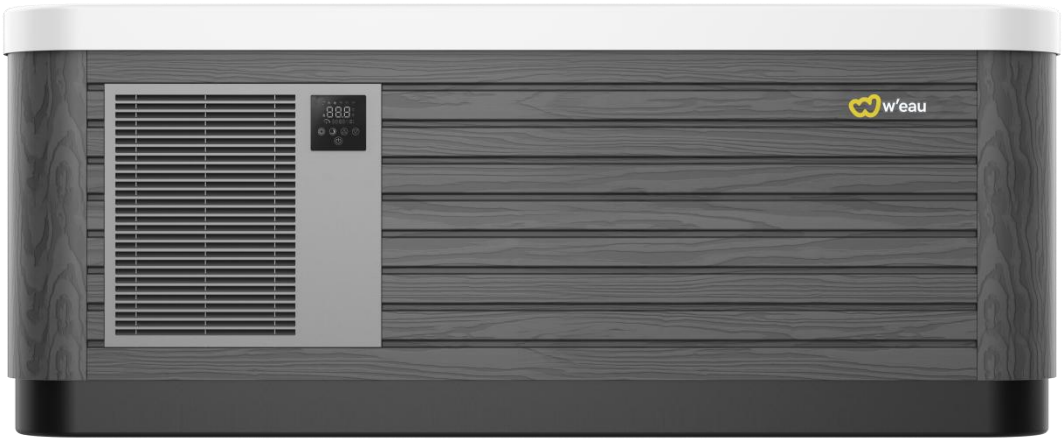
ICE BATHTUB

Installation & Instruction Manual



IMPORTANT NOTE:
Thank you very much for purchasing our product. Before using your unit, please read this manual carefully and keep it for future reference.

CONTENTS

ICE BATHTUB HARDWARE ORIENTATION

Circulation Pump

Located in the engine bay of your ice bathtub.
This highly efficient, small power usage pump is used
in the filtration and circulation of water through the heater.

Ozone

Ozone gas (O_3) can help destroy and break down bacteria
as well as organic matter such as body oil and dirt.

Premium LED Lighting

Multiple colors of LED can be set via control panel, to
create a warmly and romantic relaxation surrounding.

Water filter

The water filter can block most impurities in your bathtub,
keeping your bathtub clean for longer.

1. FOREWORD

1.1. Read the Manual Before Operation

Please read the following guidelines and carry out the operation according to all of the instructions to avoid safety accidents. We strongly recommend you to read the following guidelines and follow all instructions.

DANGER:

- Prevent children from privately entering into the ice bathtub. Ensure that children enter into the ice bathtub and use the massage function under the close monitoring of the adults in the full duration, in order to avoid any accident.
- When replacing the water pumps and related components, the new parts should be consistent with the original specifications, in order to prevent from the damage to the human body caused by the change of flow rate.
- In order to avoid the risk of electric shock, please do not put any metal piece within the range of 1.5 meters around the massage pool, unless the metal piece surface is permanently grounded with a single wire with a section area over 10 mm (28AWG), and the solid core copper grounding wire is connected to a cable connector of the grounded box, otherwise, the ice bathtub can be installed in a area 1.5 meters away from the metal surface.
- Placement of any electronic device such as electric light, telephone, radio or television within 1.5m from the ice bathtub is forbidden. If the safe distance between the above mentioned electronic devices and the ice bathtub is not kept and the electronic device falls into the ice bathtub, this may lead to death or serious injury.

WARNING:

- In order to reduce the risk of electric shock, broken wires should be replaced immediately. Otherwise, the electric shock may lead to death or serious injury.
- Before each use of the ice bathtub, please check the ground fault circuit breaker. If the ground fault circuit breaker can not operate normally, the leakage of ground current may cause electric shock to people. In this case, please disconnect the power supply, until the fault is determined and repaired.
- Before entering into the ice bathtub, the water temperature should be measured. The water

  temperature in the ice bathtub may not exceed 40℃(104°F), For healthy adults, the temperature of 38℃-40℃ (100°F-104°F) is safe. For babies, a slightly lower water temperature is more appropriate, when using the ice bathtub for more than 10 minutes. For pregnant women or women who may become pregnant, the

temperature should be controlled under 38℃ (100°F). The human body is exhausted and the force is not left.

- Long time soaking in hot water can result in high body temperature, the symptoms of which include non-predictability of danger, for example: water burns can be caused without sensing the heating, the human body is exhausted and unable to leave the massage pool as well as unconsciousness that can result in drowning.
- Drinking alcoholic beverages or taking medicines before or during using the ice bathtub may lead to unconsciousness and cause accidents.
- Before using the ice bathtub, the patients taking medicines for long time due to heart disease, circulatory system disorders or pregnant women as well as the people taking medicines must firstly take the consultation from a doctor.
- The people taking the medicines with sleepy ingredients, especially the tranquilizers, antihistamines and anticoagulants are not allowed to use the ice bathtub.
- Before using the ice bathtub, the obese patients and the patients with high or low blood pressure, blood circulatory system diseases and the diabetic patients, or the patients having the history of heart disease must firstly take the consultation from a doctor.
- Risk of slipping and falling exists. Please remember and remind the people around you, that the wet surface is slippery and entering into the ice bathtub and stepping out of the ice bathtub must be very carefully.
- Please don’t use the ice bathtub alone.
- Please take shower before and after using the ice bathtub. In order to reduce the possible spread of the disease, please keep the water within a certain range according to the parameters of "Water Quality And Maintenance". If you have listed similar situations, please stop using the ice bathtub and take medicines immediately.
- When using the ice bathtub, please don’t remove the basket and the cartridge filter in filter box.
- Prohibit the use of calibrated flow rate was lower than the suction device to replace the original suction device, if the suction device is damaged or missing, do not use a ice bathtub bath. It is forbidden to replace the original suction device with the suction device with a flow rate lower than the rated flower. If the water suction device is damaged or missing, please don’t use the ice bathtub.
- Loose clothing and hanging jewelry must be away from the selected jet, backwater device, filtration device or other moving parts.

NECESSARY:

Before using, please ensure that the ice bathtub was installed by qualified professionals and the

installation complies with the local electrical safety regulations and the requirements on the water and electrical installation.

- The electrical circuit in according to the electrical safety regulations and ensure to connect the power correctly - select a qualified electrical contractor!
- Please ensure that the ice bathtub is installed in a place with good ventilation and drainage. The drainage device must be away from electrical cabinet and all electrical components.
- Please take care for the safety of children and lock the children safety cover after each use, in order to prevent that the children open it and accidents occur.
- Please check the leakage protection breaker each time before and after using the ice bathtub and wait at least 30 seconds .
- Before restarting it. Ensure that the temperature of hot water supplied to the ice bathtub is less than 40℃ (104°F).
- Please don't turn on the external circuit when draining water and electrical repairing. Please check the ground fault circuit breaker before each use.
- Before entering the ice bathtub tub, the user should measure the water temperature with an accurate thermometer, because the deviation of the temperature adjusting device will reach ± 2°C (± 5°F).
- Before allowing children to enter into the ice bathtub, please test the water temperature firstly with hand, in order to ensure a suitable water temperature, because children are very sensitive to hot water.
- When the ice bathtub is in trouble, it must not be disassembled and repaired privately or by

  non-professionals. In this case, please notice the dealer or contact the products service center immediately.

PRECAUTIONS:

- Follow the precautions and maintenance methods of the ice bathtub recommended by this manual.
- Use of accessories according the specifications and recommended ice bathtub-chemicals and cleaning agents (for details, see "Water Quality and Maintenance").
- When not using the ice bathtub, regardless of whether there is water in the ice bathtub, the cover should be put on and locked.
- In the case that there is no water in the ice bathtub or the cover is not closed, the ice bathtub is not allowed to be exposed to sunlight, because this may damage the housing material and speed up aging of the accessories.
- Dont roll or slide on the side of a ice bathtub. It can damage the sidewall.

- In the case that the cover is locked, please don't open or pull the cover directly. You should use the handle to lift or carry the cover, in order to avoid damaging the ice bathtub-surface.
- Please don't try to open the electrical control box and to repair the parts in the box privately. Otherwise, the after sale warranty will become invalid. If there are problems by the operation. Please carefully follow the operation procedure described in "Troubleshooting" of the electrical control box, that is attached to the ice bathtub. If you still can not resolve the problem, you can contact the authorized dealer of our company and the authorized service personnel can help you to solve problems easily through telephone.

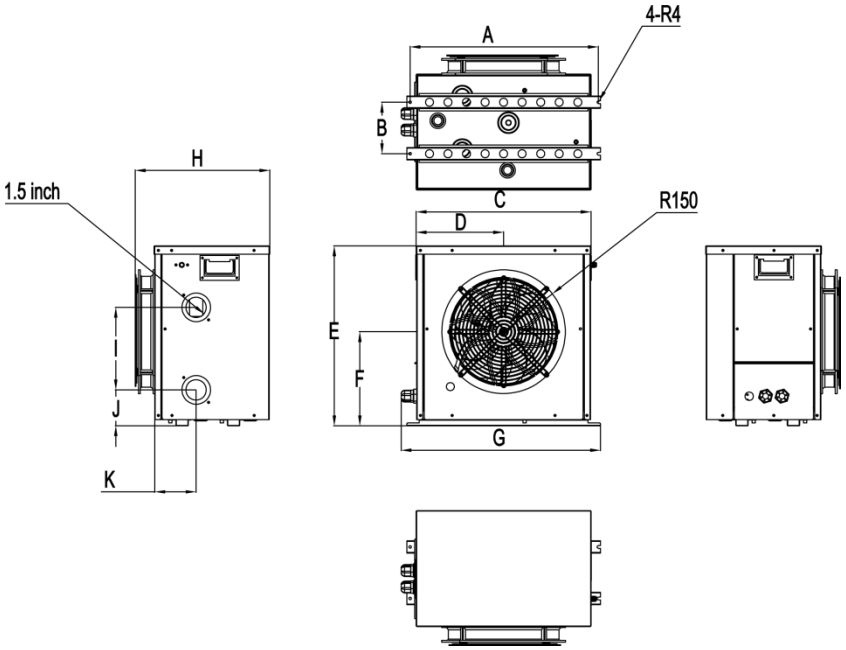
2. UNIT INFORMATION

2.1. Parameter of the Unit

Model:	**WAC-004**
Type	Heating/Cooling
Suggest Water Volume (L)	300
Chilling Time from 23℃ to 5℃ (h)	< 4.1
Heating Water Temp. Range (℃)	15~40
Cooling Water Temp. Range (℃)	2~28
Operating Ambient Temp. Range (℃)	-5~43
[Cooling] Ambient: 35℃, Water Outlet: 27℃	
Cooling Capacity (W)	2350
Power Input (W)	867
Current Value (A)	3.77
EER	2.71
[Cooling] Ambient: 27℃, Water Outlet: 10℃	
Cooling Capacity (W)	1800
Power Input (W)	679
Current Value (A)	2.95
EER	2.65
[Cooling] Ambient 15℃, Water Outlet: 5℃	
Cooling Capacity (W)	2010
Power Input (W)	600
Current Value (A)	2.61
EER	3.35
[Cooling] Ambient 15℃, Water Outlet: 2℃	
Cooling Capacity (W)	1600
Power Input (W)	476
Current Value (A)	2.07
EER	3.36
[Heating] Ambient: 27℃, Water Inlet: 26℃, Humidity: 80%	
Heating Capacity (W)	4200

Power Input (W)	664
Current Value (A)	2.88
COP	6.33
[Heating] Ambient: 15℃, Water Inlet: 26℃, Humidity: 70%	
Heating Capacity (W)	2530
Power Input (W)	641
Current Value (A)	2.78
COP	3.95
[Heating] Ambient: 27℃, Water Inlet: 38℃, Humidity: 80%	
Heating Capacity (W)	3380
Power Input (W)	952
Current Value (A)	4.14
COP	3.55
Power Supply	220-240V~/50Hz
Max. Power Input (W)	1140
Max. Current (A)	4.96
Water Flow Volume (m^3/h)	2.30
Rated Water Pressure Drop (kPa)	12
Refrigerant	R32
Max. Pressure(MPa)	4.4
Sound Pressure Level at 1m [dB(A)]	49
Sound Pressure Level at 10m [dB(A)]	34
Water Pipe Connection (inch)	1.5
Water Heat Exchanger	Titanium
Water Proof Level	IPX4
Display	LED screen
Circulation Pump	Built-in Water Pump
Disinfection	Built-in Ozone Generator
Water Filter	Built-in Paper Fitter
Net Weight (kg)	190
Net Dimensions [(L*W*H) mm]	1880×790×750
The above data are for reference only, the specific data are subject to actual product.	

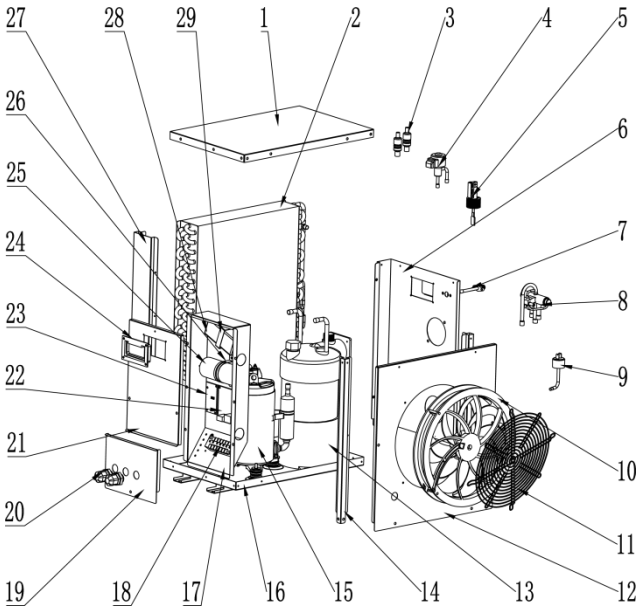
2.2. Dimensions of the built-in chiller



Dimensions (mm)

Model	A	B	C	D	E	F	G	H	I	J	K
WAC-004	457	125	425	212	436	226	484	327	200	87	101

2.3. Main Parts of the built-in chiller



No.	Name	No.	Name	No.	Name
1	Top Cover	11	Fan Guard Net	21	Left Side Panel
2	Fin Heat Exchanger	12	Front Panel	22	Main Board
3	Filter	13	Titanium Heat Exchanger	23	Power Board
4	Electronic Expansion Valve	14	Left Pillar	24	Iron Pull Hand

5	Flow Switch	15	Compressor	25	Capacitor
6	Right Panel	16	Chassis Assembly	26	Capacitance Clamp
7	Tube Joint	17	Electrical Box	27	Left Rear Pillar
8	4-way Valve	18	Terminal Board	28	Power Adapter
9	Pressure Switch	19	Electrical Box Cover	29	Pressurizer Clamp
10	DC Fan Motor	20	PG13.5 Joint		

3. INSTALLATION

3.1. Preparing A Foundation For Your Ice Bathtub

You have perhaps selected a place for the new ice bathtub, either indoors or outdoors, in courtyard or on platform, the following points should be checked.

- The ice bathtub should be installed on a solid, flat, horizontal program with good water drainage and air ventilation. The surroundings must keep dry in order to ensure the safety of the electrical components.
- Place can withstand this weight. The installation site can not be selected on the soft surface, such as sand, lawn and soft soil, etc.
- Before filling water, please remember to carry out leveling for your ice bathtub (see "Preparation For ice bathtub Leveling").
- Please ensure that the ice bathtub cabinet contained all electrical components is away from the drainage system. If water enters into the ice bathtub cabinet, it will cause damage to electrical components or turn-off of the circuit breaker on the power distribution board.
- Please install the electrical components side(such as: controller, pump...) in a convenient location, in order to carry out the regular maintenance to the ice bathtub.

⚠**WARNING**

Damages of the components or pipelines in the ice bathtub cabinet caused by mouse will not be covered under the warranty.

3.1.1. Installation In Outdoor And Courtyard

- Wherever the new ice bathtub is installed, a solid foundation to support the weight of the ice bathtub is important. Incorrect installation and structural damage caused by improper installation is not included in the ice bathtub warranty.
- If you install the ice bathtub outdoors, we recommend a reinforced concrete foundation with a thickness of at least 10 cm. According to the national electrical requirements, the reinforcing bar or steel net in the concrete foundation should be grounded.

3.1.2. Platform/ Indoor/ Basement Installation

- If you install the ice bathtub on a platform, please consult a qualified building contractor or structural engineer to know the maximum load bearing capacity of the platform, in order to ensure that the platform can withstand the weight of the ice bathtub.
- If you install the ice bathtub indoor, you have to understand certain special requirements. There will be water around of the ice bathtub, so the flooring materials must have good slip resistance. Water could sputter from the massage pool onto the floor around the massage pool. A correct drainage is necessary to prevent the water around the ice bathtub.
- If the ice bathtub is installed in the basement, the air humidity will naturally increase during usage and the moisture will enter the ice bathtub cabinet, and cause safety risks. In order to minimize these Influences, sufficient ventilation for the basement is necessary. An architect can help you determine whether you need to install an additional ventilation device. But a correct drainage is also necessary.

