knob to its locking position. If there is still steam leak after you did the above, you may try to readjust the door mechanism by a spanner as per item 6. Door adjustments.

5.2.6 Press “START/STOP” key, the “ready” light goes off, “RUNNING” light turns on, and display shows “HE” the machine starts a sterilization cycle. It takes about 30-60 minutes to complete an automatic cycle that includes heating up, sterilizing and drying. The cycle time depends on the volume of the instruments loaded, the chamber temperature at the beginning of the cycle and the cycle program you selected.
5.2.7 When a cycle completes, the display shows “Ed” the indication light “RUNNING” turns off and the indication light “READY” turns on. At this time You may then open the chamber door and unload the Instruments which are sterilized. (Fig 5-6) At the same time, temperature indicate “prt”, it means that it is Performing print, whether you Performing print, whether you Have install printer, the process can not be omitted. But you needn't care about it. It will not effect the process of opening the door and unloading the instruments. Print process will Disappear automatically.

Fig 5-6

Attention: To ensure autoclave is safe, When water level low alarm sounds, Please be advised add some water first. When you add the water, please don't forget to let condenser water out.

Caution: Always use the tray holder to load or unload the tray with instruments in it, in order to avoid burning injuries.

If you didn't press “STEP” key during a cycle and the indication light is off, it means that the machine is keep warm mode. The sterilization Chamber is kept being heated. This will enable faster cycle that follows.

If you press “STEP” key before end of sterilization, “STEP” indication light goes on, it means that the machine is last time cycle. The chamber starts to cool down completely before the chamber door is open. It should normally be used during the very last cycle of the day.

5.2.8 If you decide to stop using the autoclave for a while, please turn the main power switch off, or unplug the power cord should you not want to use the machine for a long time.

Caution: Never try to open the chamber door if and when the pressure display doesn't show 0. It is suggested that chemical indicator or bio-indicator be used for each and every cycle to ensure the reliability of each sterilization cycle run.
5.3 the instrument rack should be put inside the boiler as the following diagrammatic sketch shows

The first way: (fig1, fig2)

![Fig1](image1.png) ![Fig2](image2.png)

The second way: clockwise rotate the instrument rack by 90°, based on the first way (fig3, fig4)

![Fig3](image3.png) ![Fig4](image4.png)

notes: the circle stamped angle is upalong
6. Door Adjustment

Under normal circumstance the chamber door lock needs no readjustment. Once steam leaking occurs (the seal fails), you may use the spanner to turn the door seal tightener.

6.1 Open the door first.

6.2 Insert the spanner in the gap beneath the plastic cover; use the spanner to lock on the adjusting nut (Fig 6-2). Turn the nut counter clockwise as the figure below (Fig 6-1). This will tighten the sealing plate.

6.3 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 as long as the seal does not leak.

Caution:
Never try to readjust the chamber door while the door is locked.
7. Printer User's Guide

According to the requirement of customer, steam sterilizer can adopt prescriptive printer. Connect the printer and the steam sterilizer with prescriptive cord. Switch on the power, two lights on the printer Panel will go on, means printer has been installed.

Caution: steam sterilizer can only select micro printer offered by us.

Print information explaining:
Date: Sterilize date
CN: name of cycle
C.S.T: The starting time of cycle
Vp1, Vp2, Vp3: vacuum pressure1, vacuum pressure2, vacuum pressure3
Pp1, Pp2, Pp3: The phase of pressure1, the phase of pressure2, the phase of pressure3
H.S.T: the starting time of sterilization.
H.E.T: the end time of sterilization.
D.S.T: the starting time of drying.
C.E.T: the end time of cycle.
Operator: Operator, You can signature name according to practicality instance

Caution: Chinese characters provided by us. The mini-autoclave of is only to equip with the mini-printer of Chinese characters provided by us.

