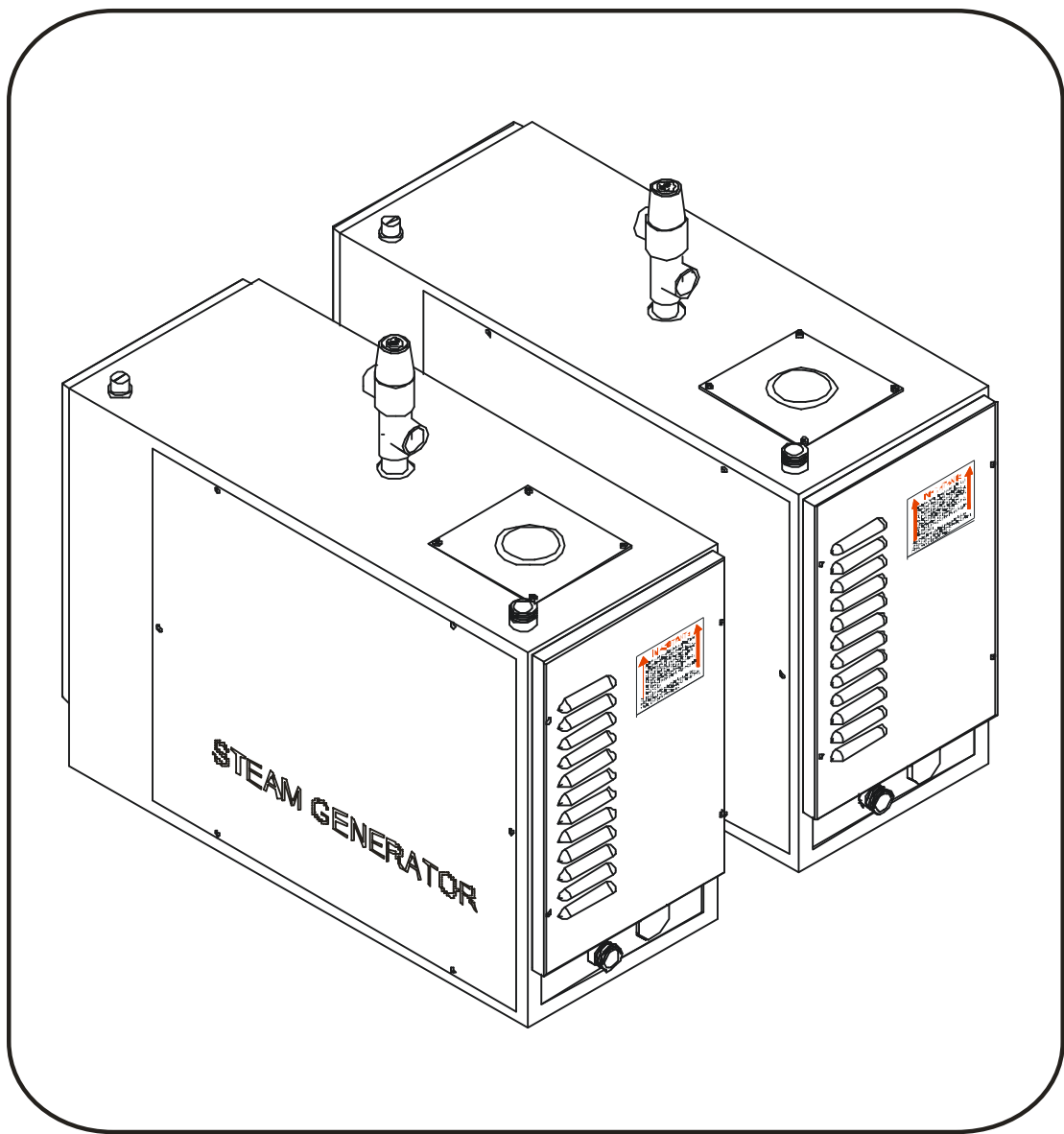


OC-B SERIES

STEAM GENERATOR

- USER MANUAL



## FOREWORD

Thank you for choosing our OC-B Series steam generator, please take the time to read these instructions before you begin as they contain important information about the installation operation and maintenance requirements.

OC-B Series steam generators are available in specifications from 3kw to 18kw and are equipped with our OC-B intelligent controller. With this you can control not only the temperature and time duration of your steam bath but also the light and fan of the steam room if installed, the automatic drain valve, automatic descaling, change the temperature display between Centigrade and Fahrenheit; alter the working mode, as well as displaying the steam generator's status by the 8 LEDs on the panel. Please note also that one "OC-B" controller can control multiple OC-B Series steam generators.

Every OC-B Series steam generator is thoroughly tested before leaving the factory so there may be the remains of water inside the boiler.

### IMPORTANT

- ★ read the manual before installation and operation
- ★ This appliance must be connected to an all pole isolator
- ★ This equipment must be installed by a competent person
- ★ Disconnect the power supply before exposing electrical connections.
- ★ Confirm the right voltage to your steam generator 1 or 3 phase.

### SAFETY PRECAUTIONS for steam bathing

- ★ Elderly persons, pregnant women, or those who is suffering heart disease, high blood pressure, diabetes or not in good health are advised to seek medical opinion before using a steam room.
- ★ Do not smoke in the steam room
- ★ Avoid using the steam room immediately after strenuous exercise
- ★ Do not use the steam room when under the influence of alcohol
- ★ Leave the steam room at once if you feel sleepy, sick or uncomfortable.
- ★ Ensure good ventilation through the steam room – 10cubic meters per bather per hour recommended.
- ★ We do not recommend this product is used by children under 16.
- ★ Commercial operators should post a notice of these precautions in a prominent position

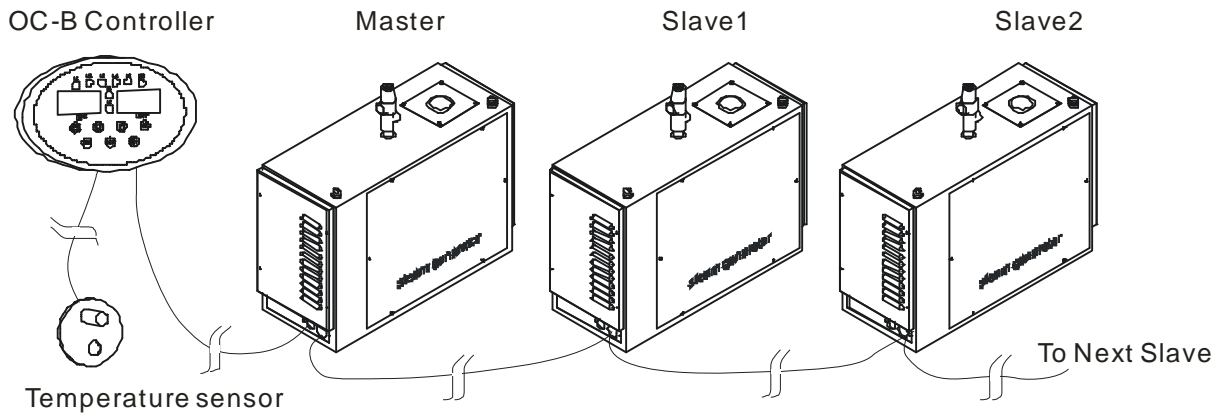
## Chapter one: Specification

Please note that may not all models be available from your dealer.(chart 1)