⚠**WARNING**

- When the ice bathtub is installed indoors or in small ice bathtubces, please keep good ventilation surrounding the ice bathtub.
- Poor ventilation can lead to the accumulation of chemical substances or bacteria in the ice bathtub higher than normal levels. These anti-scatter chemicals or bacteria could be inhaled and cause breathing difficulties and lung damage of the patients with immune system or respiratory infection diseases. If you and others have these diseases, please see your doctor as soon as possible.
- We recommend installing the ice bathtub on the ground. But if the ground is on the same level to the upper edge of the ice bathtub, or higher than the ice bathtub upper edge because of laying floors,the risk of accidentally falling into the ice bathtub will be greatly increased. Therefore, please contact a qualified builder to design or evaluate your installation platform.

3.1.3. Preparation For Ice Bathtub Leveling

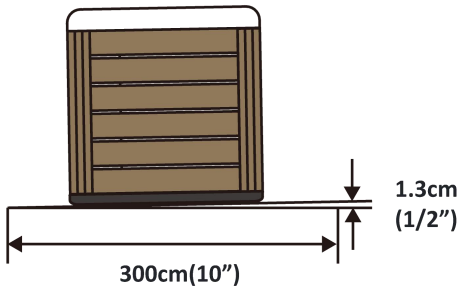
The inclination of the concrete ground is preferably 1.3cm/3m, so rainwater and overflowed water spilled will flow out, and not remain under the ice bathtub (water remaining long time under the ice bathtub could lead to putridity of wood floor).

When selecting stepping stones or railway sleepers as the foundation for the ice bathtub, these should be placed below the entire ice bathtub and leveled, in order to keep the weight of the ice bathtub evenly distributed.

Please note, the soft ground will have a tendency to sedimentation, so that the ice bathtub is no longer in the leveling state, even if the weight of the ice bathtub has been evenly distributed as much as possible by using the stepping stones.

⚠WARNING

If the ice bathtub is installed on the grass or muddy ground, the number of floating debris in water will increase and damage the equipment the surface of the ice bathtub. This situation is not covered by the warranty.

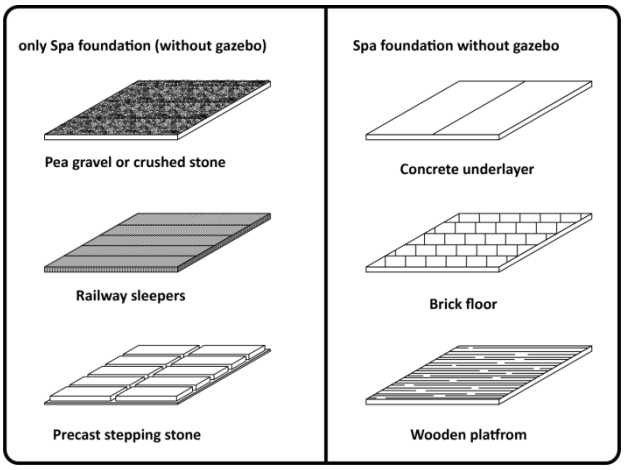


For correct water drainage, the inclination should be 1.3 com(1/2 inch)/305cm(10inches)

The spa could loss its leveling state because of the sinking of the stones or bricks

⚠WARNING

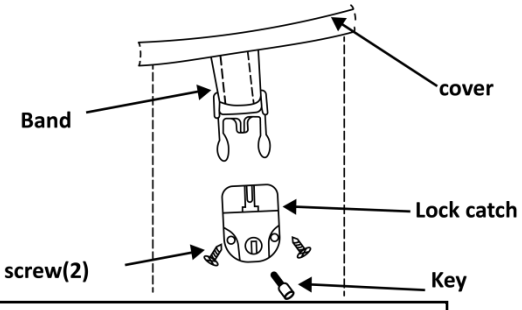
Tips: ice bathtub is specially engineered and can be installed on different kinds of common courtyard ground. The most suitable foundation is the concrete plates. But other foundations can also be used. You have only to prepare a foundation in the leveling state before delivery. When a ice bathtub is installed in a place without gazebo or other attachments, the concrete plate can be replaced by foundation examples shown in two foundation drawings on right side.



3.1.4. Cover Installation

- ice bathtub is specially engineered and can be installed.

- Install the cover correctly on the ice bathtub.
- Fix lock catch of the cover on the ice bathtub cabinet, so that the cover band can be easily fastened on that. The cover band may loose 1.5-2cm, so that it can be easily inserted into the lock catch.
- Fix the lock catch with the provided screws and insert the cover band into the lock catch.



Danger: injury
- Do not let the ice bathtub in uncover or unattended state
- Do not forget to lock the ice bathtub cover
- Do not stand, sit or lie on the cover

3.1.5. Electrical Installation

To function safely and maintain the integrity of your electrical system, the unit must be connected to a general electricity supply in accordance with the following regulations:

① Upstream, the general electricity supply must be protected by a 30mA differential switch.

② The bath chiller must be connected to a suitable D-curve circuit breaker in accordance with current standards and regulations in the country where the system is installed.

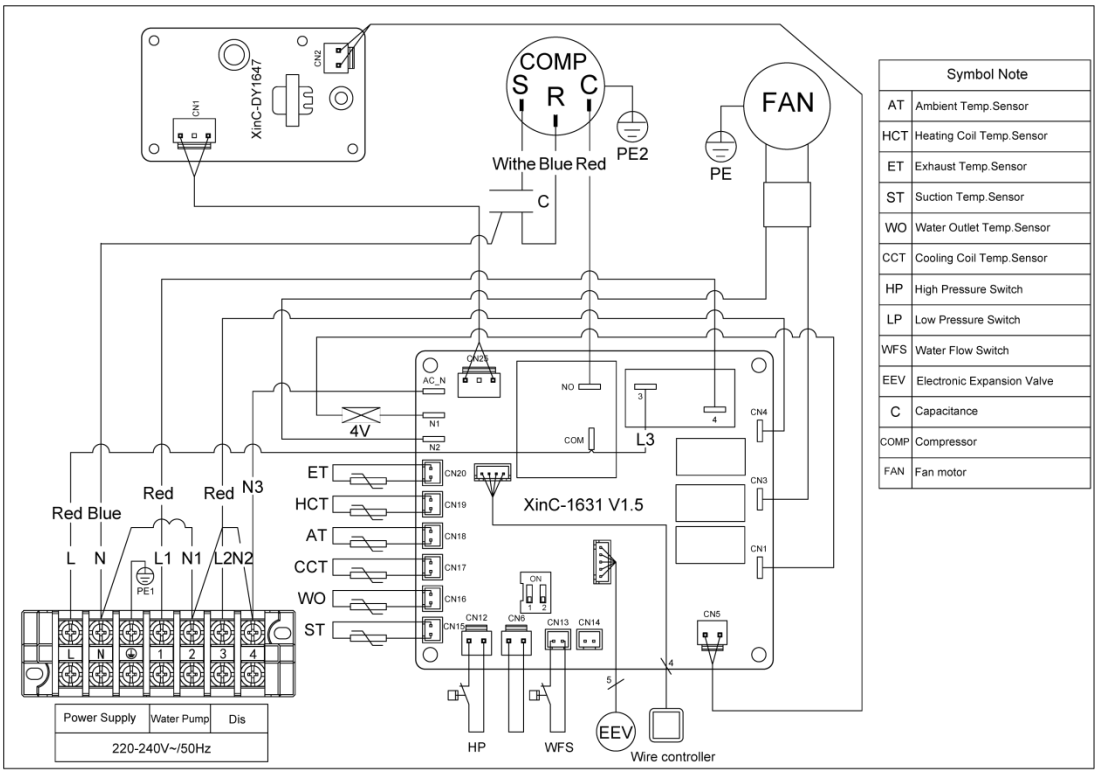
③ The electricity supply cable must be adapted to match the unit's rated power and the length of wiring required by the installation. The cable must be suitable for outdoor use.

④ For a three-phase system, it is essential to connect the phases in the correct sequence.If the phases are inverted, the bath chiller's compressor will not work.

⑤ In places open to the public, it is mandatory to install an emergency stop button close to the bath chiller.

Model	Power Supply Wires		
	Electricity Supply	Cable Diameter	Specification
WAC-004	220-240V~/ 50Hz	3G 1.5mm²	AWG 16

3.1.6. Electrical Connection



Note: Dis means disinfection function ports. They can be used for ozone sterilizer. The control logic refer to Disinfection Function in 6.1

4. ELECTRICAL CONNECTIONS

A qualified Registered Electrical contractor must under take all electrical connections .You must also have a certificate of Electrical safety issued by the Electrical contractor at completion of the installation.

We provide maximum security for you to prevent electric shock. But, if the electrical circuit of the ice bathtub is connected incorrectly, many security functions of the ice bathtub shall be influenced. Please read carefully and follow completely the electrical installation requirements and instructions for the specific ice bathtub type.

4.1. Requirements

1) Extension cords are not to be used under any circumstances.
2) Ensure the power supply is correctly rated.
3) Ensure all electrical connections meet the appropriate codes and standards.
4) Keep electrical connections dry at all times.
5) A licensed electrician ONLY, must connect the power.
6) Ensure ice bathtub is connected on a dedicated circuit protected by a safety switch.

7) Ensure ice bathtub is permanently and reliably connected to the fixed wiring.
8) ice bathtub should be supplied through a Residual Current Device (RCD) with a rated tripping current not exceeding 30mA.
9) Parts containing live parts, except parts supplied with safety extra-low voltage not exceeding 12V, must be inaccessible to a person in the ice bathtub.
10) Never rest ice bathtub on power cords.
11) CAUTION: In order to avoid a hazard due to inadvertent resetting of the thermal cut-out, the ice bathtub must not be supplied through an external switching device, such as a timer or connected to a circuit that is regularly switched on and off by the utility.

4.2. Note to the Electrician

You can find a reserved electrical hole through base for cable and conduit entry. Ensure cables are fitted through base prior to filling with water.

4.3. Cable Duct Installation Instructions

1) Find “Control Box Under this Cabinet”Sticker to locate the control box, If you cannot find the sticker, please find the Control Panel. The control box is usually on the same side.
2) When connecting the circuit, first remove the 3 screws from the bottom of ice bathtub cabinet and carefully pull down the ice bathtub cabinet, and then removed it from the ice bathtub completely.
3) Insert the cable pipe into the reserved electrical hole on the ice bathtub base and connect the cable with the control box according to the detailed description on the wiring diagram in the control box.

4.4. Power Consumption

The power consumption of your ice bathtub can be found on the Identification / Compliance Label of your ice bathtub (read about in ‘Identification / Compliance Label section of this manual.

Power consumption is expressed in ‘Full Load’ and also ‘Load Shed’

Full Load - is the maximum full load current draw of the ice bathtub.

Load Shed - is a feature of the Control System which by a minor setting change will cause the heater to shut down when the boost pump or blower is actuated. Hence the lower power consumption valve.

Directions on ascertaining this setting can be found on the back of the Control Box lid.

5. FILLING YOUR ice bathtub & STARTING UP

5.1. Filling Your ice bathtub

- Before filling your ice bathtub, please open the filtration box, unpack and install the cartridge filter first.
- Before filling your ice bathtub ,please tighten the barrels union.The barrels union are two big plumbing nuts located at the wet end of each pump and heater element. These can sometimes come loose during transportation.
- Check that the shut off valves are all in the open position (pulled up).
- Check that all jets are in the open position (Rotate clockwise to turn your jets on).
- When re-filling your ice bathtub ,do so through the filter or diverter valve.

⚠**TIPS**

When draining and re-filling your ice bathtub the filter should be cleaned ,along with the ice bathtub surface,jet sand behind the headrests. The latter three can be cleaned with methylated spirits.)

- Filter Box Diverter Valve - Fill your ice bathtub with water. This should always be done through the filter or diverter valves to stop air locks forming .Heat to desired temperature then test water balance and adjust pH, total alkalinity and chlorine. (Ref: Water Quality & Maintenance section)

⚠**WARINING**

① Do not fill hot water into your ice bathtub to avoid tripping of the overheating protection switch.

② Do not fill “soft water” into your ice bathtub. (for details, see”Calcium Hardness(CH) Adjustment”)

③ Do not switch on the ice bathtub without water in it. Otherwise, the Internal key components (such as
controller, heater ...) will start automatically. It could be damaged and void your warranty.

④ Do not use the ice bathtub before completing all of the following steps, even if the ice bathtub has been filled with water.

⑤ Do not add chlorine when the ice bathtub is disinfected by using poly hexamethylene biguanide (biguanide, PHMB) disinfectants.

⑥ Close all drain pipes, fill water into the ice bathtub through the filter box by using a hose connected to the water pipe with a filter. Keep the water level one inch above the highest jet.

5.2. Starting Up

- If ice bathtub is a plug-in model, plug the power cord into the power point and switch the power on. If the ice bathtub is hard wired, turn power on at the main isolator. When the unit is powered up, it is normal operation that the ice bathtub pumps may turn on and run for up to 4 minutes depending on the type of controller.
- Chemical addition. Contact supplier in relation to the best chemical selection for your ice bathtub.
- To heat your ice bathtub adjust the temperature button up, or to decrease heat simply adjust the temperature button down (Refer to your control system instructions).
- Check for leaks, replace service access panels.

Note: Depending on water capacity, heater size and ambient temperature, it can take up to 12 hours to heat the ice bathtub to approximately 38°C. Swim ice bathtubs will take possibly twice as long.

6. REMOTE CONTROLLER OPERATION GUIDANCE

NO.	Item	Icon	NO.	Item	Icon
1	Function or mode key		9	Wi-Fi	
2	Timer key		10	Defrosting	
3	" + " key		11	Alarm	
4	"-"key		12	Lock	
5	ON/OFF key		13	Timer on/off	
6	Heating mode		14	Real-time clock	
7	Automatic mode		15	Disinfection	
8	Cooling mode		16	Fan motor	

6.1. Key Operating Instruction

NO.	Item	Operation Way
1	ON/OFF	Under the main interface, press  to turn on/off. OFF will be showed in the display if you turn off the unit
2	Lock/Unlock	● If the unit has no input operation for 60 seconds, the wire controller display screen will enter the dormant state, and the screen will automatically lock, and the  icon of the screen is light. ● In the state of locking machine, after pressing the  for 3 seconds, the buzzer start "beep", remove the lock button and the  icon turns off.
3	Mode Switching Function	Press  to switch modes between heating,cooling and automatic.
4	Query and set up of the user parameters	● Under the main interface, long press  for 3s to enter the query interface, query the user parameters by pressing  or  . ● In the user parameter query interface, select a parameter, press  to set the current user parameters.The parameter will become a flashing state,press  or  to modify the current user parameter value, and then press  to confirm the change of parameter value, and return the parameter query status.（PS：Parameters do not flash in query state; parameters flash in setting state) ● In the user parameter query or user parameter setting interface, if there is non-operation for 30 seconds, the changed parameter value will be automatically saved, exit the user parameter query interface or user parameter setting interface.Press  also can exit to main interface
5	Disinfection Function	Parameter 9(0 Manual /1 Automatic,default is 0) ● When the value of parameter 9 is 0, press  for 3 seconds to start disinfection function,  icon will occur. Press  for 3 seconds again to stop disinfection function,  icon will disappear. ● When the value of parameter 9 is 1, if the unit is on, the

		disinfection function will be started 20 minutes for every 20 minutes.
6	Real -time Clock Setting	• In the main interface, press  for 5 seconds to enter the real-time clock setting interface, the hours and minutes of the clock will flash together. • In the real-time clock setting interface, press the  , the hour part will flash, and the minute part will stop flashing. At this time, press  or  to set the hour of the real-time clock. • After setting the hour part, press  again, the numbers in the minute part will flash and the hour part will stop flashing. At this time, press  or  to set the minutes of the real-time clock. • After the minute part is set, press  again to confirm the real-time clock setting and return to the main interface. • In the real-time clock setting interface, press  to confirm the current real-time clock setting value and return to the main interface. • In the real-time clock setting interface, if there is no key operation for 30 seconds, the current real-time clock setting value will be confirmed and return to the main interface.
7	Timer setting	• Under the main interface, press the  to enter the setting interface of entering the timing group. • When entering the timing setting interface, the timing group 1 flashes, and the wire controller has 2 timing groups. • In period 1, press  to enter the hour setting interface of timing startup time of group 1, and flash the number of timing startup time. Then press  or  to set the startup hours of time 1 group. • When the hour part is set, then press the  , the number of the minute part is flashing, and press the  or  to set the minutes of the group 1. • When setting the startup minutes of group 1 is done, press the  , then enter the hour of timing group 1 shutdown setting, the setting method is the same as above.