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Sterilization Records

<table>
<thead>
<tr>
<th>Date</th>
<th>06.04.20</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.N.</td>
<td>134 Wrap</td>
</tr>
<tr>
<td>B-</td>
<td>18 m 10 m</td>
</tr>
<tr>
<td>C.S.T</td>
<td>23:15:16</td>
</tr>
<tr>
<td>Vp1</td>
<td>23:21:55</td>
</tr>
<tr>
<td>0.0 0.35.7</td>
<td></td>
</tr>
<tr>
<td>Pp1</td>
<td>23:23:57</td>
</tr>
<tr>
<td>-0.6 033.4</td>
<td></td>
</tr>
<tr>
<td>Pp2</td>
<td>23:23:57</td>
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<tr>
<td>0.1 098.4</td>
<td></td>
</tr>
<tr>
<td>Pp3</td>
<td>23:34:09</td>
</tr>
<tr>
<td>-0.5 081.7</td>
<td></td>
</tr>
<tr>
<td>Pp3</td>
<td>23:34:09</td>
</tr>
<tr>
<td>0.1 104.4</td>
<td></td>
</tr>
<tr>
<td>Pp3</td>
<td>23:41:51</td>
</tr>
<tr>
<td>-0.6 079.9</td>
<td></td>
</tr>
<tr>
<td>H.S.T</td>
<td>23:50:24</td>
</tr>
<tr>
<td>Min:</td>
<td>2.1 135.5</td>
</tr>
<tr>
<td>Min:</td>
<td>2.0 134.6</td>
</tr>
<tr>
<td>Ave:</td>
<td>2.0 135.0</td>
</tr>
<tr>
<td>H.E.T</td>
<td>00:08:27</td>
</tr>
<tr>
<td>D.S.T</td>
<td>00:10:44</td>
</tr>
<tr>
<td>0.2 109.2</td>
<td></td>
</tr>
<tr>
<td>C.E.T</td>
<td>00:10:45</td>
</tr>
<tr>
<td>Result:</td>
<td>Passed</td>
</tr>
<tr>
<td>Operator:</td>
<td></td>
</tr>
</tbody>
</table>

Thanks
8. Function setup:

8.1 Enter function setup mode: Press “STEP” key for 20s when on non-work state (time display “Ld”, pressure display “1”), enter function setup mode.

8.2 Function mode setup: With 7 options, press SELECT key, you can select 1-7-1 cycle display. The definition and display of 7 options as following:

Option 1: year, display “y”er”, press “STEP” or “↑” key increase, press “DRY” or “↓” Key decrease, setup numerical value.
Option 2: month, display “mth”, press “STEP” or “↑” key increase, press “DRY” or “↓” Key decrease, setup numerical value.
Option 3: day, display “day”, press “STEP” or “↑” key increase, press “DRY” or “↓” Key decrease, setup numerical value.
Option 4: hour, display “hor”, press “STEP” or “↑” key increase, press “DRY” or “↓” Key decrease, setup numerical value.
Option 5: minute, display “min”, press “STEP” or “↑” key increase, press “DRY” or “↓” Key decrease, setup numerical value.
Option 6: Printing, it display “Pvt”, press “STEP” key then you can choose the cycle between “on” and “of”. “on” stand for “print”, “of” stand for “no printing”.
Option 7: Exit, when “Eit” displays, please press “START/STOP” to save and exit setup mode.
Option 8: sterilization time adjust, display “S-T” when you setup this option, the sterilization time (SP) will increase at former value. The adjustable range are following 3 kinds. One is increased by 1 minute, Second is increased by 2 minutes, Third is increased by 3 minutes.
Option 9: temperature data adjust automatically option, display D-P. When you setup this option, you can adjust the temperature more or less than 2C-3C in order to meet your request. But we suggest user should setup under guidance of teahnician or not setup.

Press “SELECT” key after setup, you will come back to option 1. At this time, you must press STEP key 3 seconds in option 7. Then you can start the setup of option 8 and option. Otherwise it only can start cycle between option 1 and option 7.

Caution: If some function setup was changed by pressing the key without intention, please switch off the power, then restart it. It will exit from the wrong setup. In this case, the function won’t be affected by this.
9. Maintenance & Maintain

9.1 How to clean the water tank.

9.1.1 Please clean the sterilizer water tank and waste water tank regularly.

1) Empty the tanks water, please refer to item 9.2 draining the water.

2) Open the tank cover board, you can use screw driver to loose the five screws just as fig9-1 indication.

3) Pull up the water tank cover board by one hand, just as fig9-2 indication.

4) Pull up the tank cover completely and you can disassembly the tank cover. See fig9-3 indication.

5) Now you can start to clean the tank, use cotton to dip in some alcohol or medical disinfectant to scour the tank wall, wash it by distilled water, then empty the tank and dry the tank.

6) After you cleaning the tank, assembly the tank cover and tighten the screws.

9.2 Draining of water from the machine Drain the condenser water collector and water reservoir. Connect the water outlet using the one end of the tube without a connector and the other end of the tube to a drainage sink. Then turn the draining knob anti-clock wise to drain the water from the machine. (Fig 9-4)
After a long time usage, maybe some small impurity will deposit on the drain filter, it will affect vacuum and drying. All the impurity is comes from the oil or dirt or dust of the instrument which need sterilization, also maybe comes from the water. In order to prolong the life of the drain filter, please note the following items:

If draining filter plug up, you can solve according to fig 9-5.

1. find the water filter.
2. rotate off the filter screw
3. pull out the filter from the connection.
4. take off the blue rubber which on the filter clean or change a new one as you need.
5. after you clean or change a new filter shim, plug in the water filter back on the chamber connection. Notice: please put the blue rubber down and touch the chamber and rotate tighten the screw nut.