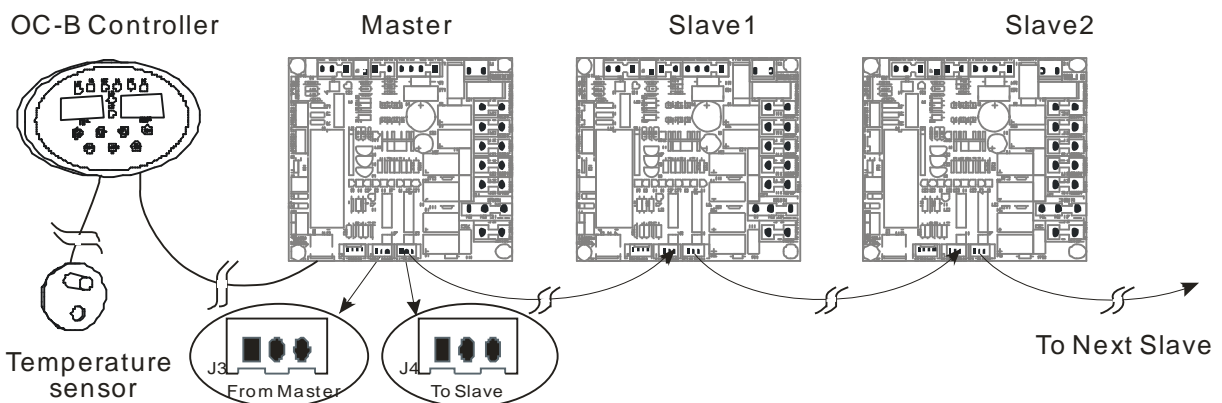
| Model  | Power(KW) | Voltage (V) | Phase(N~) | Current(A) | Dimensions(mm)<br>(L×W×H) |
|--------|-----------|-------------|-----------|------------|---------------------------|
| OC-30B | 3.0       | 230/400     | 1/3       | 13/4.3     | 530×180×330               |
| OC-40B | 4.0       | 230/400     | 1/3       | 17/5.8     | 530×180×330               |
| OC-45B | 4.5       | 230/400     | 1/3       | 19.5/6.5   | 530×180×330               |
| OC-50B | 5.0       | 230/400     | 1/3       | 21.7/8.7   | 530×180×330               |
| OC-60B | 6.0       | 230/400     | 1/3       | 26.4/8.7   | 530×180×330               |

|         |      |         |     |           |             |
|---------|------|---------|-----|-----------|-------------|
| OC-70B  | 7.0  | 230/400 | 1/3 | 30/13     | 530×210×370 |
| OC-80B  | 8.0  | 230/400 | 1/3 | 34.8/13   | 530×210×370 |
| OC-90B  | 9.0  | 230/400 | 1/3 | 39/13     | 530×210×370 |
| OC-100B | 10.0 | 230/400 | 1/3 | 43.5/15   | 530×210×370 |
| OC-105B | 10.5 | 230/400 | 1/3 | 45.6/15   | 530×210×370 |
| OC-110B | 11.0 | 230/400 | 1/3 | 47.8/17   | 530×210×370 |
| OC-120B | 12.0 | 230/400 | 1/3 | 52.0/17   | 530×210×370 |
| OC-135B | 13.5 | 230/400 | 1/3 | 56.0/19.5 | 530×230×460 |
| OC-150B | 15.0 | 230/400 | 1/3 | 65/21.7   | 530×230×460 |
| OC-180B | 18.0 | 230/400 | 1/3 | 78.0/26.1 | 530×230×460 |

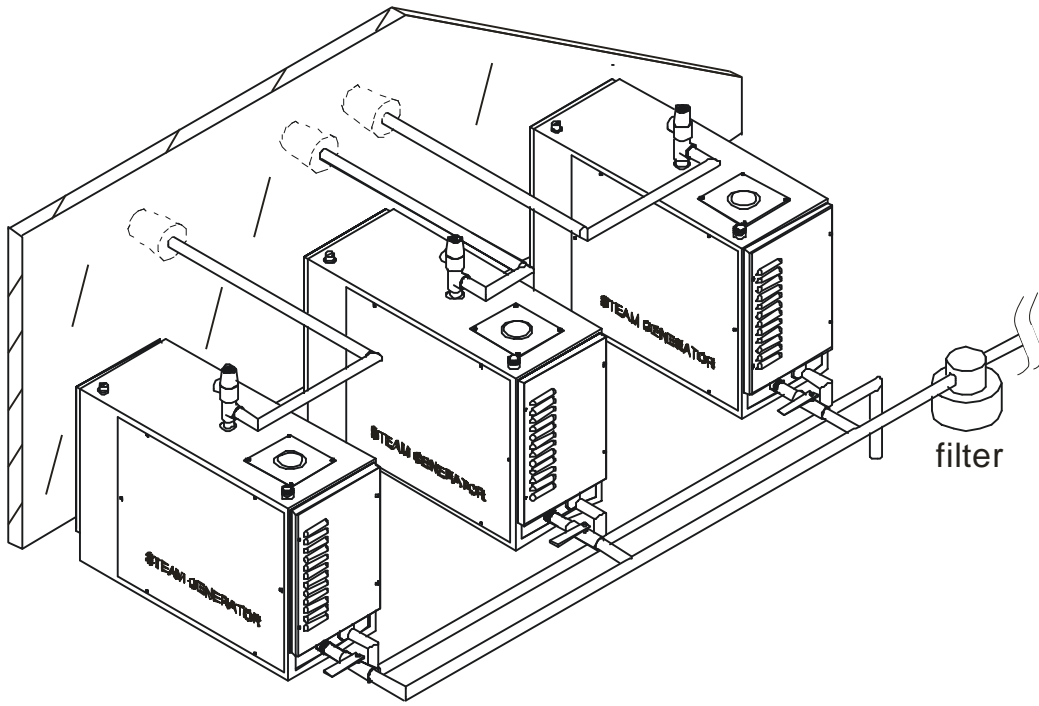
Remarks if greater power is required one **OC-B** controller may be used to control two or more steam generators, e.g. if you need a 30KW steam generator you can use one OC-B controller to control two 15kw steam generator or three 10 kw steam generators .