		● When the timing shutdown time is set, press the  to confirm the setting timing switch time of the current group,then press the  or  , you can enter the next set of timing switch time setting, the setting method is consistent with the timing group 1. ● If the time group is valid, the serial number of the time group is displayed under the main interface. ● In a set of timing settings, if the timing startup time and the timing shutdown time are the same, the timing startup / shutdown of the group is invalid. ● When timing period 1 or 2 flashes, long press the  for 3s to confirm the current timing setting,and the  or  will occur in the display. ● When the timing period 1 or 2 flashes , long press the  for 3s to cancel the current timing, the  or  will be no longer displayed. ● In the timing interface, keep non-operation for 30 seconds, confirm the current timing and return to the main interface. ● In the timing interface, press the  to confirm the current timing and return to the main interface.
8	Temp.Setting Function	Under the main interface，Press  or  ， the set temperature can be adjusted
9	Return to the Main Interface	Press  to return to the main interface.
10	Reset Operation	● Under the main interface of shutdown state, long press  and  for 5 seconds to restore the value of unit user parameters and factory parameters to the default state of factory parameters. ● Under the main interface of the shutdown state, long press the  +  +  for 3 seconds to reset the master E party parameter.
11	Celsius and Fahrenheit switch	Under the main interface, press  and  for 3 seconds to change Celsius and Fahrenheit

6.2. Parameter List

6.2.1. Query control table of unit temperature status.

Long press  for 3s to enter, and then press  and  to turn up and down the page query.

Code	Parameter	Remark
T1	Exhaust temperature	
T2	Return gas temperature	
T3	Outlet temperature	
T4	Refrigeration coil temperature	
T5	Outdoor coil temperature	
T6	Outdoor ambient temperature	
1F	Main route electronic expansion valve opening degree	
od	Outdoor operation mode	1:heating 2:Cooling
OF	Status of fan motor	1:ON 0:OFF
dF	Defrosting state	
STF	Four-way valve switch	
Pu	Water pump switch	
HE1	Failure code history	
HE2	Failure code history	
HE3	Failure code history	
HE4	Failure code history	
Pr	Main board Protocol Version	
Sr	Main board software version	

4.2.1. Control table of unit user parameters

Users can query.Long press  for 3s to directly enter, press  and  to turn up and down the page query

Code	Parameter	Range	Default Value
L0	Heat setting value	15℃~40℃	27℃
L1	Set value of heating start-up deviation	0℃~18℃	1℃
L2	Deviation temperature setting for heating constant temperature shutdown	0℃~18℃	0℃
L3	Cooling setting value	2℃~35℃	20℃
L4	Refrigeration startup deviation setting value	0℃~18℃	1℃
L5	Deviation temperature setting for cooling constant temperature shutdown	0℃~18℃	0℃
L6	The Automatic mode sets the temperature	2℃~42℃	27℃

L7	Water pump working mode	0:The water pump is not closed during constant temperature shutdown. 1: When shutting down at constant temperature, the water pump delays the compressor to turn off for 60 seconds. Every (L8) minutes open 5 minutes	0
L8	The running interval of the water pump when shutting down at constant temperature	3～180min	30

6.3. Error Code

Check list of unit fault codes	
Code	**Fault Description**
E01	Exhaust temperature failure
E05	Fault of coil temperature
E09	Return gas temperature failure
E19	Water inlet temperature failure
E18	Outflow temperature failure
E21	Communication failure with the indoor unit
E22	Environmental temperature failure
P01	Water flow switch failure
P02	High pressure protection
P06	Water flow protection for self-priming pump
P11	Over protection of exhaust temperature
P15	Over protection of temperature difference between in and out of water
P16	Over cooling protection
P17	Anti-freezing protection
P25	Ambient temperature protection
P26	Over protection of Heat out water temperature
P27	Over protection of the outer coil tube temperature

6.4. *Trouble Shooting*

NO.	Fault	Analysis	Solution
1	High pressure protection	**1.** Loose wiring or poor connection of high pressure switch **2.** There is something wrong with high pressure switch **3.** Main board is broken **4.** Poor condensing **4.1** Water temperature is too high (over range operation). **4.2** Low water flow **4.2.1** The valve in water system is not open. **4.2.2** Waterway blockage, may appear in the heat exchanger or valve part. **4.2.3** Improper water pump selection **4.2.4** The water pump is broken . **5.** Refrigerant system blockage, may appear in the throttle part. **6.** Refrigerant system is mixed with air, maybe the vacuum is not enough.	**1.** Reconnect the wire. **2.** Replace the high pressure switch. **3.** Replace the main board. **4.1** Operate within the allowable range. **4.2.1** Open the valve. **4.2.2** Clean the blocked part or replace it . **4.2.3** Change the pump according to the water flow and water head. **4.2.4** Replace the water pump. **5.** Clean or replace the clogged part. **6.** Vacuumize and refill the refrigerant.
2	Water flow protection	**1.** The connection between water flow switch and main board is poor. **2.** The water flow switch is installed wrong. **3.** Water flow switch failure. **4.** Main board failure. **5.** Low water flow **5.1** The water system is blocked. **5.2** Water pump is not suitable **5.3** Water pipe is small **5.4** The water flow switch is stuck and cannot be reset. **6.** No water flow **6.1** The valve is not open. **6.2** The water pump is not working. **6.3** Water pump failure.	**1.** Reconnect the water flow switch cable **2.** Install the water flow switch in the correct way. **3.** Need to replace the water flow switch **4.** Need to replace the motherboard **5.1** Clean or replace the blocked part. **5.2** Change the pump according to the water flow and water head. **5.3** Need to change the water pipe. **5.4** Reset the water flow switch manually. **6.1** Open the valve. **6.2** Turn on the pump. **6.3** Need to replace the water pump.
3	Exhaust protection	**1.**Temp.sensor fault. **2.**Water flow switch fault **3.**Leakage happen,and refrigerant is not enough . **4.**Low water flow **4.1** The water system is blocked. **4.2** Water pump is not suitable **4.3** Water pipe is small **4.4** The water flow switch is stuck and cannot be reset. **5.** No water flow **5.1** The valve is not open. **5.2** The water pump is not working. **5.3** Water pump is broken .	**1.**Need to replace the temp.sensor. **2.**Need to replace the water flow switch. **3.**Repair the leakage,and refill the refrigerant according to the nameplate. **4.1**Clean or replace the blocked part. **4.2** Change the pump according to the water flow and water head. **4.3** Need to change the water pipe. **4.4** Reset the water flow switch manually. **5.1** Open the valve. **5.2** Turn on the pump. **5.3** Need to replace the water pump.
4	Over-current protection	**1.**Poor condensing **1.1** Water temp. is too high (over range operation). **1.2** Low water flow **1.2.1** The valve in water system is not	**1.1** Operate within the allowable range. **1.2.1** Open the valve. **1.2.2** Clean the blocked part or replace it .

		open. **1.2.2** Waterway blockage, may appear in the heat exchanger or valve part. **1.2.3** Improper water pump selection **1.2.4** The water pump is broken . **2.**Refrigerant system is mixed with air, maybe the vacuum is not enough. **3.**The water pipe is blockaged. **4.**The valve opening steps not enough. **5.**Excessive refrigerant. **6.**The fan is blockaged.	**1.2.3** Change the pump according to the water flow and water head. **1.2.4** Replace the water pump. **2.** Vacuumize and refill the refrigerant according to the nameplate. **3.** Clean or replace the water pipe. **4.** Turn the valve up appropriately. **5.** Bleed out the refrigerant and refill the refrigerant according to the nameplate. **6.** Clean out the blockage from the fan or replace the fan.
5	Ambient/ Inlet/Outlet/ Exhaust/ Suction/Exte rnal coil/ Internal coil/ sensor fault	**1.** The connection between the temp. sensor and the main board is poor. **2.** Temp. sensor fault. **3.**The sensor resistance on the main board fault.	**1.**Reconnect the temp.sensor cable. **2.**Replace the temp.sensor. **3.**Replace the main board.
6	Communicat ion fault	**1.**The connection between wire controller and main board is poor. **2.**Wire controller fault. **3.** Main board fault. **4.** Communication wire and strong electricity wire put together, resulting in power interference communication	**1.** Reconnect the wire controller cable. **2.** Replace the wire controller. **3.** Replace the main board. **4.** Communication wire is placed separately from the strong electricity wire.
7	Anti-freeze protection	**1.** Low ambient temp. running. **2.** Low water temp.	**1.** When the ambient temp. is ≥ 2°C, exit the anti-freeze state. **2.** When the inlet water temp. > 15°C, exit the anti-freeze state.
8	High temp.differe nce between inlet and outlet water protection	**1.** Inlet and outlet water temp. sensor fault. **2.** Low water flow **2.1** The valve in water system is not open. **2.2** Waterway blockage, may appear in the heat exchanger or valve part. **2.3** The filter element is dirty **2.4** The water pump is broken . **2.5** Pipe size is too small. **3.** Heat exchanger is fouling.	**1.** Need to replace the temp. sensor. **2.1** Clean or replace the blocked part. **2.2** Change the pump according to the water flow and water head. **2.3** Need to change the filter element. **2.4** Reset the water flow switch manually. **2.5** Choose the suitable pipe size. **3.** Clean the dirt of the heat exchanger surface.

6.5. Other Malfunctions and Solutions(No display on wire controller)

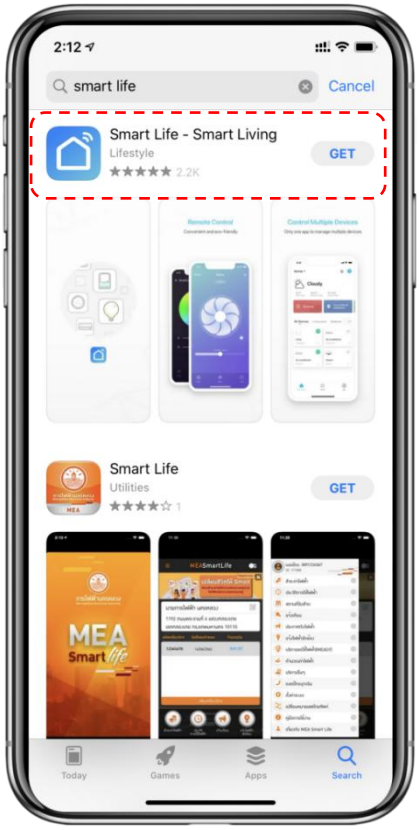
NO.	Phenomenon	Cause	Solution
1	Unit is not running	1. Power outage 2. Power switch is not connected 3. Power switch fuse is burned-out 4. Timing is not up	1. Please wait for power supply recovery 2. Connect power 3. Replace fuse 4. Please wait or cancel timing setting

2	Unit is not running after starting up	1. Compressor protection time interval is not up 2. Water temp. of the unit does not reach starting up water temp. value	1. Please wait patiently for the end of protection time 2. Normal phenomenon and wait for water temp. to reach
3	Unit is running normally, but can't get the demand water temp.	1. Improper temp. setting 2. Filter element is dirty 3. Air inlet port or outlet port of outdoor machine or indoor machine is blocked	1. Set up proper temp. 2. Replace the filter element 3. Clear tuyere obstruction
4	Unit is running automatically	Reach timing to start up	Please shutdown manually or cancel timing if needn't start up

6.6. Wi-Fi Settings

6.6.1. Software Installation

① Method 1: Search ”Smart life” in your APP store ,install “ ”.Click “GET” to install.



② Method 2: Scan the QR code below.

For IOS and Android Users

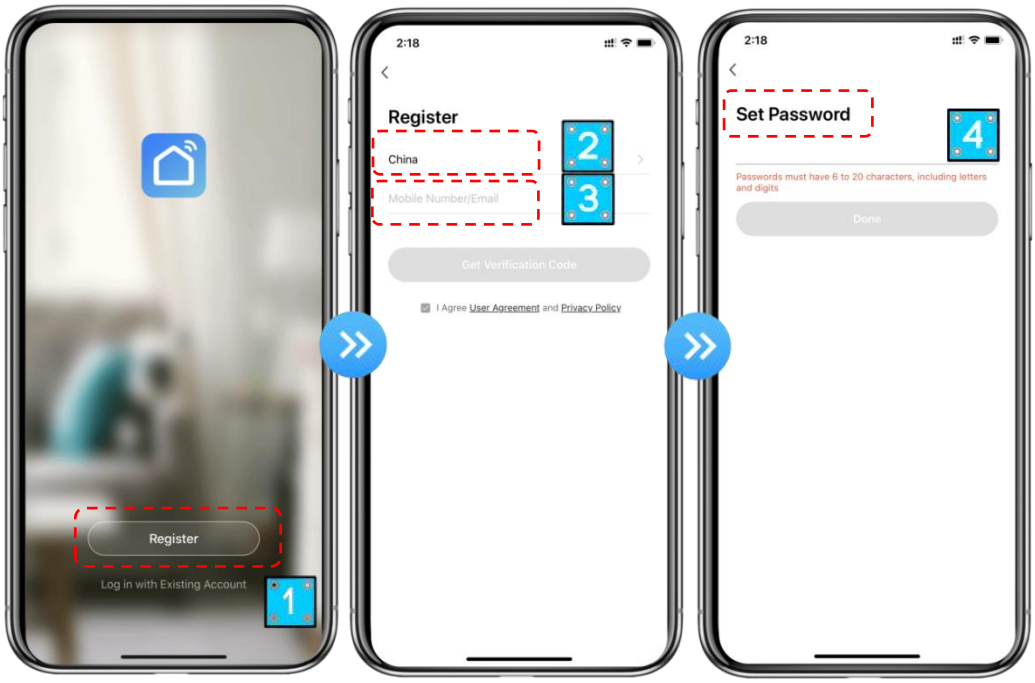
6.6.2. Software Startup

After installation,click “ ” on your desktop to start up Smart Life.

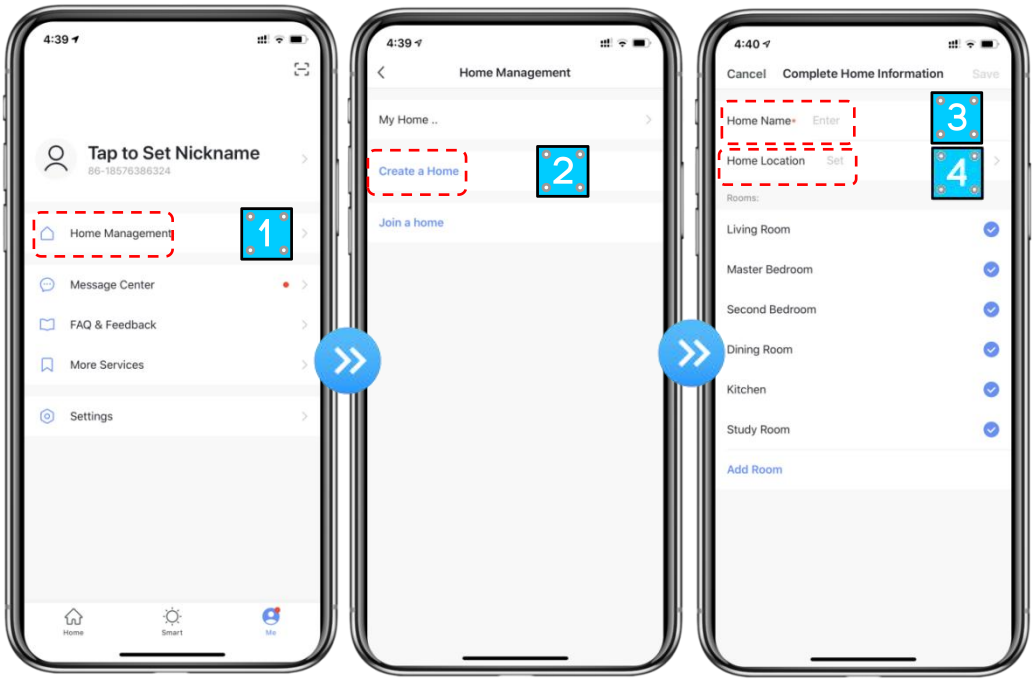
6.6.3. Software Registration and Configuration

1. Registration

① Users don't have account can click "Register" to create an account: Register → Enter your phone number → Get Verification Code → Enter Verification Code → Set Code;

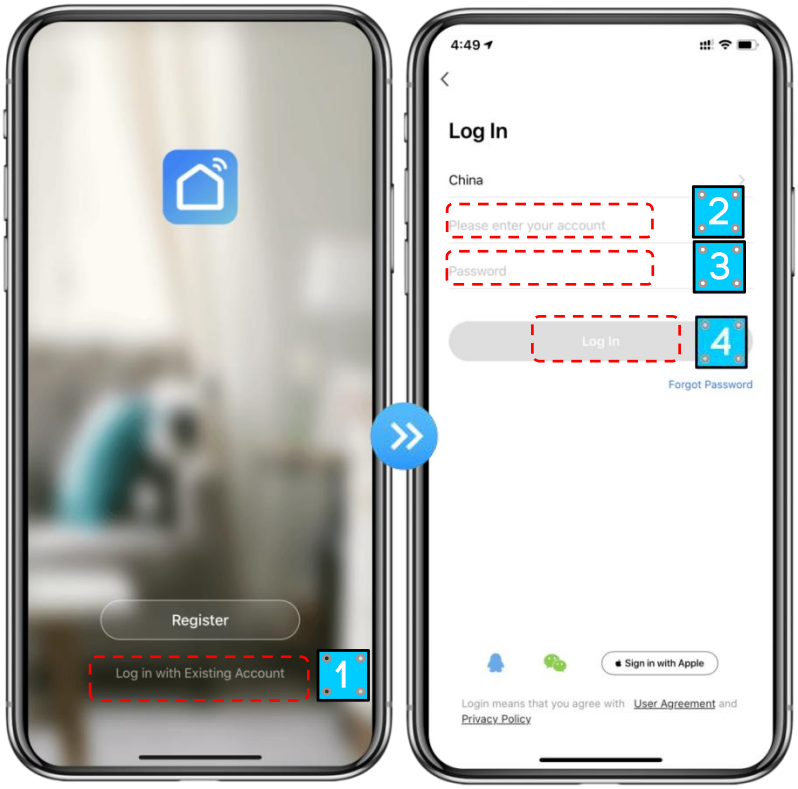


② After registration, you need to Create a Home:Create a Home → Set Home Name → Set Home Location → Add Rooms.