9.3 Change fuse (Fig 9-6)

1. Switch off the power.
2. Unscrew the fuse holder with a screw driver counter clockwise.
3. Pull the fuse holder out with your fingers.
4. Make sure to replace the cooked fuse with a correct fuse.
5. Put back the fuse holder and screw it on clockwise with a screw driver.
6. You may use your hand to change the fuse.
9.4. Clean the seal plate periodically. After using some time, the seal plate might have some scale build-up that might cause leaking. You should clean the seal plate periodically, using a soft cloth soaked with distilled water to wipe the rubber seal and the seal plate clean (Fig 9-7 & 9-8). If there is still leaking, you may need to take the rubber seal out for cleaning. Should the seal be broken, you need to change with a new one.

Remark: providing with seal packing collar for life.

9.4.1 Change of the seal
You will need a flat screw driver without a sharp tip. Pay attention about head of the flat screw driver. The install step according to Fig 9-9.

Caution: Power the machine off and let it cool down before you change the seal and avoid any burning injuries.
10. Transportation & Storage

10.1 Preparation for transportation and storage. Power the machine off, unplug the power cord and let the chamber cool down.

10.2 The autoclave should be transported and stored in the following conditions:
   - Temperature: -40 ~ +55 °C
   - Humidity: ≤ 85%
   - Atmospheric pressure: 500Hpa ~ 1060 Hpa

**Caution: Don't drag the machine while moving.**

11. Warranty

The manufacturer provides a warranty for repair at no charge to the customer for two years after the invoice date with presentation of the invoice. Following are the disclaimers:

11.1 Damage due to improper moving, installing and operating the machine;

11.2 Damage due to dismantling the machine by unauthorized personal;

11.3 Don't have guarantee of end user.

11.4 Inappropriate operation on the machine without following the operator's manual

11.5 Damage caused by power surge, fire or other external matters.
12. Accessories

1). Instrument tray rack 1 set
2). Power cord. 1 pc.
3). Mainboard Fuse 1 pc.
4). Water outlet tube 1 pc.
5). Tray holder 1 pc.
6). Filtrable net 1 pcs.
7). Sealing ring 1 pc.
8). Fuse 2 pc.
9). Draining O ring 2 pc.
10). Level instrument 1 pc.
11). Door adjustment spanner 1 pc.
Appendix.

Form 1 Cycle mode Chart

<table>
<thead>
<tr>
<th>Item</th>
<th>Digital display</th>
<th>Mode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ld</td>
<td>Pre-heating</td>
<td>Preparation and conditioning of the autoclave</td>
</tr>
<tr>
<td>2</td>
<td>HE</td>
<td>Heating</td>
<td>Chamber is being heated and pressurized</td>
</tr>
<tr>
<td>3</td>
<td>Cycle time</td>
<td>Sterilizing</td>
<td>Counting down of sterilizing</td>
</tr>
<tr>
<td>4</td>
<td>Dr_</td>
<td>Venting</td>
<td>Chamber starts to vent and dry</td>
</tr>
<tr>
<td>5</td>
<td>Drying time</td>
<td>Drying</td>
<td>Instruments are being dried.</td>
</tr>
<tr>
<td>6</td>
<td>Ed_</td>
<td>Complete</td>
<td>Cycle is complete and chamber door can be opened</td>
</tr>
<tr>
<td>7</td>
<td>Faults &amp; Error codes</td>
<td>Error codes</td>
<td>Displays error codes, resets and alarm</td>
</tr>
<tr>
<td>8</td>
<td>LE_</td>
<td>Balance state</td>
<td>When change the state, the pressure of inside and outside the Autoclave should be the same.</td>
</tr>
</tbody>
</table>

Form 2 Work mode chart

Sterilize mode, as following(12L):

<table>
<thead>
<tr>
<th>Sterilizing temperature</th>
<th>134 °C package</th>
<th>134 °C non package</th>
<th>121 °C package</th>
<th>121 °C non package</th>
<th>134B+</th>
<th>BD test</th>
<th>Vacuum test cycle</th>
<th>CLEAN test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sterilizing pressure</td>
<td>2.10</td>
<td>2.10</td>
<td>1.10</td>
<td>1.10</td>
<td>2.10</td>
<td>2.10</td>
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<tr>
<td>Classes</td>
<td>S</td>
<td>B</td>
<td>S</td>
<td>B</td>
<td>B</td>
<td>---</td>
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<tr>
<td>Pre-heating min</td>
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<td>0-7</td>
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</tr>
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<td>Vacumize time min</td>
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<td>4</td>
<td>10</td>
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<td>4</td>
<td>Clean 20</td>
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<td>Admission time min</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>---</td>
<td>Drying</td>
<td>---</td>
</tr>
<tr>
<td>Sterilizing time min</td>
<td>4</td>
<td>6</td>
<td>16</td>
<td>20</td>
<td>18</td>
<td>3.5</td>
<td>Keep pressure 10</td>
<td>10</td>
</tr>
<tr>
<td>Drying time min</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>1</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Quick drying time</td>
<td>1/5</td>
<td>1/5</td>
<td>1/5</td>
<td>1/5</td>
<td>1/5</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Total time min</td>
<td>30(21/25)</td>
<td>38(29/33)</td>
<td>42(33/37)</td>
<td>52(43/47)</td>
<td>50(41/45)</td>
<td>26.5</td>
<td>14</td>
<td>30</td>
</tr>
</tbody>
</table>
## Form 3  ERROR CODE CHART