(Fig-1)



(Fig-2)



(Fig-3)

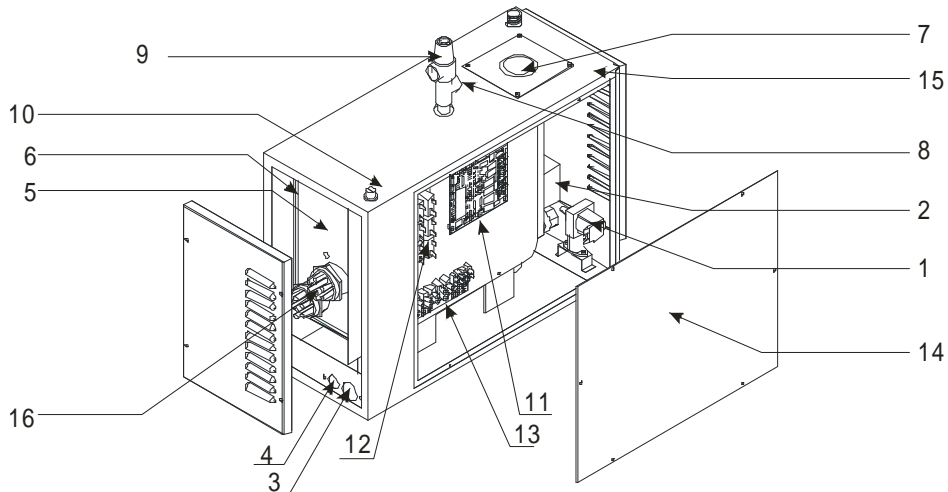
1. parameter and dimensions of OC-B controller (chart 2)

| model | working time (minutes) | Temperature         | Dimension (L×W×Hmm) | remarks                                                                                                               |
|-------|------------------------|---------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------|
| OC-B  | 10-240                 | 30-60°C<br>86-140°F | 150×92×22           | When the time window displays “no” the generator will operate continuously until it is switched off.                  |
| OC-S  | 30                     |                     | 60×60               | Steam on demand switch, press once it will work 30 minutes , press again ,it stop works , special for commercial user |

## Chapter two: the frame and functions of the OC-B series steam generator

Parts description of the steam generator

(1) The frame of steam generator (Fig-4)



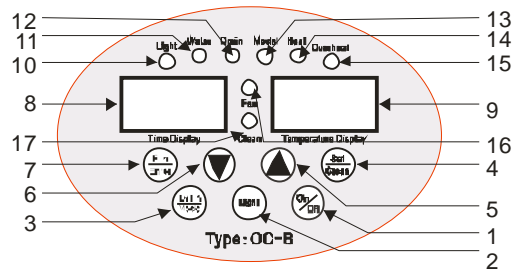
(Fig-4)

(2) Parts instruction (chart 3)

| No. | Part                      | description                                                   |
|-----|---------------------------|---------------------------------------------------------------|
| 1   | Water inlet valve         | Automatically controls the water flow (maximum pressure 2bar) |
| 2   | Drain valve               | Controlled by controller .turn on or turn off to drain water  |
| 3   | Power entry               | The route of power wire                                       |
| 4   | Control cable entry       | The route of control cable                                    |
| 5   | Stainless steel tank      | boiler                                                        |
| 6   | Insulation material       | Reduce the loss of the boiler heat                            |
| 7   | Water lever probe         | Detect the water level                                        |
| 8   | Steam outlet              | Steam outlet                                                  |
| 9   | Pressure relief valve     | Operates if the pressure in the boiler exceeds 0.12MPa        |
| 10  | Overheat switch           | Boil dry protector operates at 110 °C                         |
| 11  | Main circuit board        | Control center                                                |
| 12  | Accessorial circuit board | Connect and control the heat element                          |
| 13  | terminal                  | Connection for power supply                                   |
| 14  | Earth wire plug           | Connection for earth wire                                     |
| 15  | Descaling liquid inlet    | Descaling liquid inlet (1/2 inch)                             |
| 16  | Heat element              | Heat element                                                  |

Parts description of OC-B controller.




(1)、OC-B controller(Fig-5)



(Fig-5)

(2)、Part description(Chart 4)

| No. | Part | description                                                                                                                |
|-----|------|----------------------------------------------------------------------------------------------------------------------------|
| 1   |      | Push to operate                                                                                                            |
| 2   |      | Push to operate                                                                                                            |
| 3   |      | Dual function button push to select steam on demand mode or to drain the generator manually when not steaming.             |
| 4   |      | Dual function button used when steaming to set the time/temperature and when not steaming to begin the automatic descaling |

|    |                                                                                   |                                                                                                                                                                                                                                                                        |
|----|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5  |  | Increase button                                                                                                                                                                                                                                                        |
| 6  |  | Decrease button                                                                                                                                                                                                                                                        |
| 7  |  | Dual function button switches a fan on and off also used to confirm changes in temperature settings.                                                                                                                                                                   |
| 8  | Time display window                                                               | Display the resting and operating time of the steam generator                                                                                                                                                                                                          |
| 9  | Temp display window                                                               | Display the detected temperature of steam room                                                                                                                                                                                                                         |
| 10 | Light LED                                                                         | Indicator LED for the lamp of steam room .it is on/off with the on/off of the lamp in steam room                                                                                                                                                                       |
| 11 | Water LED                                                                         | Indicator LED for water level .red means water is filling. green means water level arrived control point.note:if the LED always in red (exceed 5 minutes).check water supply and if water level valve is block .otherwise the water level inlet valve will be broken . |
| 12 | Drain LED                                                                         | Indicator LED for draining – shows red for manual draining and green for automatic draining at the end of the cycle.                                                                                                                                                   |
| 13 | Mode LED                                                                          | Shows red is for steam on demand mode and green for conventional timing.                                                                                                                                                                                               |
| 14 | Heating LED                                                                       | Green indicates heating is on, red indicates the required temperature has been reached and the heating has stopped                                                                                                                                                     |
| 15 | Overheat LED                                                                      | Indicator LED for over heat ,red means the steam generator was cut off as the heat element is too hot (lack of water ,the heat elements may worked in air)                                                                                                             |
| 16 | Fan LED                                                                           | Indicator LED for Fan the lamp of steam room .it is on/off with the on/off of the lamp in steam room                                                                                                                                                                   |
| 17 | Clean LED                                                                         | Indicator LED shows descaling in operation.                                                                                                                                                                                                                            |

**Remarks: Please note for the generator to operate in steam on demand mode the steam on demand button must be connected.**

### (3)、OC-S Steam on demand switch

The steam on demand switch can be located inside or outside of the steam room then connected to the controller.