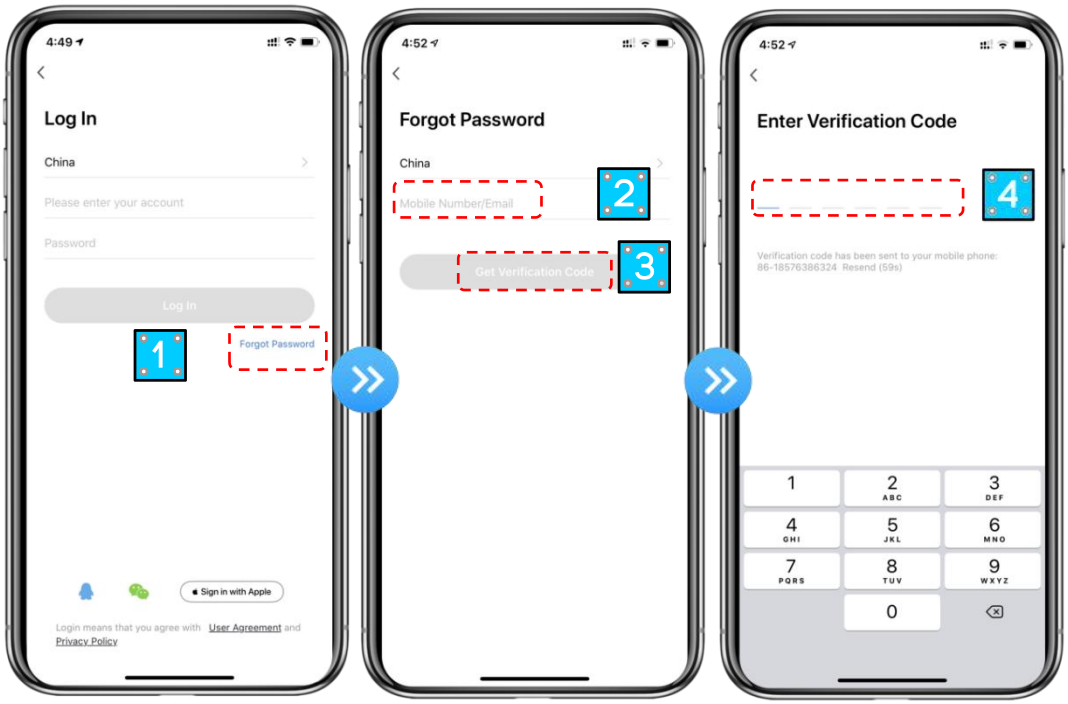


2. Account ID+ Password Login

① Existing accounts can be logged in directly, in the following order.



② If you forget your password you can choose to login with your verification code and select "Forget Password": Enter your phone number → Get verification code .



③ After creating a home or logged in,enter the main interface of APP.

Note:

Click the device to check the status, and you can set the operating mode, ON/OFF, timer.

Click "＋" to add devices.

1. Wi-Fi Module configuration steps:

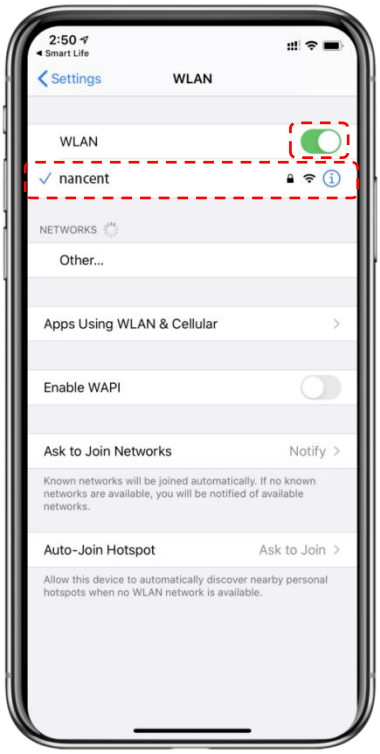
Method 1

Step 1:

EZ Mode: When power is on, press and hold the "  " and "  " keys at the same time for 3 seconds to enter the distribution network. The "  " icon will flash rapidly;.

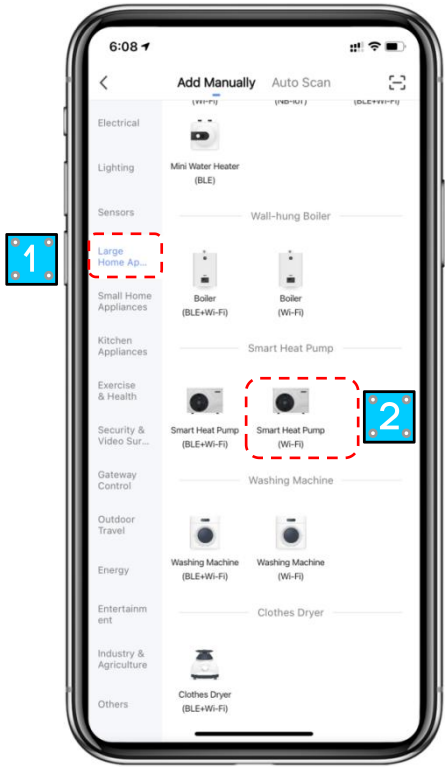
Step 2:

Turn on the phone's Wi-Fi function and connect to the Wi-Fi hot-spot. The Wi-Fi hot-spot must be able to connect to the Internet normally;



Step 3:

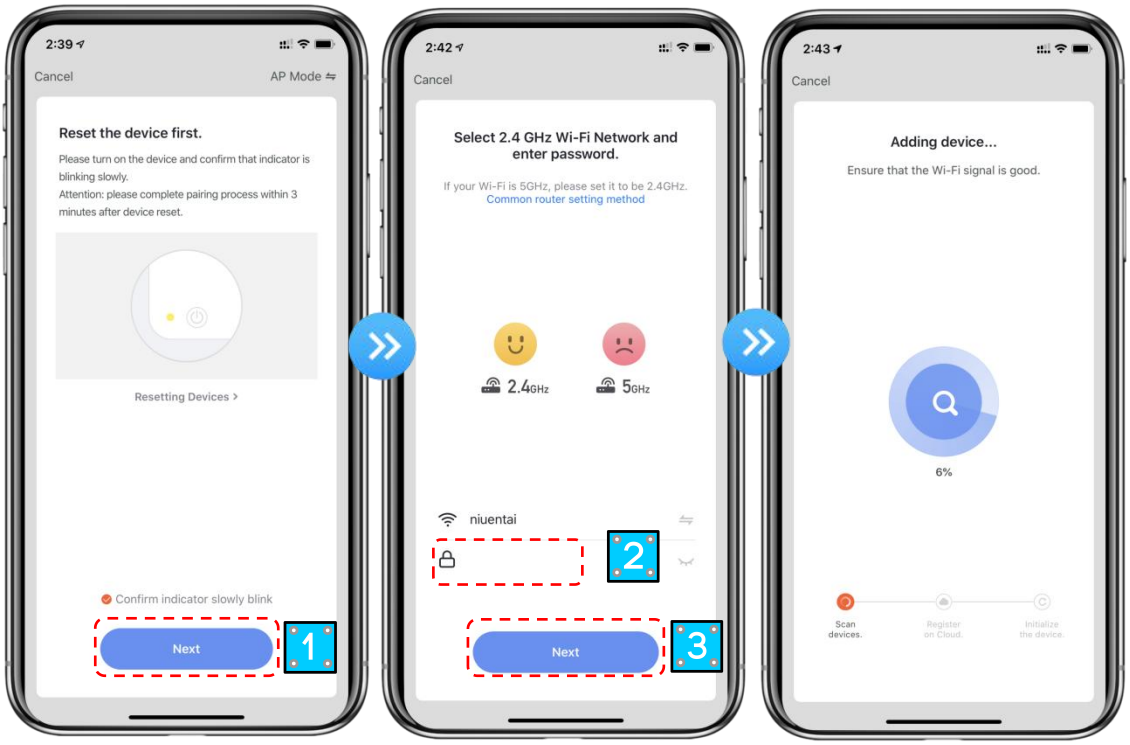
Open the "smart life" APP, log in into the main interface, click on the top right corner "+" or "add equipment" of the interface, enter the equipment type selection, the "Large Home Appliances" , select "Smart Heat Pump" equipment and add equipment into the interface.



Step 4:

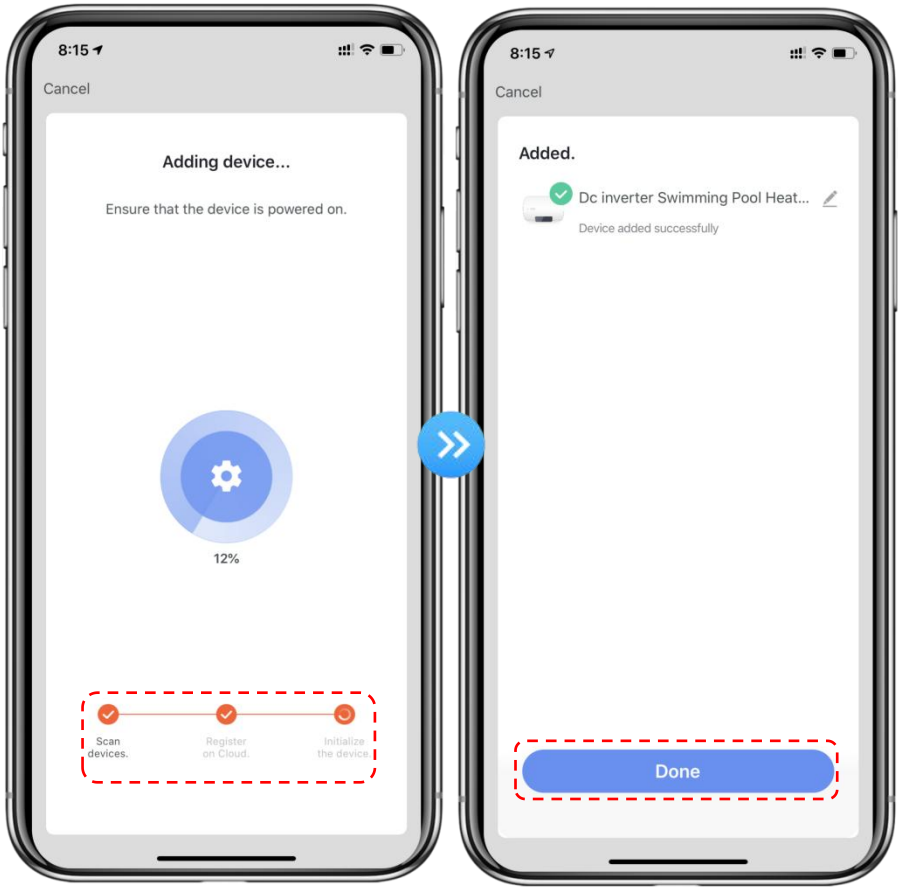
After selecting "Smart Heat Pump", enter the interface of "Add Equipment", and confirm that the wire controller has selected the EZ mode. After the indicator light under "  " flashes rapidly , click" Confirm indicator rapidly blink ".

Enter the Wi-Fi connection interface, enter the Wi-Fi password of the mobile phone (it must be the same as the Wi-Fi of the mobile phone), click "Next", and then directly enter the connected status of the
dev



Step 5:

When “Scan devices”, “Register on Cloud”, “Initialize the device” are all completed, connect succeeds.



Method 2

Step 1

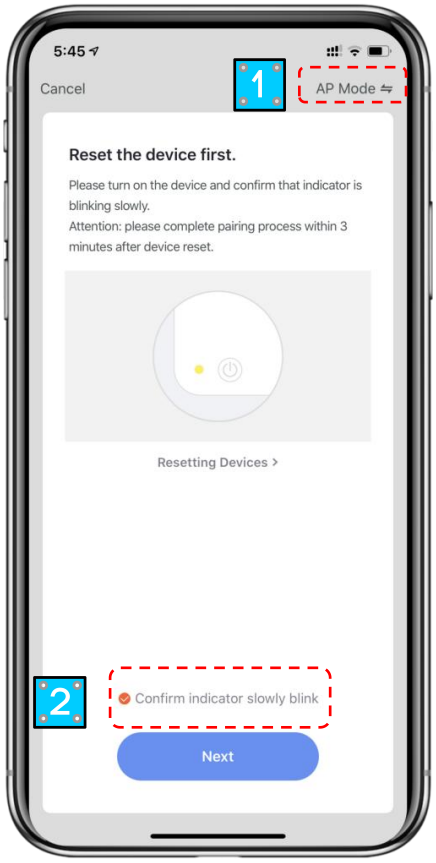
AP Mode: Press and hold the "  " and "  " and "  "keys at the same time for 3 seconds to enter the distribution network. The "  " icon will flash slowly.

Step 2&3

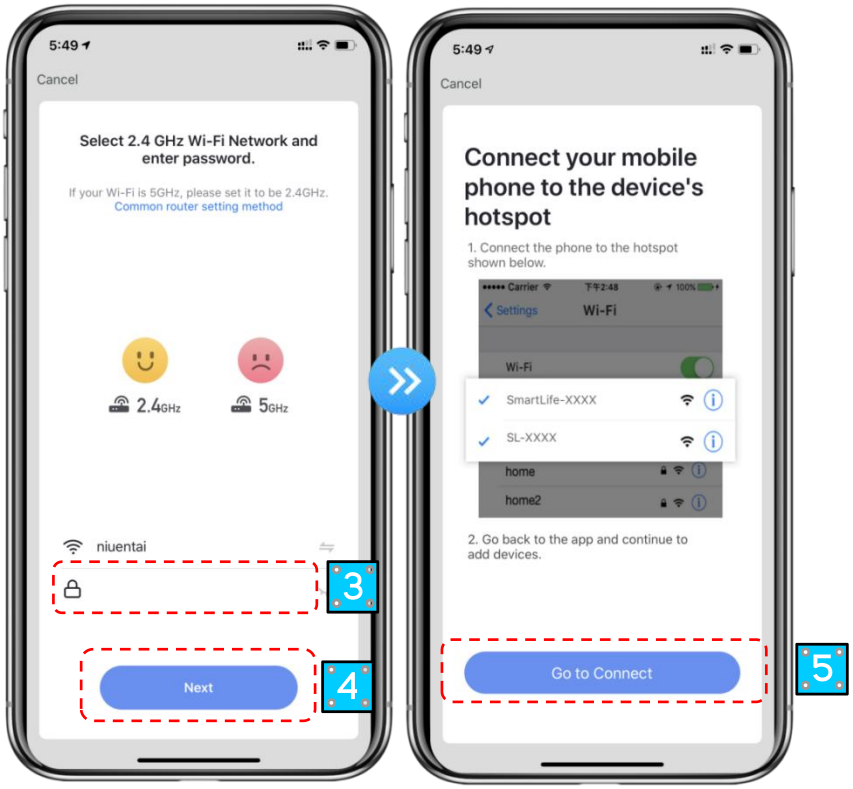
Same with EZ Mode above.