<table>
<thead>
<tr>
<th>Serial number</th>
<th>Code</th>
<th>Error</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>E1</td>
<td>Sensor error</td>
<td>Examine sensor</td>
</tr>
<tr>
<td>2</td>
<td>E2</td>
<td>Super pressure (&gt;2.6 Bar)</td>
<td>Examine inner temperature sensor</td>
</tr>
<tr>
<td>3</td>
<td>E3</td>
<td>Chamber temperature (&gt;145 °C)</td>
<td>Examine outer temperature sensor</td>
</tr>
<tr>
<td>4</td>
<td>E4</td>
<td>Constant temperature and constant pressure failed</td>
<td>Rerun parameter autoadjust program</td>
</tr>
<tr>
<td>5</td>
<td>E5</td>
<td>Puts the steam defeat (20S &lt; 0.3 Mba)</td>
<td>Inspect puts the steam valve, the vacuum valve</td>
</tr>
<tr>
<td>6</td>
<td>E6</td>
<td>Door is opened when on working</td>
<td>Examine door switch</td>
</tr>
<tr>
<td>7</td>
<td>E7</td>
<td>Steam generator ultra warm (&gt;240 °C)</td>
<td>Inspect steam generator temperature sensor</td>
</tr>
<tr>
<td>8</td>
<td>E8</td>
<td>Pre-heating failed (&gt;20 min)</td>
<td>Examine the electric connection of temperature sensor, heat ring and heat stick</td>
</tr>
<tr>
<td>9</td>
<td>E9</td>
<td>Admission defeat (&gt;30 min)</td>
<td>Examine electric connection of heat stick, Admission pipeline</td>
</tr>
</tbody>
</table>
Fig 1.

**Cycle Chart at 134°C**

1-2 Pre-heating  
2-3 Pre-vacuum  
3-4 Sterilizing  
4-5 Venting  
5-6 Drying  
6-7 Pressure balance  
1-7 Sterilizing cycle

**Cycle Chart at 121°C**

1-2 Pre-heating  
2-3 Pre-vacuum  
3-4 Sterilizing  
4-5 Venting  
5-6 Drying  
6-7 Pressure balance  
1-7 Sterilizing cycle
Cycle chart & schematics of 12L
Piping diagram of 12L

Fig 2.
Troubleshooting

1. During venting or drying, the thump sounds. It means that the condensed water collector is full. You must drain the water from the collector.

2. Hissing from the chamber door. (Solving this problem according to item 6 Door Adjustment)

3. During a cycle, a banging sound and large steam leaks from the chamber door and displays “E6” code. Please verify whether the door knob is properly turned and locked. If the steam leaks at the beginning of a cycle, you need to change the seal according to instructions at page 17.

4. When a cycle completes, there are water drops on the instruments.

   You may correct the problem by:
   1). Please check the drain filter.
   2). Reduce the load of the instrument in the chamber, especially the porous and dressing and other water absorbent materials.
   3). You may also wait for a while at the end of a cycle “Ed” for better drying result. The autoclave will continue heating the chamber until you open the door.
Important information

1. The autoclave must be installed on a leveled counter top.

2. When operated at a higher elevation of more than 500 meters, the machine must be reprogrammed. Please get in touch with your distributor for instructions.

3. Distilled water must be used to prolong the life of the machine.

4. The radiation openings in the machine must not be blocked or covered.

5. Instruments should be placed on the tray allowing space between one another and thus allowing steam to pass through.

6. Condensed water collector must be emptied from time to time. It should be emptied when refilling the water reservoir. (Draining of the collector can be followed as per item 9.2)

7. Chamber door knob must be turned to its locking position.

8. Never try to open the chamber door before pressure displays “0.0”.

9. To avoid burning injuries, power off the machine and let it cool down before replacing the seal.

10. No dragging when the machine is moving.

11. Power connection must be grounded properly.

12. Must be provided enough power. (1800VA)

13. While the temperature of outside is lower, please pre-heating the machine without instruments for 30 minutes before sterilize.