When the switch is operated the LED indicator inside the switch shows red and steam will be generated for 30 minutes. At the end of 30 minutes or if the switch is operated again, the light will go out and the steam will stop. (Notice: Press about 5 seconds “Drain/Model” button, The time display shows” Long”, then enter “OC-S” mode.)

### (4)、commercial mode instruction(OC-B+OC-S )

If OC-B is under domestic model, only OC-B control the steam generator .OC-S doesn't work. When OC-B enter commercial model, The steam generator is under waiting status (the time window shows “Long” and on circuit board the LED is flashing) , press OC-S it will operate steam generator , every press will make the steam generator keep on working for 30 minutes , the temperature control will rely on the OC-B controller's setting before enter commercial model

## Chapter three: installation

- ★ Isolate the power supply before installation
- ★ Confirm the model you have selected is suitable for your steam room, please refer to chart 5

| Chart 5 |       |                                     |         |        |                                     |
|---------|-------|-------------------------------------|---------|--------|-------------------------------------|
| Model   | Power | Steam room volume (m <sup>3</sup> ) | Model   | Power  | Steam room volume (m <sup>3</sup> ) |
| OC-30B  | 3.0KW | 1.5-3                               | OC-100B | 10.0KW | 6 - 11                              |
| OC-40B  | 4.0KW | 1.8 - 4                             | OC-105B | 10.5KW | 7 - 11                              |
| OC-45B  | 4.5KW | 1.8– 5                              | OC-110B | 11.0KW | 7 - 12                              |
| OC-50B  | 5.0KW | 2.5 – 5                             | OC-120B | 12.0KW | 8-12                                |
| OC-60B  | 6.0KW | 4 -6                                | OC-135B | 13.5KW | 11-1 6                              |
| OC-70B  | 7.0KW | 5 -7                                | OC-150B | 15.0KW | 11-1 6                              |
| OC-80B  | 8.0KW | 5-9                                 | OC-180B | 18.0KW | 13-19                               |
| OC-90B  | 9.0KW | 6 - 10                              |         |        |                                     |

- ★ Mount the steam inlet nozzle approximately 300mm up from the floor and it should be at least 200mm from person's body.
- ★ If the steam generator is installed in an inaccessible place ensure that both the electrical power and water supply can be isolated in an emergency.
- ★ The minimum water inlet pressure is 0.025MPa and the maximum is 0.8MPa, advise the water pressure not exceed 0.5MPa
- ★ The steam pipe from steam generator to steam room should be kept to a minimum, pipes longer than 5 meters should be insulated to prevent heat loss. Steam pipes will be hot during use and must be protected against accidental contact.
- ★ Keep the number of right angle bends to a minimum and ensure that the track of the pipe does not create a trap into which condensate would gather and cause a blockage. I.e. the pipe must not go down and then up.
- ★ There must be no valve or other blockage in the steam pipe
- ★ The steam pipe should be metal of other material which can endure 150° C temperature, copper pipe is recommended.
- ★ It is not recommended to install the Steam generator outdoors or where it might be affected by frost. Allow for a minimum space of 0.5 cubic meters to install the generator.
- ★ Steam generator should be level side to side and front to back and should be installed so that the arrows on the case point up.
- ★ Do not install the steam generator in close proximity to hazardous substances.

The following table should be referred to for guidance only. Please note that the size of heater required to heat a particular size of steam room will vary according to a number of factors including the type of material used for construction, the height of the steam room and the ambient temperature.

For lightweight materials such as plastics and laminates 1 KW will heat up to 1 cubic meter of air for dense materials such as stones and ceramics which will conduct the heat away more rapidly allow for up to 2KW per cubic meter of air. Hot air rises so restricting the height to around 2 meters will ensure the user is sitting

in the steam for higher ceilings you may need to increase the power requirement.

The following table is given as a guide, ambient air temperatures and frequency of use (number of door openings) can also affect the power requirements.

**Installation**

The steam generator should be installed in dry well ventilated place in close proximity to the steam room. It can be placed on the floor or hung on wall. In order for installing and maintenance, please refer the Fig-7 to prepare enough space.

To hang the generator on a wall drill 3 holes 8mm in diameter in accordance with the table below and use the wall plugs and screws provided. Fix the top 2 screws in place first then hang the generator by the 2 keyhole shaped holes in the back plate. Then with the front cover removed fix the 3rd screw to secure the unit in place.