Step 4

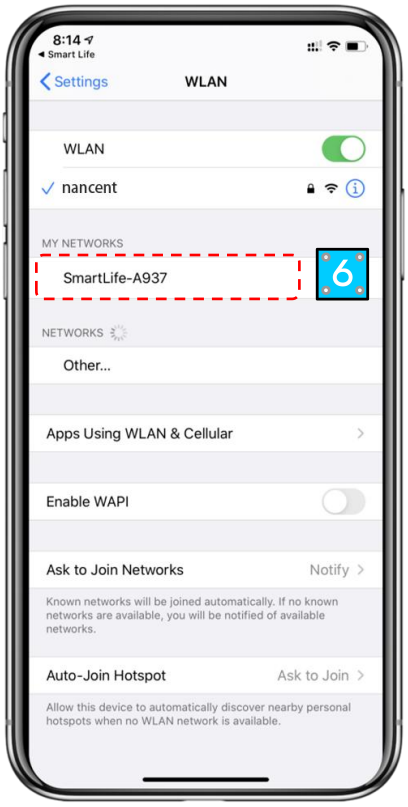
After entering the add device interface, click "EZ Mode" in the upper right corner; Enter the AP mode to add the device interface, confirm that the AP mode has been selected, and click"Confirm indicator slowly blink".



The interface of Wi-Fi connection will pop up, enter the Wi-Fi password of the mobile phone (it must be the same as the Wi-Fi of the mobile phone), click "Next", "Connect your mobile phone to the device's hot spot" will pop up, and click "Go to Connect";



Enter the mobile phone Wi-Fi connection interface, find the “Smart Life_XXXX” connection, and the APP will automatically enter the device connection status.



Step 5 : Same as EZ mode above.
Note: If the connection is failed, please enter the AP mode manually and reconnect according to the above steps.

6.6.4. Software Function Operation

- After the device is bound successfully, enter the operation interface of “Smart heat pump” (Device name, modifiable)
- In the main interface of “Smart Life”, click “Smart heat pump” to enter the operation interface.

① Back

② More: You can change device name, select device installation location, check networking status, add Shared users, create device cluster, view device information, and more.

③ Setting temp. adjustment: The circle slides counterclockwise to reduce the temp., but clockwise to increase the temp..

④ Target temp.

⑤ Current temp.

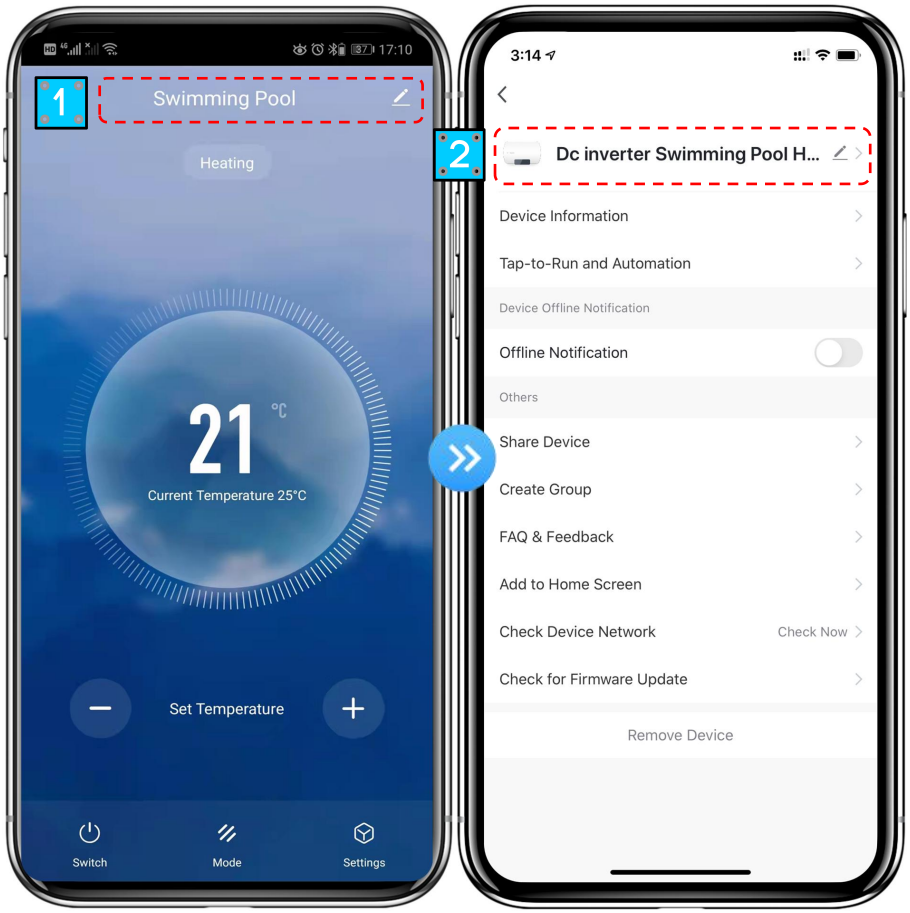
⑥ ON/OFF

⑦ Mode switching: Click to select the mode to be switched.

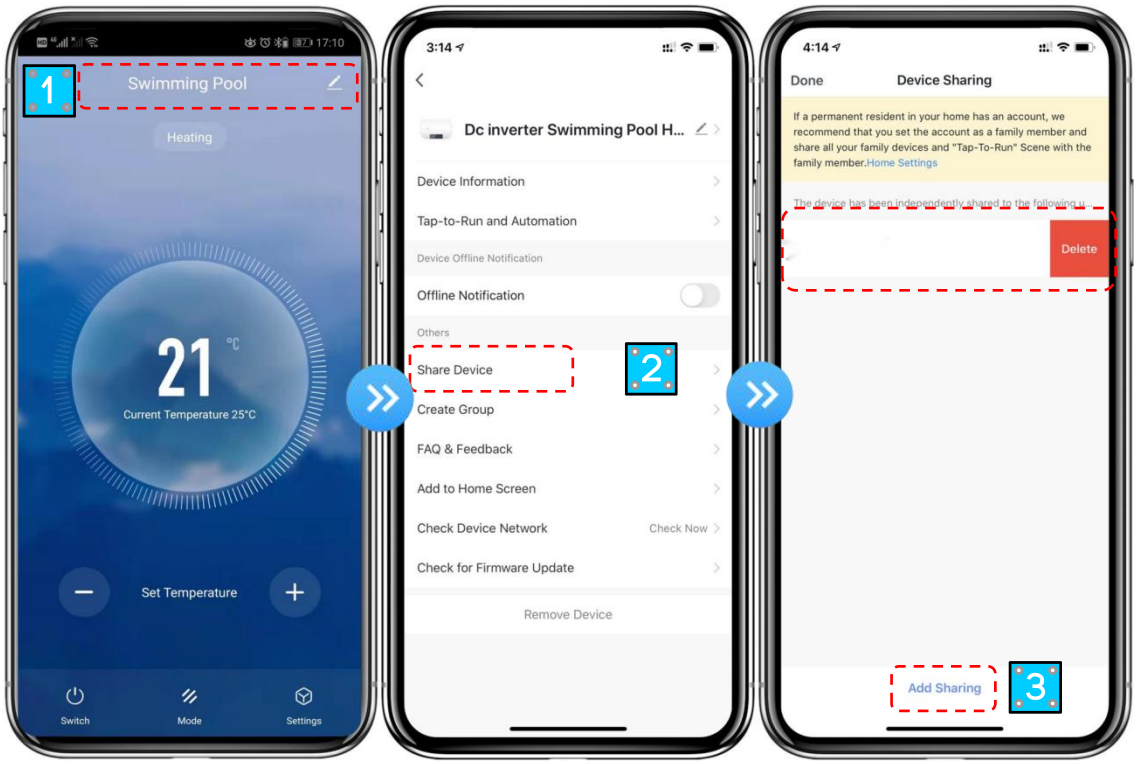
⑧ Timing: Click to add timing off/on time.

- **Modify device name**

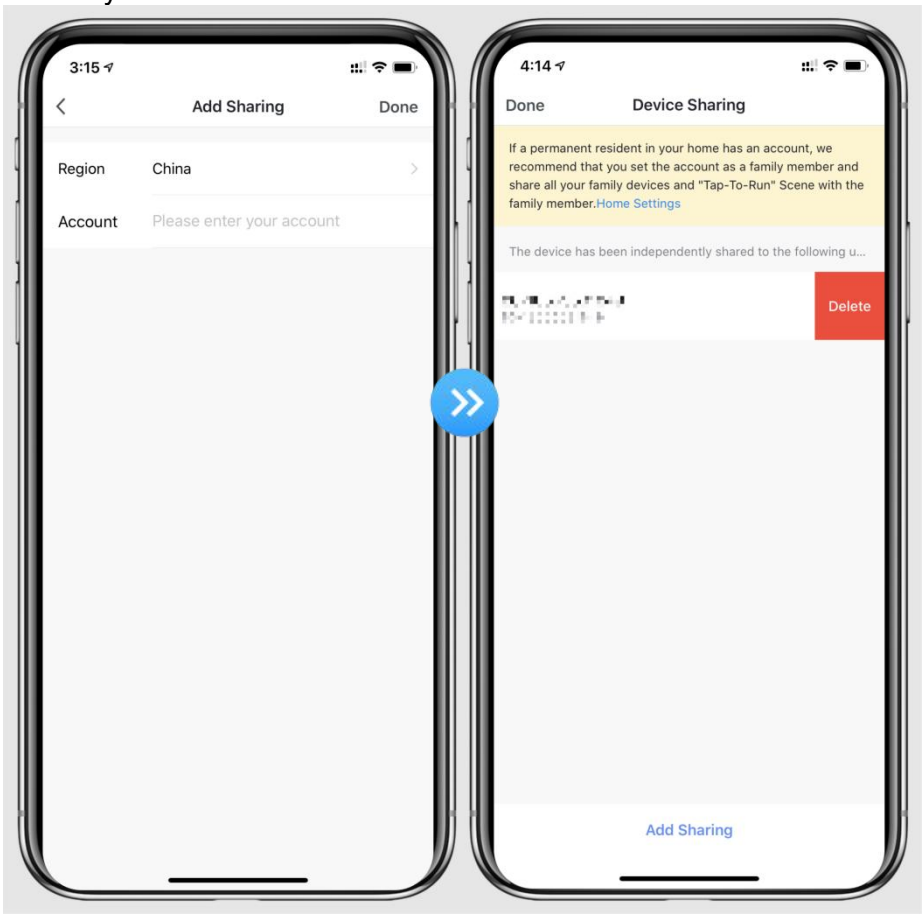
Click in the following order to enter device details, and click "Device Name" to rename the device.



- **Device sharing**
  - To share a bound device, the user should do so in the following order.
  - After successful sharing, the list will be added to show the person shared
  - If you want to delete the account you shared to, cross the selected account to the left,and delete it.
  - The user interface is as follows.



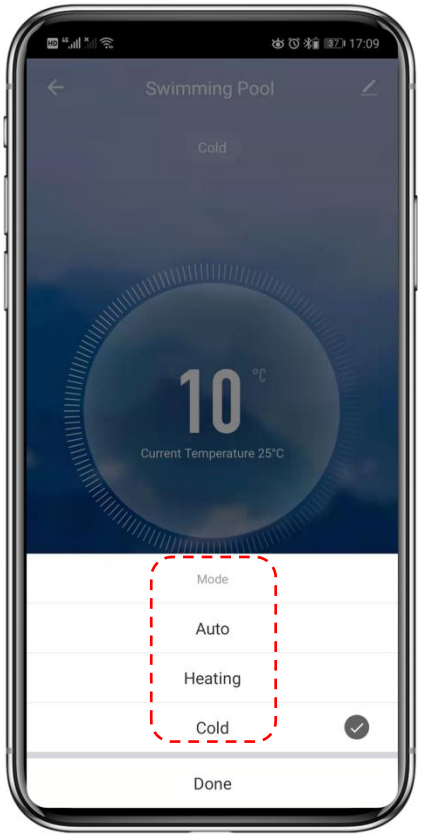
- Enter the account of the shared, click "Done", and the share success list shows the newly added account of the Shared.



- The interface of the person to be shared is as follows. The received shared device is displayed. Click it to operate and control the device.

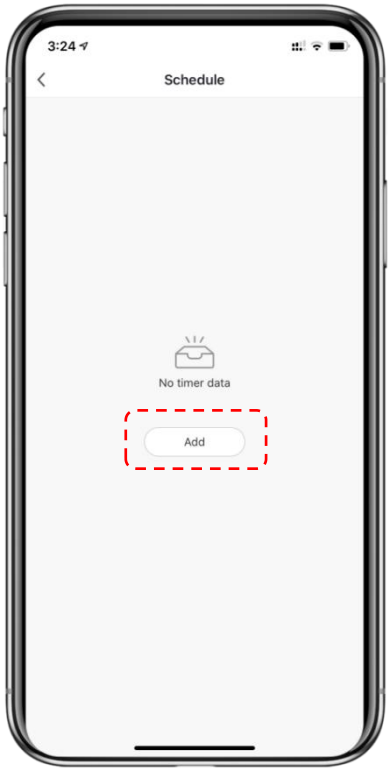
- **Mode settings**

Click “ ” on the main interface to switch modes,select what you need.

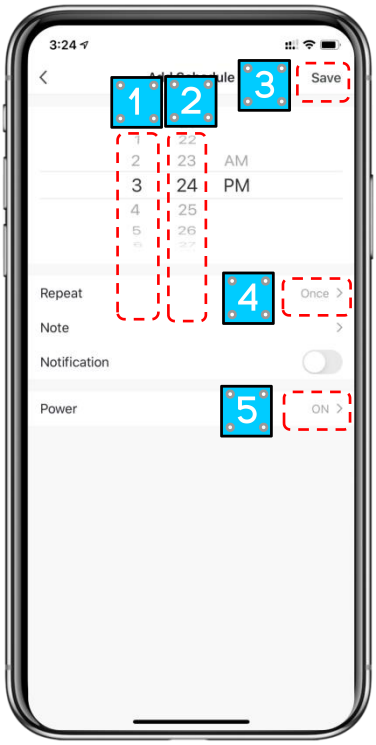


- **Timer setting**

1. Click “ ” on the main interface to enter timer setting interface, as shown below, click to add timer.



1. After entering timer setting, swipe up/down to set timer,set up repeat weeks and on/off,then click “save” to save your settings as follows.

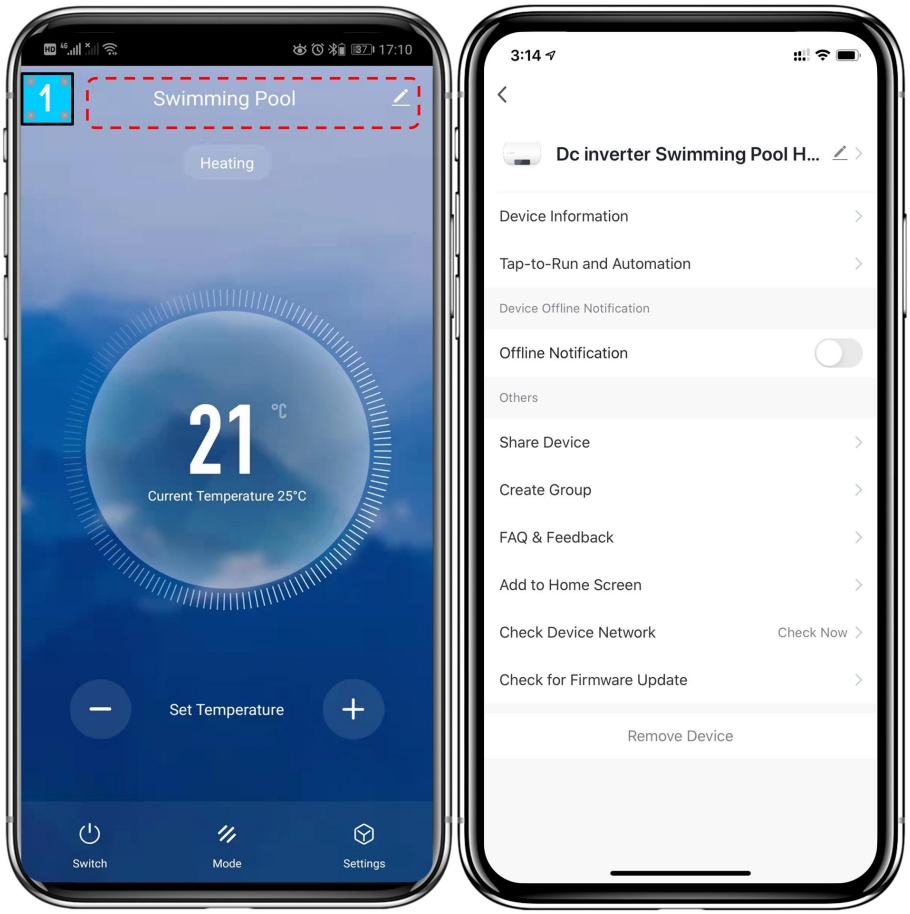


① Hours
② Minutes
③ Set the repetition

④ Set power ON/OFF
⑤ Save your modification

6.6.5. Device Removal

Click “ ” on the top right corner of the main interface to enter the device details interface, and click “device removal” to enter EZ mode. Indicator light under“ ” flashes rapidly for 3min, The network can be reconfigured within 3 minutes, and the network can be quit if it is not connected within 3 minutes. The specific operations are shown as follows.



7. ICE BATHTUB MAINTENANCE

7.1. Cleaning The ice bathtub Shell

Ensure Ice bathtub is not continually exposed to the elements, the acrylic shell can reach very high temperatures if the Ice bathtub is located without shading or cover. Damage due to sunlight or extreme temperatures is not covered by the Ice bathtub warranty .Exposed to the elements while no filled with water, while hardcover is removed or by simply no shading of the Ice bathtub may cause damage to the acrylic shell. With normal use of your Ice bathtub, oils, lotions and hairsprays will build up on

the surface of the water sometimes leaving a scum line around the perimeter of your Ice bathtub shell.

Use a recommended cleaner or simply wipe down with a soft cloth and a non-abrasive cleaner. (eg methylated spirits). Clean while Ice bathtub is drained for servicing or water change-over.

For hard water stains consult the Authorised Ice bathtub Dealer for an acceptable Ice bathtub cleaner/polish.

- Never allow your Ice bathtub surface to come in contact with acetone (nail polish remover), nail polish, dry cleaning solution, lacquer thinners, gasoline, pine oil, abrasive cleaners, citrus cleaners or any other harsh chemical. These chemicals can damage your Ice bathtub shell and void your warranty.
- Do not use cleaning agents that will leave suds in your Ice bathtub water.
- Adjustable jets should be removed and washed thoroughly to remove any dirt and grit build up. (Removal of jets is outlined in the jet section)

Note: Minor scratches can be removed by using fine wet & dry sandpaper and car polish. Contact your Authorized Ice bathtub Dealer before attempting this method.

7.2. Maintaining The ice bathtub Hardcover

① When cleaning your cover, use a mild soap and water.

② Do not walk, jump or lie on cover.

③ When moving your cover, lift at all times, do not drag, drop or slide cover.

④ Do not lay cover on rough surfaces.

⑤ Approximately every four weeks, use an approved vinyl conditioner on top of the cover.

⑥ Remove foam liner from Hardcover every 12 months and rotate to eliminate aging of the hardcover.

It is most important that you connect the lock-down clips to the cabinet to ensure safety for your family. Ensure hard cover is fitted on ice bathtub at all times when not in use.

Using a ice bathtub hard cover any time when the ice bathtub is not in use will significantly reduce your operating costs, heat up time and maintenance requirements.

Note: Damage to ice bathtub caused by the elements due to hardcover not being used correctly will void warranty.

7.3. Cleaning Your Filters

You should clean your filters regularly. Once a week you should remove your filters and hose any debris out of them with a high pressure hose. Once a month you should soak your filters in a cartridge filter cleaning solution and then hose off with a high pressure hose.

Cartridge filters are made from fine polyester paper like material, specifically designed to filter out body oil and grime. Your Ice bathtub is equipped with easy access skimmer cartridge filters. The average life expectancy of a cartridge filter is approximately 12-18 months (with proper care and correct
water maintenance).

It is recommended that the filters need to be cleaned every week to remove all body oils and grime from the surface (cleaning intervals dependent on usage)
Replacement cartridge filter may be purchased from your Authorized Ice bathtub Dealer. (It is
recommended that you purchase a second set of filters).

7.3.1. How To Remove Cartridge Filter Elements

① Turn power off to Ice bathtub from circuit breaker or isolation switch. Ensure power is turned off during cleaning of filters as foreign matter can make its way into the pumps, heater and plumbing system while filters are removed.
Please refer to the diagram below

.

② After removing the cartridge filter, please clean with the high-pressure jet to remove all debris clinging to the element.
③ Before re-starting the jet pump, please check whether the filtration system is perfectly installed.
④ Soak filter in a recommended cartridge filter cleaner to remove all body oils and grime.
Check with cartridge cleaner instructions.
⑤ Thoroughly rinse cartridge with clean water using a high-pressure jet again.
⑥ Replace filters - Be careful not to over tighten.

⑦ Replace filters basket and face plate.

Important: When you remove your filters, ALWAYS ensure that the power to your ice bathtub is off before doing so! If you leave your power on and anything is drawn into your pump or heater.causing either to fail, fault will not be covered under warranty.

7.4. Jet Maintenance

If you find that the jet rotation speed is slower than a new Ice bathtub, or the jet is sticky, the reason could be the accumulation of sediment in the jet bearings. To remove the sediment, please follow these instructions:

- Close the Ice bathtub, rotate the jet panel, until the rotation of the panel stops.
- When the panel stops to rotate, please continue to rotate it counterclockwise with a larger force and let the panel pass the locking position, until the panel stops again. Pull out the panel and let the entire jet leave the Ice bathtub.
- After washing the bearing in the jet with water, turn the rotary eye. Now, the jet should be able to rotate freely. If it can still not freely rotate, you can soak the bearing in a cup of vinegar for one night (cider vinegar can soften any sediment). Wash the bearing with water on next day and then carry out a rotation test.

Note: If the bearing can still not freely rotate, you need to soak it one night more. If the bearing still does not rotate, you must purchase a new one by the dealer.

- To replace the bearing, please put the bearing opening down to the panel rear end and push the panel into the Ice bathtub. Gently rotate the panel in either direction, until you feel that the panel is aligned with the device. Then press the panel into its place, then rotate the panel with a little larger force clockwise and let it pass the lock position. If the panel does not rotate, please remove the entire panel, rotate it in 180°, and repeat this step. After opening the jet pump, the jet should be free to rotate.

7.5. Headrests

Most Ice bathtub models have 2-7 moulded comfort pillows/ headrests. These headrests are designed for comfort tothe Ice bathtub user. We recommend removing these headrests periodically to clean behind them. We also recommend removing the headrests if your Ice bathtub is not going to be used for a long period of time, as consistent exposure to chemicals, ozone and moisture may damage the product over time. Every 3-6 months the headrests should be removed for cleaning. The headrests are secured to the shell by small snap in lugs, or are simply a slide fit, this prevents

the headrest from falling into the Ice bathtub. Headrests can be wiped with methylated spirits, then coated with a high grade vinyl rejuvenator to rejuvenate the faded, powdered look.

7.6. ice bathtub Cabinet

When cleaning the Ice bathtub cabinet, you can only use a soft cloth or sponge dipped in neutral soapy water. Abrasive cleaners or applicator agents will damage the surface gloss. The Ice bathtub cabinet must be thoroughly cleaned with clear water.

7.7. Chemicals For Your ice bathtub

Sanitiser is extremely important for killing algae, bacteria and other unwanted impurities in Ice bathtub water. First test the water using one of our testing kits to know the water situation, to confirm if sanitiser needs to be added. Second, open the filter, take out brominator, and put chlorine or bromine inside to reach recommended Alkalinity to 125ppm, calcium hardness to 150mm, pH to 7.2-7.6 prior to each use.

7.8. Sanitising Your ice bathtub

Proper sanitisation of your ice bathtub is important. Ensure you maintain residual sanitiser levels to product recommendations. Make sure you adjust your alkalinity level first as an out-of-balance condition will affect ability the pH correctly. And will prevent the sanitiser from operating effectively. Use test strips to measure your sanitiser levels.

7.9. Changing The Water

Approximately every 8-12 weeks, or more frequently depending upon usage, you should completely drain your ice bathtub. About 1/3 of the water capacity should be drained off every month in addition to the above procedure to keep the water manageable. The frequency of complete drainage depends on a number of variables including the amount of use, attention paid to water quality, maintenance etc. You will know it is time for a change, when you cannot control foaming and/or you can no longer get the normal feel of the bathtub to the water even though the key water balance measurements are all within the proper parameters.

If you use your ice bathtub once or twice a week, then need to drain your ice bathtub will be less frequent than a ice bathtub owner who uses their ice bathtub three or more

times a week. Therefore, it would be recommended that a ice bathtub be drained at least every 8-12 weeks.

Note: Be sure the power to your ice bathtub is turned off before draining.

Damage to equipment due to dry running is not covered under warranty.

7.10. When Your ice bathtub is Not in Use

If you are going away for a period longer than 2 months, it is recommended that you turn your ice bathtub off and empty it. It is important to remember to leave the cover on even while empty to protect the shell. If you are going away for a few days or weeks, do not tum your Ice bathtub off completely. Turn the temperature down to 15°c,so that the fltration cycles are still functioning but the Ice bathtub doesn't heat.

NOTE: at no time should you leave your ice bathtub in direct sunlight for prolonged periods of time. please make sure you place the cover back onto the ice bathtub after every use or chemical application. failing to cover your ice bathtub from direct sunlight may damage your ice bathtub shell and void all warranty.

IF WATER QUALITY IS POOR: clean filters, test and balance water and run ice bathtub for an hour

EVERYTIME YOU EMPTY YOUR ice bathtub: Remove and clean the jets if stiff or scratchy.

If jets do not turn or spin, this is due to chemical build up and/or sand/grit behind them.

Please contact your Authorized ice bathtub Dealer for suggested water treatments.

7.11. Winter Preparation

Your ice bathtub is specifically designed and suitable to any climatic conditions. Therefore, you can use it throughout the year. In some areas, extremely cold (below-12°C or 10°F) with the strong wind is "hand in glove", even the water in the ice bathtub is kept at a selected temperature, the jet pump could partial freeze. In cold weather, the heater starts more frequently, that will result in reduced energy efficiency of the ice bathtub. In order to prevent partial freezing of certain components, the ice bathtub cabinet can be insulated with an insulation device (available from your local

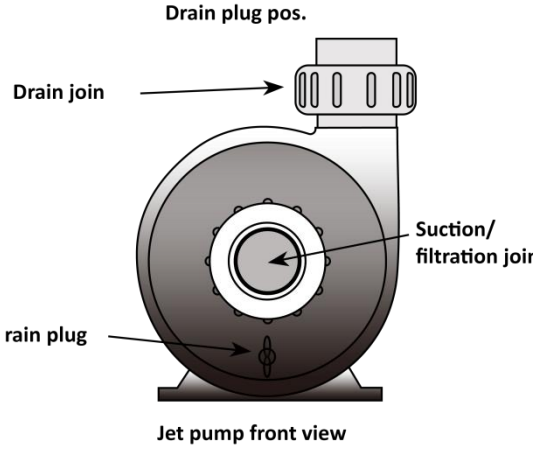
dealer). This insulation device can also help maximize energy efficiency of the ice bathtub.

Note: When the weather is warmer (temperatures of about 16°-21°C or 60-70°F),the insulation device must be removed to prevent overheating of the jet pump.

⚠DANGERS

Please only use non-toxic glycol to prevent freezing (available from most RV or marine supplies store). Never use automotive antifreeze (ethylene glycol), because it is toxic!

- Drain water from the ice bathtub according to the section “Drain your ice bathtub" in this User manual.
- Remove the cartridge filter and then store it in a dry place.



7.12. Disassembly Guidelines of built-in chiller

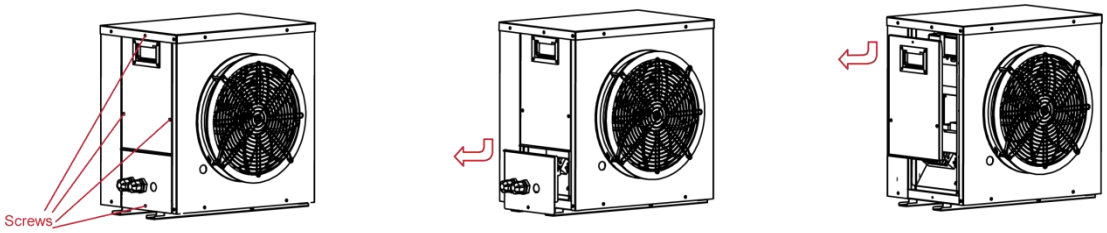
Tools:

① Phillips screwdriver
② Wrench
③ Flat-blade screwdriver

Step one: Remove electrical box cover and left panel

① First remove the bottom screws, pull out the electrical box cover; then remove the three upper screws and remove the left side panel.Pull out the service plate;
② Pull down the electrical box cover and take it out;
③ Pull the left side panel down and take it out.

As the following figure shows

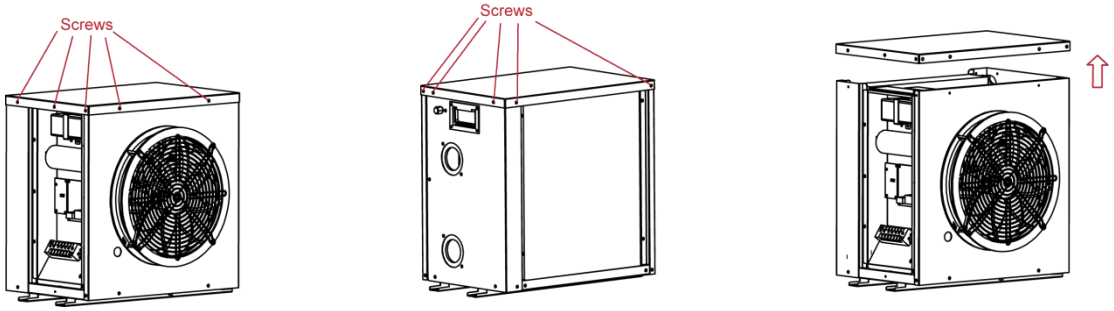


Step two:Remove the top cover

① Remove the screws around the top cover;

② Lift up and lift out the top cover.

As the following figure shows



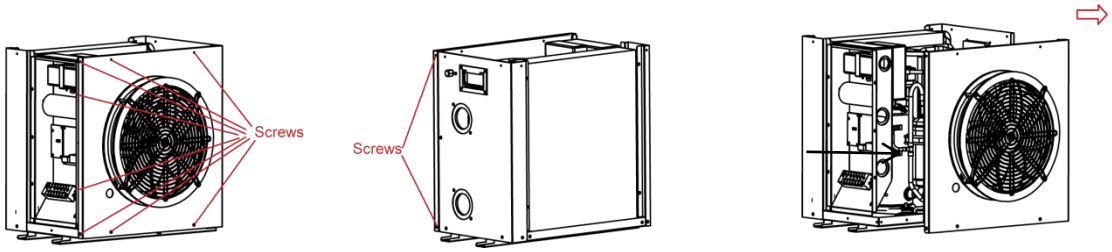
Step three:Remove the front panel

① Remove the screws on the front panel;

② Disconnect the fan cable connector;

③ Completely remove the front panel.

As the following figure shows

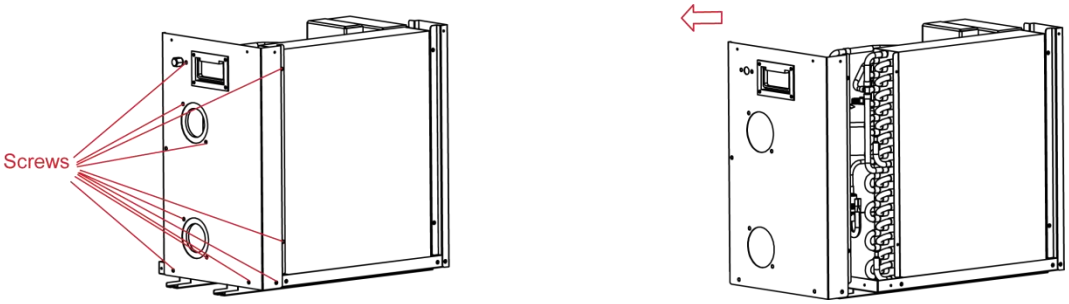


Step four: Remove the right panel

① Remove the four screws on the right panel;

② Completely remove the right panel.

As the following figure shows

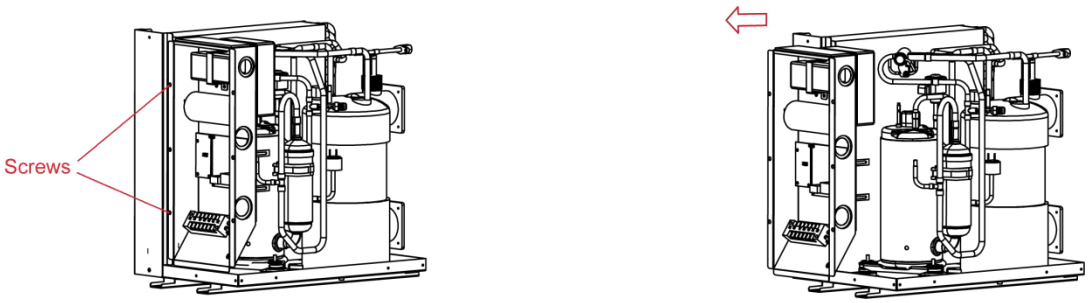


Step five: Remove the electrical box

① Remove the remaining screws from the electrical box;

② Completely remove the electrical box.