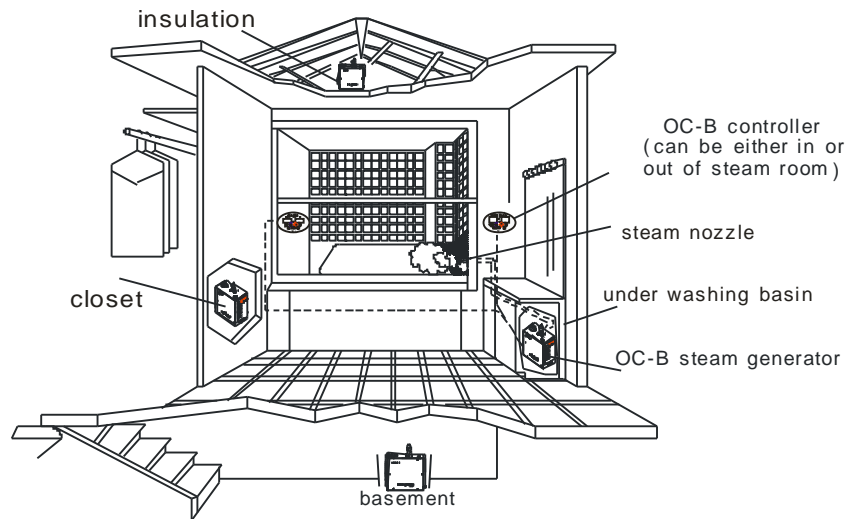


Fig-6

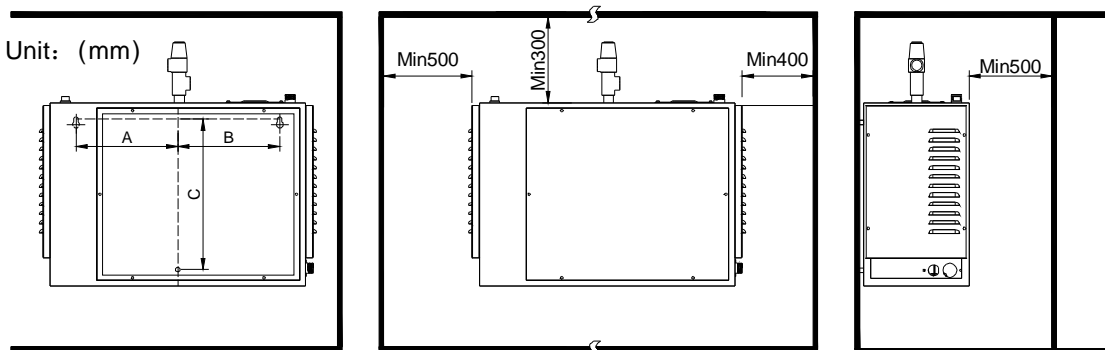


Fig-7

chart-6

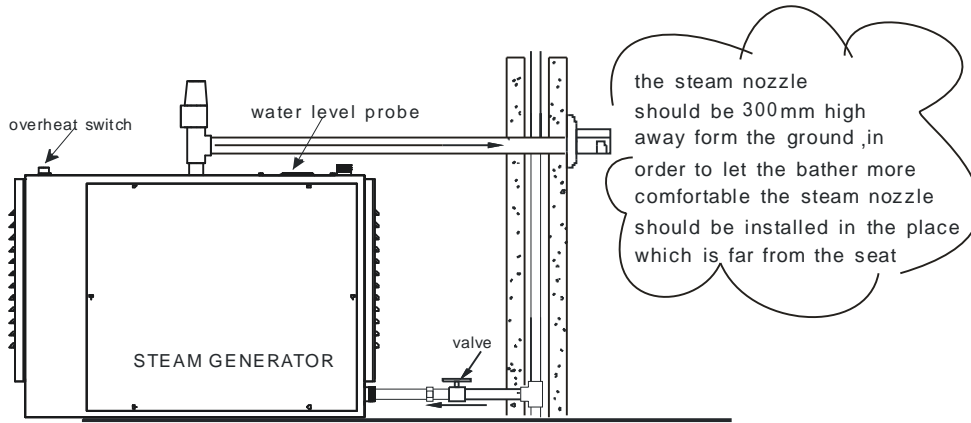
| Model           | A   | B   | C   |
|-----------------|-----|-----|-----|
| OC-30B~OC-60B   | 215 | 215 | 275 |
| OC-70B~OC-120B  | 215 | 215 | 315 |
| OC-135B~OC-180B | 215 | 215 | 405 |

**Water and steam connection**

- a. The water supply pipe and steam pipe should comply with local standards



- b. Connect the water inlet valve of the generator to the 15mm mains water supply using a flexible hose with 1/2 inch fittings.
- c. Steam outlet (1/2 inch or 3/4 inch) use the same dimension copper pipe to connect it, if the steam pipe is longer than 5 meter it should be insulated. During use the steam pipe will be very hot and must be protected against accidental contact. Note that according to the location it may be necessary to attach an additional length of pipe to the pressure relief valve in order to divert the steam flow to a safe direction should the valve operate.



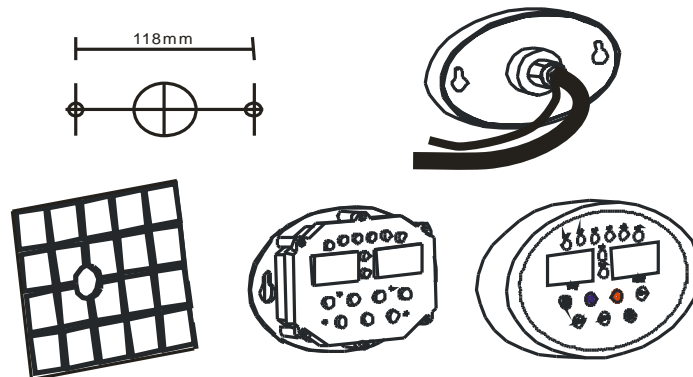
(Fig-8)

- d. Connect the drain outlet to a suitable drain via a copper pipe with the appropriate fittings.
- e. Make a secure connection between steam nozzle & steam pipe.
- f. Use non corrosive hose with 1/2 inch unions to connect between the descaling liquid container and the inlet valve; note the descaling liquid container must be mounted at least 500 mm above the steam generator.

Installation for controller and temperature probe.

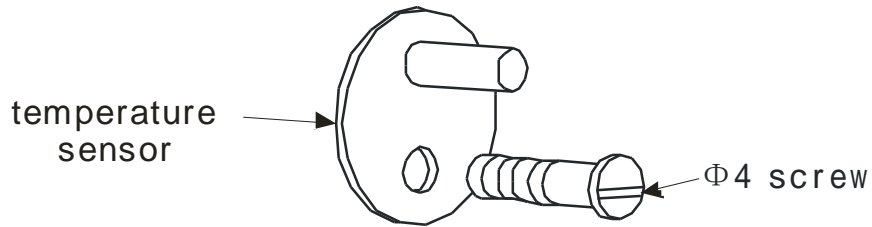
OC-B controller is water proof and can be installed inside or outside the steam room according to customer preference.

- (1) Ideally the control panel should be installed at a height of approximately 1200mm for ease of use.
- (2) Installation method: drill a  $\Phi 40$ mm hole on wall. Open the front cover of steam generator .pin the control cable (6 cores) and temperature sensor cable (2 cores) to the relevant ports. Put the protuberant back of controller in the hole the bottom of controller press close to the wall .then fix it and cover the cover.
- (3) Control panel installation: pin one end to circuit board ports in steam generator connects the other end to the controller's cable.



(Fig-9)

- (4) Temperature probe installation: the temperature probe is installed inside the steam room at approximately 1.2 to 1.5 meters high and away from the door. Use a  $\Phi 4$ mm screw fix it in place and then connect to the wire from the controller.