As the following figure shows

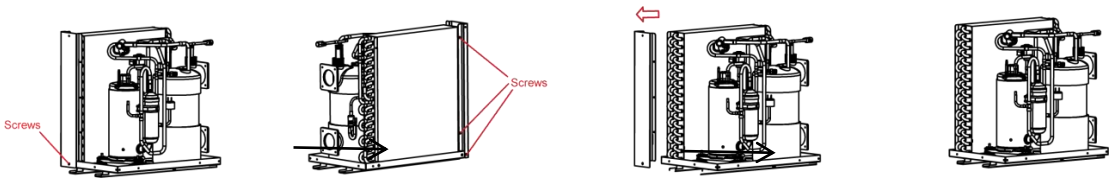


Step six: Remove left rear pillar

① Remove the remaining screws from the left rear pillar;

② Completely remove the left rear pillar.

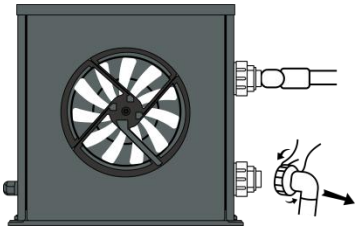
As the following figure shows



7.13. Winterizing

"CUT OFF"power supply of the heater before cleaning, examination and repairing

In winter
season when you don't use the bath chiller:
a. Cut off power supply to prevent any machine damage.
b. Drain water clear of the machine.



!! Important:

Unscrew the water nozzle of inlet pipe to let the water flow out. When the water in machine freezes in winter season, the titanium heat exchanger may be damaged.

c. Cover the machine body when not in use.

8. DRAIN YOUR ICE BATHTUB

- Find the main drainage. According to the procedure shown in the Figures B, remove the core of drain valve, connect the external water hose to the garden hose connector (to avoid flooding the foundation around the ice bathtub)and push the hose inwards to the garden hose connector and then pull the hose to a proper drainage area.

Note

① Please don't bend the drain hose to avoid influencing drainage.

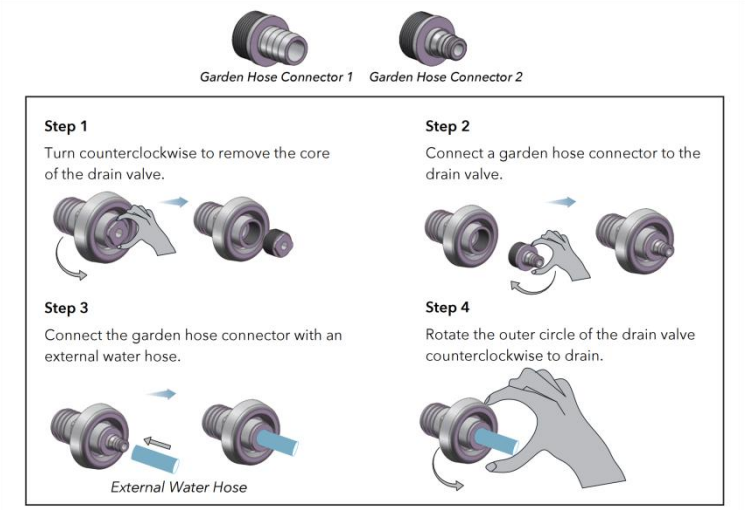
② The water containing higher concentration disinfectant is harmful to programs and lawns.

③ The water can drain almost completely by through the drain valve all ice bathtub type. The water in jet pump, heating system and other equipment will also be discharged. The residual water in the pipe or equipment needs only to be discharged, when conducting the winter preparation.

After drained water, please clean the tub and cartridge filter. Pull out and remove the drain hose and garden hose connector, place the core of drain valve into the ice bathtub again as shown in the Figures A. Fill water according to "Procedure of Filling Your ice bathtub & Starting Up".

Figures A

Garden Hose Connector: We have 2 different types garden hose connector, and it is usually putted in the filtration box. Choose the suitable connector according to the actual situation.



Figures B

9. WATER QUALITY & MAINTENANCE

9.1. Three Aspects For Water Quality Maintenance

- **Filtration**
- **Chemical Regulation/pH Value Control**
- **Disinfection**

The users have the responsibility to maintain the water in health status and regularly add qualified disinfectant to the water (if needed, add it every day). Through chemical methods, you can control bacteria and viruses in the tap water or in the water after using the ice bathtub. Without disinfection, bacteria and viruses will increase rapidly.
The users have also responsibility to adjust the water through chemical method and to control the water pH value. You must add chemicals to the water and make the water total alkalinity (TA)/ calcium hardness and pH value maintain normal levels. The correct water regulation and control of the water pH value can minimize the scale accumulation and corrosion of the metal, so that the life of the ice bathtub is extended and the disinfectant can play the best effect.

9.2. Water Test Method

Correct test and analysis of the water quality is an important measure for effective maintaining water quality. In accordance with the recommended program, you must check:

- **Total alkalinity (TA)**
- **Calcium Hardness (CH)**

- **pH Value**
- **Disinfectants**

Recognizes and recommends the following two test methods:

- Test with reagent is a method of higher accuracy. The agent can be in liquid or tablet form.
- The test with test paper is a simple method and many ice bathtub users use this method. Please remember that the test paper is sensitive to heat and moisture, and a heated or damped test paper can lead to inaccurate readings

Note: Please read and strictly follow the operation instructions in the test paper box to ensure accurate test results.

9.3. Basic Chemical Safety

When using chemicals, please read and strictly follow the operation instructions. Correct use of the chemicals can protect you and your ice bathtub. But high content of chemicals is harmful. Please follow the following principles:

- Only reliable adults are allowed to treat the ice bathtub chemicals. Chemicals should be placed out of reach of children.
- Accurately take and use the prescribed dose to the ice bathtub, not too much.
- All containers are to be handled with care and to store in a cool, dry, well ventilated place.
- Chemical containers must be sealed with corresponding covers, when not in use.
- Don’t breathe fumes or allow chemicals touching eyes, mouth and nose. Wash hands immediately after use.
- In case of accidentally touching or swallowing chemicals, you must be treated in accordance with emergency treatment recommendations given on the product label. At this time, you have to call a doctor or your local poison control center. For medical treatment, please carry chemical containers in order to determine the composition of the chemicals.
- Don’t let the chemicals drop onto the surrounding ground or green plants.
- Don’t remove the dropped chemicals with the vacuum cleaner.
- Don’t smoke near chemicals. Some chemical fumes are highly flammable.
- Don’t store chemicals in the ice bathtub cabinet.

9.4. How To Add Chemicals To The Water

Important: All ice bathtub chemicals, including the sodium dichloro cyanurate exc disinfection powder, MPS (monopersulfate), powdered pH value - increasing agent and inhibitors, powdered total alkalinity - increasing agent, calcium hardness-increasing agent, descaling liquid and defoaming liquid, must be added directly into or before the filtration box during the operation of the jet
pump, which must run at least 10 minutes.

9.5. To Add A Water Treatment Agent

- Fold the ice bathtub cover. Carefully remove the filtration box cover and set it aside (to use timely).
- Find the button "clean" on the control panel and start the jet pump.
- Carefully take a recommended dosage of chemical and slowly pour it into or before the filtration box. Don’t let the chemical sputter onto hand, eye, tub or tub sidewall.
- Replace the filtration cover (if any). After 10 minutes, turn off the jet pump, close and lock the cover.

Drowning danger: monitoring is necessary, while the ice bathtub is open!

⚠**WARINING**

If the disinfectant concentration is too high, this could lead to discomfort of the eyes, lungs and skin of the users. Before using the ice bathtub, please remember to let the disinfectant concentration to the recommended range. Important note about the "super chlorination/non-chlorine oxidation treatment": after the ice bathtub has been treated through super chlorination or non-chlorine oxidation, the ice bathtub cover should be open for 20 minutes to discharge the oxidizing gas. If the high concentration oxidizing gas produced by oxidation treatment (not daily disinfection) is not discharged, this could gradually lead to a discoloration of the cover back or degradation of the vinyl basic material. Such damage is considered as chemical misuse and will not be covered under the warranty.

9.6. Water Quality Maintenance Program

In according to the water quality maintenance program, each step must be done after completing the previous step. If one step is ignored or does not meet the proposed

standard, it could lead to a water chemistry imbalance. This will damage the ice bathtub tub and its components, and makes the user discomfort.

9.7. Total Alkalinity (TA) Adjustment

- Water total alkalinity (TA) is 125-150ppm.
- Total alkalinity means a metrics of the total content of carbonates, heavy carbonates, hydroxides and other alkaline substances in the water and is called as "pH buffers", that is the metrics of the ability of water to prevent the pH value change.
- If the total alkalinity is too low, then the pH value will largely fluctuate from high to low. pH value fluctuations can lead to corrosion or scaling on the ice bathtub components. If the total alkalinity is too low, it can increase by adding sodium bicarbonate (pH value/ alkalinity increasing agent).
- If the total alkalinity is too high, the pH value tends to be higher and is difficult to reduce. It can be reduced by using sodium bisulfate (pH value/alkalinity inhibitors).
- Once the total alkalinity of water reaches balance, it will usually remain unchanged - although the reading will increase and decrease after adding the water with high or low alkalinity otherwise.
- You can carry out the next operation, after the total alkalinity has entered into the recommended range.

9.8. Calcium Hardness(CH) Adjustment

- Recommended water calcium hardness (CH) is 125-150ppm.
- Calcium Hardness is a metrics of the total content of calcium dissolved in the water. Calcium helps control the water causticity. Therefore, we don’t recommend low calcium water (which is usually called as "soft water"). The low calcium water is strong corrosive to the equipment and can lead to scaling on the ice bathtub tub surface and equipment.
- If the calcium hardness is too high (which is usually called as "hard water"), it will lead to scaling on the ice bathtub tub surface and equipment. The calcium hardness can be reduced by dilution method – the calcium hardness can usually falls to the correct range by mixing 75% of the hard water with 25% soft water. If the soft water is not available or not applicable, you should add detergents to the water (according to label instructions of the detergents).
- If the calcium hardness is too low, then add calcium hardness increasing agent.

- Once the calcium hardness reaches balance, it will usually remain unchanged - although the reading will increase and decrease after adding the water with high or low calcium content otherwise.
- You can carry out the next operation, after the calcium hardness has entered into the recommended range.

9.9. pH Value Adjustment

- The ideal water pH value is 7.2-7.6.
- The pH value is a metrics of acidity. When the pH value is more than 7.6, the water is alkaline, when lower than 7.2, the water is acidic. Maintaining the proper pH value is of great significance.

So you can:

① Optimize the effectiveness of disinfectants.
② Keep the water use comfort.
③ Prevent aging equipment.

- If the pH value of the water is too low, it may results in the following consequences:

① The rapid consumption of disinfectant.
② Users have allergies.
③ Corrosion of the ice bathtub equipment.

Note: If the pH value is too low, you can add sodium bicarbonate to the water(pH value/alkalinity increasing agent).

- If the pH value is too high, it may results in the following consequences:

① Reducing the effectiveness of disinfectants.
② Scaling on the surface of the ice bathtub tub and equipment.
③ The water becomes turbid.
④ Blocking of the filter pores.

Alkaline water (scaling zone)	8.2 7.8	Add pH inhibitors to reduce pH value
Comfort Zone	7.6 7.4 7.2	Ideal range
Alkaline water (Corrosion zone)	6.8 PH	Add pH inhibitors to reduce pH value

Note: If the pH value is too high, you can add sodium bisulfate (pH value/alkalinity inhibitors) to the water to reduce the pH value.

- Regularly (once a week) check of the pH value is of great significance. All of the use frequency, the situation of adding the fresh water and various chemicals as well as the kind of disinfectants will influence the pH value.
- You can carry out the next operation, after the pH value has entered into the recommended range.

9.10. Keep The Concentration Of Disinfectant

- In killing algae, bacteria and viruses and preventing the proliferation of harmful microbes in the ice bathtub bath proliferation, disinfectants play an extremely important role. But excessive use of disinfectants is not allowed, because this can irritate the skin, lungs and eyes.
- The disinfectant concentration should always be maintained at recommended level.
- Recommends only the use of dichloroisocyanuric acid sodium (sodium bichloride or sodium chloride) as disinfectant.

⚠WARINING

Please don’t use trichloroisocynurate, bromo-chloro-dimethyl hydantoin (BCDMH), or any bromine or chlorine in solid form, acid or any kind of disinfectants that is not recommended.

Water Quality Maintenance Quick Reference					
Step		Ideal range (PPM)		Chemicals used Increasing agent	Inhibitors
		Minimum	Maximum		
1	Total Alkalinity	125	150	Sodium bicarbonate or baking soda	Sodium bisulfate
2	Calcium Hardness	150	200	Calcium hardness increasing agent	Mix 75% hard water with 25% soft water, or use detergents
3	pH Value	7.2	7.6	Sodium bicarbonate	Sodium bisulfate
4	Disinfectants	See the section "Keep disinfectant concentration"			

9.11. Water Treatment System

Water treatment system consists of the following products:

- Minerals cartridge filter
- Sodium bichloride
- Chlorine-free oxidizer (monopersulfate)
- Corona discharge(CD)ozone generator

Minerals cartridge filter is used for adding chemicals to the water, in order to inhibit the growth of bacteria. This can oxidize particles in water when using together with chlorine-free oxidant (monopersulfate).

Note:

- When using various types of products, please remember following the recommended application and maintenance program. You need to increase the amount of disinfectant after the ice bathtub has been used for a long time (such as an entire afternoon or evening).
- “Oxidation treatment” is required once a week, that can quickly destroy residual dirt and restore the vitality of bromine in the water.
- “Oxidation treatment” is required once a week, and the frequency of the oxidation treatment has to increase, if the ice bathtub is used more frequently.

9.12. Replacement Instructions For Cartridge Filter

Minerals cartridge filter should be replaced once four months. When replacing the minerals cartridge filter, we strongly recommend to drain the water completely and then re-add the water.

Then adjust the total alkalinity (TA), calcium hardness (CH) and pH value to the recommended level.

Add chlorine-free oxidant for oxidation treatment.

Note: By replacing the cartridge filter, please refer to the instruction of previous “Clean Your Filters” .

9.13. Chloride (Sodium Bichloride)

- Chemical disinfectants such as chlorine, are oxidants used to kill bacteria and germs in water. The free residual chlorine (FAC) means the measurable chlorine amount remaining in the water, that can be used for disinfecting the ice bathtub.
- We recommend using chlorine particles of sodium bichloride for water disinfection, because sodium bichloride can be completely and rapidly dissolved in water and its pH value is close to neutral.
- During use, it is extremely important to maintain the proper level of chlorine.
- If the content of the free residual chlorine (FAC) is too low, bacteria and viruses in the warm water can grow rapidly. Please increase the free residual chlorine (FAC) by adding sodium bichloride articles.
- If the content of the free residual chlorine (FAC) is too high, the water in the ice bathtub can irritate the eyes, lungs and skin. The content of the free residual chlorine (FAC) is automatically reduced after waiting for some time.
- When free residual chlorine (FAC) keeps in the recommended range, you can safely use the ice bathtub.

⚠WARINING

Many kinds of stabilized chlorine can be used for a ice bathtub or swimming pool and each kind has its specific chemical properties. It is extremely important to select a ice bathtub-special chlorine. Incorrect use of trichloro with a very low pH value (pH2.6, too fast dissolving in the water resulting in a very high chlorine content, specifically for concrete or pool) will damage your ice bathtub. Your ice bathtub could be damaged by using liquid or solid bromine, chlorine, acid or any kind of disinfectants other than our specification. This damage will not be covered under the warranty.

Chlorine measured readings with DPD reagent or test paper	Before the reading drops below this level, the use of the Spa is forbidden
5.0	
4.0	Recommended security level by DPD reagents
3.0	
	Adding chlorine
2.0	
1.0	Adding chlorine during the use of the Spa is forbidden
0	

Important: By improperly storing, the granular form chlorine (sodium bichloride) will be decomposed. We recommend the purchase and use the chlorine in 1 pound, 2 pounds or 5 pounds package. To maintain performance, please store it in a cool and dry location.

9.14. Superchlorine

Superchlorination applies specially for "burning" the accumulated chloramine (waste chlorine) to eliminate the chlorine odor and keep the free chlorine to a proper level. When conducting the water superchlorination treatment, please open at least a half of ice bathtub cover, in order to facilitate the chlorine emission. Superchlorination (non-daily disinfection) may lead to a too high chlorine concentration resulting in discoloration or degradation of the cover back. Such damage is not covered under the warranty.