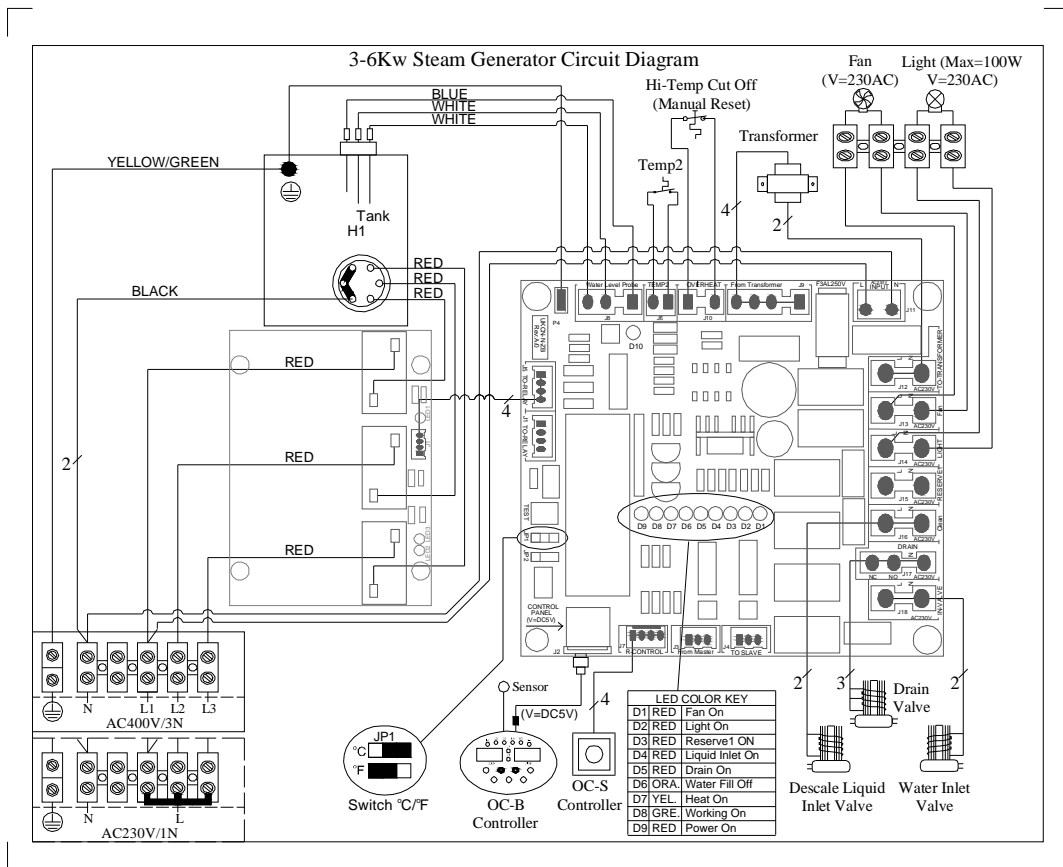


(Fig-10)

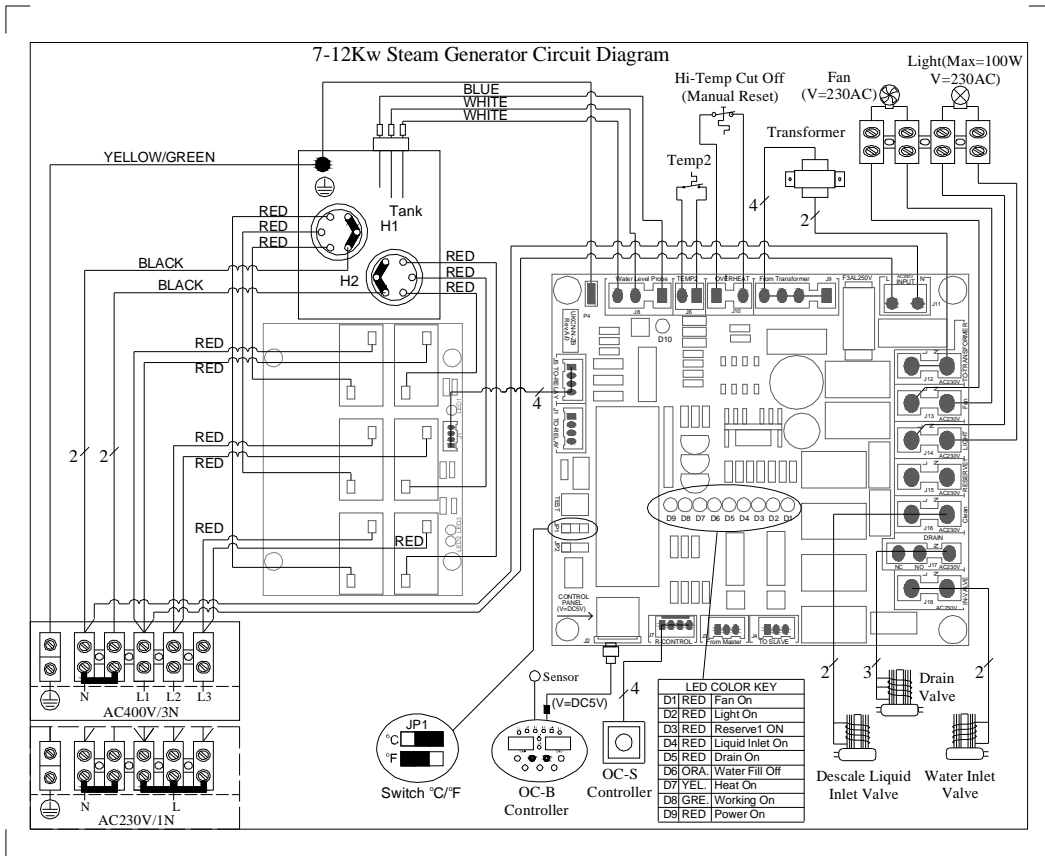
Installation for power supply and control cable

Confirm the correct voltage of power supply and wires.

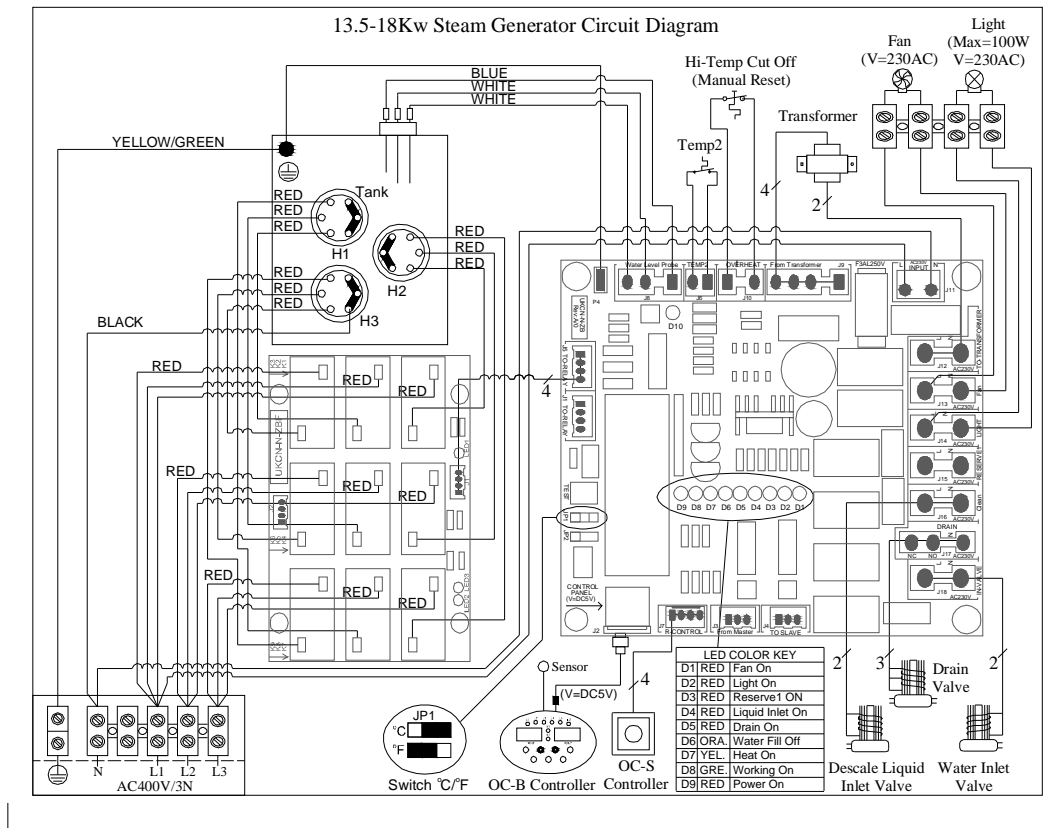
Remove the knock out for the power cable entry and use a rubber grommet to protect the cable, connect to the conductors to the correct terminals for single phase power supply use the copper bridge connectors, for 3 phase supply remove them.



(Fig-11)



(Fig-12)



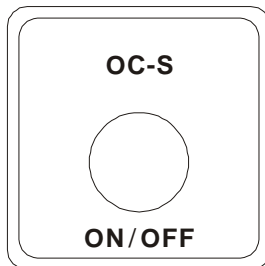
(Fig-13)

Remove the knock out for the control cable entry and use a rubber grommet to protect the cable, connect the cable to the relevant port on circuit board.

Ensure the power supply wire and control cable remains separated to prevent magnetic field of power supply wire from disturbing control cable signal.

### Steam on Demand Function


Commercial operators may wish to take advantage of the steam on demand function which will allow customers to press the steam on demand button located inside the steam room after which the generator will operate for 30 minutes then stop until activated again.



To operate the steam on demand function install the controller inside the plant room alongside the generator then fit the push button supplied in a convenient location inside the steam room and connect to the controller with the cable provided.


## Chapter Four: Testing and operation


(1) Once the installation has been completed and checked turn on power and water supplies carry out the following test.

(2) On the control panel press the “” key, (the key has a time-lapse function, press it for 1 second), the time and temp windows display the data.

(3) The water inlet valve turns on & water enters the boiler, the indicator LED is red. When the water level rises to the low water sensor level the elements switch on and the heating indicator LED is on, several seconds later when the high water sensor is reached the water inlet indicator LED changes to green and the water inlet valve will turn off.

(4) After a few minutes of operation it will begin steaming, for small steam generator 2-3 minutes, for larger generators 3-5 minutes.


(5) Press the “” key again the controller turns off, there will be no data on display and the generator will stop - no more steam.

(6) Press the “” key once more (temp and time display again) after a few seconds the generator will begin steaming again, let the generator operate for a short while - the water level will fall to the low water level, check that the water inlet valve opens automatically (the water inlet indicator LED becomes red) During the cold water enters boiler, the steam generator still produce steam once the high water level is reached again the water inlet valve will close the and the LED will go back to green.

(7) The time display counts down to show the remaining time, when it reaches 0 the steam generator will stop heating.


(8) Once the steam generator has operated for 10 minutes or more when it is turned off (manually or automatically) it will enter the automatic drain down cycle; this means once the temperature of the water in the boiler falls below 80 °C it will drain and then flush before it can start steaming again.


Note when the steam generator is off you can drain it manually (flush boiler and drain) by pressing the “drain” button – drain LED starts flashing - note that the water will only start draining once the temperature has fallen below 80 °C .


(9)  This button has 2 functions if the generator is off this button can be used to drain the generator manually. If the generator is switched on it is used to select the steam on demand operating mode.

(10) When the preset temperature for the steam room is reached 2 of the 3 element banks will switch off allowing just the 1 bank to continue heating to maintain the temperature. Elements will cycle on and off to maintain the temperature to within approximately 2.5 degrees above or below the preset requirement.

(11) Boil dry protection – if the water supply fails the water level indicator LED will change to red and the steam generator will stop.

(12) The  can output AC230V to power the transformer for a 12V for steam room lamp.

(13)  this button has 2 functions it can be used to power a fan if fitted and is also used during the temperature or time setting procedure to confirm the settings (see further details below)




(14)  this button has 2 functions it is used to set the time and temperature settings and to start the descaling operation (see further details below).


(15) To change the display temperature from Celsius (default) to Fahrenheit alter the settings of the JP1 pins on the circuit board, please refer last chapter circuit diagram.




### Setting time and temperature


When the steam generator leaves the factory the default settings are 40°C and 1 hour of operation these can be adjusted as follows;

***The memory would be lost and back to the factory default settings if the power is cut off.***

(1) Time setting: press  key the time display window will flash - press  or  to adjust the time, every press the time will increase or reduce 5 minutes, once the desired setting is reached

press  the window will stop flashing. You can adjust from the time from **10 to 240 minutes**, exceed 240 minutes it display “NO” means no time limited.. Note the controller has a memory function, if the power supply is not cut off the next time you turn on steam generator last time you selected will be the default time.




(2) Temperature setting: if you press  once after you finish setting the time or otherwise twice the temperature window will flash, enter the required temperature by pressing  or  to adjust - every press will increase or reduce 1 °C .you can adjust from 30°C-60°C (85-140°F), under

Fahrenheit display)once the required temperature has been set press “” key the window will stop flashing.

(3) Auto-descaling can only operate when the steam generator is in the OFF mode i.e. the boiler has finished steaming; the water has drained and flushed, the drain LED is off.

Before auto-descaling can commence a supply of dilute citric acid liquid must be connected from a storage vessel positioned at least 500mm above the steam generator. For the dilution ratio please refer to the information supplied with the citric acid.

**IMPORTANT** do not use strong acids or high concentrations as these may attack and destroy the element or other metal parts of the boiler.

To start the process press the “” key for 5 seconds, “Clean” LED is on, time window displays last setting time (default setting is 8 hours), press “” or “” 5 seconds, the time window just display hours, increase or decrease to set the required time, each button press will increase or decrease 1 hour, maximum is 24 hours, minimum is 1 hour. Once the setting has finished the flashing will stop and the process will begin automatically by opening the inlet valve for the boiler to fill with the descaling solution, the inlet valve will then close and the solution will remain inside the boiler for the preset time. At the end of the sequence the drain valve will open and the boiler will drain and then flush with clean water; when the cycle is complete the drain LED will go off.

**Important notes**

1. Ensure there is sufficient descaling solution in the container to completely fill the boiler - when liquid level reached request point , the D4 LED on circuit board will be on
2. If during the descaling the power supply is interrupted do not operate the steam generator until either the descaling process has been reset or the acid solution has been drained and the boiler flushed with clean water – minimum 3 flushes.

Under commercial model, steam generator will produce steam very fast.

## Chapter Five: Troubleshoot guide

Please note that we recommend all repairs are carried out by a suitably qualified person.

| Trouble description                                                   | cause                                                                 | solution                                                                                                                                                                             |
|-----------------------------------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| When the generator is turned on there is no display on control panel. | Something is wrong with:<br><br>1. power supply<br><br>2. transformer | 1. Check power supply voltage.<br><br>2. Indicator LED of power supply on circuit board isn't on in red .then check transformer.<br><br>3. If the LED is red .remove controller, use |

|                                                                                                                                          |                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                          | <p>3. main circuit board</p> <p>4. controller</p> <p>5. control cable or port</p>                                                                                                                                                                                | <p>circuit board turn on steam generator .steam generator doesn't work .then circuit board is wrong. change circuit board</p> <p>4. If use circuit board, the steam generator can work normally. Check the control cable .port and controller.</p>                                                                                                                 |
| <p>Turn on steam generator; press "on/off". The controller is on. Indicator LED of heating isn't on. but there is no steam spout out</p> | <p>Something wrong with:</p> <p>1. Water supply valve isn't turned on.</p> <p>2. water inlet magnetic valve</p> <p>3. water level probe</p> <p>4. main board</p> <p>5. earth wire of boiler and circuit board</p> <p>6. circuit board</p> <p>7. heat element</p> | <p>1. Indicator LED for water level is red. check water supply ,water inlet valve</p> <p>2. Check the connection of water level probe.</p> <p>3. Check earth wire connection of circuit board and boiler.</p> <p>4. Indicator LED for water level is green. check circuit board</p> <p>5. check if overheat switch is disconnect</p> <p>6. check heat elements</p> |
| <p>Steam generator is turned on .control panel is normal. indicator LED for heating is on .but there is no steam spout out</p>           | <p>Something wrong with:</p> <p>1. main circuit board</p> <p>2. relay circuit board</p> <p>3. heat elements</p>                                                                                                                                                  | <p>1. change main circuit board</p> <p>2. change relay circuit board</p> <p>3. change heat elements</p>                                                                                                                                                                                                                                                            |
| <p>Temp. window display "LC"</p>                                                                                                         | <p>Something is wrong with the water level probe connection</p>                                                                                                                                                                                                  | <p>Check connection or change water level probe.</p>                                                                                                                                                                                                                                                                                                               |
| <p>Temp. window display "HC"</p>                                                                                                         | <p>water level probe is short circuit</p>                                                                                                                                                                                                                        | <p>1. Check water level probe connection</p> <p>2. check controller if it is short circuit inside</p>                                                                                                                                                                                                                                                              |
| <p>Turn off steam generator, water flow out from steam nozzle</p>                                                                        | <p>Something is wrong with water inlet valve</p>                                                                                                                                                                                                                 | <p>Check water inlet valve .clean it or change it</p>                                                                                                                                                                                                                                                                                                              |
| <p>cut off power supply , water flow out from steam nozzle</p>                                                                           | <p>Something wrong with:</p> <p>1.water inlet valve</p> <p>2.circuit board</p>                                                                                                                                                                                   | <p>Change circuit board or water inlet valve</p>                                                                                                                                                                                                                                                                                                                   |
| <p>Turn off steam generator .it still working</p>                                                                                        | <p>Something wrong with:</p> <p>1. circuit board</p> <p>2. controller</p>                                                                                                                                                                                        | <p>Cut power supply at once .contact dealer at once</p>                                                                                                                                                                                                                                                                                                            |

|                                                          |                                                                                                                    |                                                                                                                                                                                                                  |
|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                          | 3. relays on accessorial circuit board<br>4. water level probe                                                     |                                                                                                                                                                                                                  |
| Turn on steam generator .water come out from drain valve | Something wrong with: last time when steam generator is draining , the power supply to steam generator was cut off | Turn off the steam generator by hand and press the drain button ,when the steam generator finish draining, the drain valve will be closed , and then turn on the steam generator , the steam generator will work |

## Chapter six: Maintenance

The single biggest problem with steam generation is the build up of scale resulting from dissolved solids within the water. Scaling can cause the elements to fail, the water level sensors not to function, premature failure of the O rings resulting in leaks from around the elements. The extent of the problem will vary according to the degree of hardness in the local water supply.

For all commercial operators we recommend the use of a water softener.

All users commercial and domestic must ensure a regular maintenance routine for descaling the generator. The frequency of this will vary according to the degree of hardness in the local water supply and the amount of time the generator is used. Check the water for hardness and arrange the descaling routine accordingly.

High levels of hardness descale once every 50 to 100 hours of operation

Medium levels of hardness descale once every 100 to 250 hours operation

Low levels of hardness descale once every 250 to 1000 hours of operation.

To descale the generator use a solution of weak acid crystals (such as citric acid) mixed with water. The citric acid crystals are available in sachets for descaling kettles from most hardware stores, commercial operators in hard water areas may wish to purchase large quantities from specialist outlets. Follow the instruction supplied with the crystals and allow sufficient time for the solution to dissolve the scale before flushing out the generator.

Faults arising from a failure to descale the generator are not covered by warranty.

Because heating and cooling cause expansion and contraction it is important to inspect all the water and steam inlets and outlets as well as their pipes and connectors on a regular basis to ensure there are no leaks.

Clean the filter net in the magnetic valve according to the water quality in the location.

The condition of the wiring and electrical integrity of the generator should be checked regularly - for commercial operators this should be at least once a year.

### Guarantee

All generators are guaranteed for 12 months from the date of purchase. This guarantee excludes consumable items such as the electrical elements and failures resulting from misuse or abuse such as a failure to descale as above.