⚠**WARINING**

Don't let the ice bathtub in unattended status, especially when children are present!

Water Treatment Guidelines	
When starting ice bathtub or adding water	Follow the instructions of the section "Filling Your ice bathtub & Starting Up".
Before each use (Please test before adding any chemicals:if you find that the content of the chemicals is correctly or higher, don't add any chemicals)	Add ½ tablepoon of sodium bichloride to every 950 liters (250 gallons) of water or 1tablespoon of monopersulfate to every 950 liters of water.
Once a week	Add 1.5 tablespoon of sodium bichloride to every 950 liters of water or 3 tablespoon of monopersulfate to every 250 liters of water.
Every four months	Drain the water completely; replace minerals cartridge filter and re-adding water according to the instructions in the section "Filling Your ice bathtub & Starting Up".
When necessary (If the water becomes turbid has or peculiar smell)	Add 1.5 tablepoon of sodium bichloride to every 950 liters of water.

9.15. Make Daily Disinfection Plan

In the first month of use, please measure the residual amount of disinfectant every day, in order to determine the demand standard of the cartridge filter and disinfectants according to different frequency and time of use.

- Use frequency: Refers to the person-time entering into a ice bathtub.
- Use time: Refers only to the use time of a single person.
- Disinfectant demand refers to the quantity of disinfectants required by user number and total use time.

For example, two persons regularly use the ice bathtub, one time per night and 20 minutes each time. In this case, the disinfectant demand is relatively clear and generally fixed. In the first month of use, the two users can accurately determine the required quantity of disinfectants to maintain proper residual chlorine. If the use frequency/use mode changes greatly in a certain period of time (for example inviting guests), then the disinfectant demand and frequency of adding disinfectant will greatly increase. The longer the use time and the more the use frequency is, the faster the residual chlorine value reduces.

9.16. Precautions

- Check the content of bromine disinfectants before each use.
- Replace the FROG minerals cartridge filter once every four months.
- Test the total alkalinity and pH value once a week.
- Use only the non-chlorine (monopersulfate) oxidizant.
- All chemicals must be sealed and placed in a cool and dry place.
- The use of sodium bromide or biguanides is forbidden. These are active disinfectants, that can compound with silver ion and lead to losing efficacy of the disinfectants.
- Use of water purifying agent is forbidden, as it can cause water turbidity.

9.17. Water Quality Maintenance Supplementary Program

In a complete water maintenance program, proper water quality hygiene and minerals balance (pH value control) is essential. There are another three optional common additives for the water treatment as follows:

9.18. Mineral Deposition Inhibitor

- With the water evaporation and adding fresh water, the amount of dissolved minerals will increase. (Cover the ice bathtub as much as possible to minimize water evaporation.) Water will eventually become "hard"(calcium hardness is too high) to lead to damaging the heater surface due to calcification. Proper pH value control can minimize this possibility.
- Under normal circumstances, the soap will be piled up more and more. Therefore, it is necessary to replace the water regularly. The mineral deposition is usually not a problem.
- Sometimes, the content of iron and copper in the water is higher and this may produce green and brown spots on the ice bathtub tub. In this case, detergents may help to reduce these metals.

Note: The content of minerals in the well water is higher. A low flow water filter with ultrafine pores can help filter out many of the larger particles.

9.19. Foam Inhibitors

- Because the soap will be piled more and more in the water, so the water needs to be replaced. Generally, when using jets, the soap can cause foaming of the water. Soap comes into the ice bathtub in two ways: the user's body(residual soap after the shower) and swimwear (residual soap after washing).
- Foam inhibitors can inhibit foams, but can not eliminate the existing foams from the water. Soap can never be oxidized by chemicals added to the water and is therefore difficult to be removed from the water. Only ozone can oxidize soap.
- At last, soap will accumulate to higher concentrations in the water and lead to skin discomfort of the users. This is impossible to remedy. In this case, please drain out the water and fill fresh water into the ice bathtub. Freshwater should be able to be used for four months, but depending on the input amount of soap.

9.20. Ozone System

- Ozone system is the ozone purification system installed after license on the ice bathtub. Efficient ozone system uses "corona discharge" (CD) technology. Compared with the same kind of ultraviolet (UV) ozone systems, it is capable of producing higher concentrations of ozone.
- This efficient ozone system uses hidden installation, not only more subtle, but also not easy to be influenced by the freezing temperature. When servicing ozone system, please remove the ice bathtub cabinet and check the operation of the equipment (usually, this operation should be carried out before disconnecting power of the ice bathtub to draining water). As long as you hear the hum of the transformer, you can determine that the efficient ozone system is working properly.
- As a complement measure to the regular maintenance of water quality program. Efficient ozone system can greatly improve water quality. In contrast with some wording about the ozone system from mouth to mouth by some people in the swimming pool and ice bathtub industry. Ozone can not be used along for disinfection, water purification, anti-foaming and chelating minerals. We recommends, if you ensure the water hygiene and the highest quality of purified water by using ozone purification system, you should still develop a chemicals maintenance program accordance with the written and accepted standard in the industry and comply with it.

9.21. Clean Of The Ozone Jet

Sometimes, the ozone jet can be blocked due to mineral accumulation, that will lead to interruption of the ozone bubble flow or lower speed of the ozone bubble flow. In order to prevent this situation, please clean the jets in according to the following instructions:

- Cut off the power of the ice bathtub.
- Open the ice bathtub cabinet.
- Take a container (such as a bowl or bucket), pour 0.5 liters of white vinegar into the container, and then place the container on the floor of the equipment compartment.

Note: White vinegar will not damage any part of the ice bathtub.

- Carefully loosen the long tranice bathtubrent hose connected to the ozone generator bottom. There may be some liquid in the hose. If so, please don't touch this liquid. You should insert one hose end into the white vinegar, until it touches the bottom of the container.
- Reconnect the ice bathtub power.
- Start the ice bathtub, until all 0.5 liters of white vinegar is completely pumped. This allows enough white vinegar to flow through the jet and clear the blockage.
- Cut off the power of the ice bathtub.
- Take out the empty container.
- Reconnect the hose to the bottom of the ozone generator.
- Close the ice bathtub cabinet.
- Reconnect the ice bathtub power.

Ozone system is located inside the ice bathtub cabinet and needs almost no maintenance. But when bubbles appear in the backwater of the heater and the water is not as clear before, you need to check whether the ozone generator works properly. Carefully open the ice bathtub cabinet (please be careful, because the ice bathtub is still powered) and confirm the normal operation of CD tube and its transformer (ozone generator housing will make a slight hum). If you don't hearthe slight hum, please confirm that the generator has been connected fully with the control box of the ice bathtub.

⚠**WARINING**

If the fault to be treated is beyond the scope of this manual, please contact dealers. Ozone system can be repaired only by qualified technicians.

Important: Ozone jet cleaning does not belong to the warranty scope. Please refer to the above mentioned " Clean Of The Ozone Jet" instructions.

9.22. Precautions

- The use of acid and hydrochloric acid to reduce the pH value of the ice bathtub and swimming ice bathtub is forbidden.
- It is forbidden to splash the pH value increasing agent into the wall.
- The use of solid disinfectant is forbidden.
- It has now proved that the use of flotation devices containing bromine sticks or bromine flake may cause discoloration or damage of the tub surface, because the floating device may fall into the bottom seats or loungers (or sink to the ice bathtub bottom).
- Although the floating disinfection system is a low-maintenance or even maintenance-free solution, but it is not suitable for the ice bathtub maintenance program.

Ice bathtub tub can easily resist the influence of correctly distributed disinfectants. Non-floating
dispensers could be concentrated in one area leading to excessive disinfection in this area (or chemical burn).
If the position of the dispensers is too high, the high concentration disinfectant can lead to discoloration of the ice bathtub tub and damage to the cover back.
Because of the extremely large change of the decomposition speed of chemicals great, the automatic floating dispensers could result in insufficient or excessive bromide and lead to quick damage to the ice bathtub tub and cover.
Note: Recommends not using any floating dispenser. The damage to the ice bathtub tub or parts caused by the floating dispensers belongs not to the limited warranty range.

- All chemicals must be added slowly to the filtration box before filtration box and let the jet pump run 10 minutes in the same time.
- Please be particularly careful by cleaning the inner and outer plastic surfaces with baking soda. The use of non-specific ice bathtub disinfectant is forbidden.
- The use of household bleach (sodium hypochlorite solution) is forbidden.
- Spraying chemicals onto the water surface is forbidden. This method will cause bubbling on the tub surface because the chemical reaction (chemical misuse).
- It is forbidden to use the granular bromine disinfectant together with ozone.

9.23. General Problems About The Water Chemical Properties

Question: Why do you not recommend the water disinfection with the floating device?
Answer: Does not recommend the floating disinfection with the floating device for three reasons:

- The floating device is unable to control the speed of the disinfectant dissolved in water. When the floating device has just been placed in a ice bathtub, the concentration of the disinfectant could be extremely high and lead to chemical burns or discoloration on the ice bathtub tub or cover back. After some time, the concentration of disinfectants distributed through the floating device will drop almost to zero. Low concentration of disinfectants will not inhibit the growth of virus, bacteria or algae.
- Floating devices shall be sometimes concentrated in an area (typically stay on chairs) and leas to damage to this area due to the contact with the disinfectants with a high concentration.
- The disinfectants with a high concentration could splash from the floating devices and fall onto the floor or base of the ice bathtub. The disinfectants could lead to chemical burning (bubbling) on the ice bathtub tub. The ice bathtub tub is specifically designed and is able to withstand the influence of chemicals, but no ice bathtub surface can bear the highly concentrated chemicals.

Please remember, the misuse of chemicals is especially not covered by the warranty range.

Question: When smelling the chlorine odor by opening the ice bathtub cover, how to remove it?

Answer: There are two forms of chlorine in the ice bathtub.

- The first one is free residual chlorine, which can be used for disinfection of the ice bathtub. This free residual chlorine is odorless.
- The second is chloramines, which is the residue of chlorine consumed. Chloramines have a strong chlorine odor. Through a water "oxidation treatment", you can eliminate the odor of chloramines. When the water has a chlorine odor, it means you need to add the oxidation agent.

Question: Why it is not allowed to add the soft water to the ice bathtub?

Answer: Soft water and normal water is basically the same, but the calcium in the soft water is mostly (oreven fully) replaced by sodium. Soft water may corrode the heater and other components. If a ice bathtub component was damaged by soft water, the replacement is very expensive.

Question: I want my family to touch chemicals as less as possible. So many kind and so large doses of chemicals are really needed?

Answer: More touching of any chemical is harmful to the human body. But many chemicals at lower concentration have a good function. For the ice bathtub water, chemicals recommended by CALDERA water quality maintenance program are required, in order to protect the users from hazards of aquatic pathogens (disease-causing microorganisms), while preventing corrosion of the ice bathtub components.

Question: Why the chemical damage belongs not to warranty scope?
Answer: The water quality and the concentration of chemicals stay under your direct control. Through appropriate basic maintenance, the ice bathtub can provide you warm water wellness enjoyment for many years. If you have a lack of understanding of any chemicals and their use in the ice bathtub, you can contact your authorized dealer.

9.24. Terms Related To Water

In the "Water Quality And Maintenance" section,following terms are used. Understand its meaning will help you better understand water quality maintenance measures.

Bromamine: The compound produced by the combination of bromine with nitrogen from skin oil, urine and sweat. Different from chloramine, bromamine has no irritating odor and is a highly effective disinfectant.

Bromine: Halogen disinfectant (the same kind of chemistry with chlorine). Bromine is usually made in the form of rods, flakes or granules.
Calcium Hardness: The content of calcium dissolved in water in the ice bathtub. Calcium hardness should be 150-200ppm. If the calcium content is too high, this will cause turbidity and scaling of the water. If its content is too low, this will cause damage to the ice bathtub equipment.

Chloramine: The compound produced by the combination of chlorine with nitrogen from skin oil, urine and sweat. Chloramine can irritate the eyes and has a strong odor. Different from bromamine, chloramine is a weaker effect and slow functional disinfectant.

Chlorine: A high efficient ice bathtub- disinfectant. Recommends using Sodium bichloride in particulate form, because it can be completely dissolved and closes to neutral pH value, and therefore it is best to use sodium bichloride particles.

Residual Chlorine (or Residual Bromine): Refers to the residual amount of chlorine or bromine, after the demand of chlorine or bromine has been satisfied. Thus, the residual

amount is the amount of chemical disinfectants that can be used to kill bacteria, germs and algae.

Corrosion: Refers usually to gradually damaging to metal parts of the ice bathtub due to chemical reaction. Under normal circumstances, the correction can happen, if pH value is low, or the level of TA, CH, pH value and disinfectants exceeds the recommended range.
DPD: Refers to the optimal reagent using for free residual chlorine measurement.

Halogen: One of the five elements fluorine, chlorine, bromine, iodine and astatine.

MPS: Monopersulfate, which is a chlorine-free oxidant.

Pathogens: Refers to microorganisms such as pathogenic bacteria.
pH Value: Refers to the measuring value of water acidity. Recommended pH value is 7.2-7.6. When the pH value is less than 7.0 (neutral value), the water acidity is greater and this will damage the heating system. When the pH value is higher than 7.8, the water alkaline is too large, and this result in water turbidity and scaling on the tub surface housing and heater.

PPM: Abbreviation of millionth, the measurement standard unit of the chemical content in the water, equal to "mg/l" (mg/liter).

Reagent: Refers to chemicals for chemical testing in liquid, powder or flake form.

Disinfectant: Refers to disinfectants that has been added and maintain the recommended residual amount. They are used to protect bathers against the damage from pathogenic organisms, which can cause disease and infection of the ice bathtub water.

Scale: Refers to coarse sediments containing calcium that cover the ice bathtub tub surface, heater and water pipes or block filter. In general, if the water contains minerals and has a high pH value, the scale will be formed. In addition, scale can be formed more easily at higher water temperature.

Oxidation Treatment: When using chlorine, it is also known as "super-chlorination treatment." Oxidation treatment refers to add a large dose of instant disinfectant (recommend using " sodium bichloride") to remove chloramines and bromide by the oxidation of organic waste that can be not filtered out.

Total Alkalinity: Refers to the amount of heavy carbonate, carbonates and hydroxides in the ice bathtub water. A proper total alkalinity is every important for pH value control. If the total alkalinity is too high, it is difficult to adjust the pH value. If the total alkalinity is too low, the pH value is difficult to maintain at an appropriate level. The ideal range of total alkalinity in the ice bathtub water is 125-150ppm.

10. TROUBLE SHOOTING

10.1. Ice Bathtub Water Quality Solution

Guide For Problem Solving In ice bathtub Water		
Error	**Possible reason**	**Solutions**
Water Turbidity	• Filter dirty • Greasy organic matter too much • Improper disinfection • Particulate/organic matter too much • Too often with too much water or too long	• Clean the filter • Carry out oxidation treatment to ice bathtub with disinfectants • Add disinfectant • Adjust the pH value and/or alkalinity to the recommended range • Start jet pump • Drain out the water and re-add water
Stinking Water	• Organic matter in water to much • Improper disinfection PH value is low	• Carry out a oxidation treatment to the ice bathtub with disinfectant • Add disinfectant • Adjust the pH value to the recommended range
Chlorine Odor	• Chloramine content is too high pH value is low	• Carry out a oxidation treatment to the ice bathtub with disinfectant, • Adjust the pH value to the recommended range
Musty Odor	• Bacteria or algae growth	• Carry out a oxidation treatment to the ice bathtub with disinfectant. If the problem persists, please drain out water, Clean the ice bathtub and add new water
Accumulation Of Organic Matter Around The ice bathtub/Scum	• Grease and dirt accumulation	• Clean scum with a clean cloth-if the problem is serious, drain out water, remove scum with cleaning agent for • ice bathtub surface and ceramic tiles, and then add water again.
Algae Growth	• High pH value • Low concentration of the disinfectant	• Carry out an oxidation treatment with disinfectant to oxidation treatment to the ice bathtub and adjust the pH value. • Carry out a oxidation treatment with disinfectant to oxidation treatment to the ice bathtub and maintain appropriate disinfectant concentration
Irritating To Eyes	• Irritating to eyes • Low concentration of the disinfectant	• Adjust the pH value • Carry out a oxidation treatment with disinfectant to oxidation treatment to the ice bathtub and maintain appropriate disinfectant concentration
Skin Allergies /Skin Rash	• Unhealthy water Free residual • chlorine concentration is higher than 5ppm	• Adjust the PH value. Carry out a oxidation treatment with disinfectant to oxidation treatment to the ice bathtub and maintain appropriate disinfectant concentration. • Before using ice bathtub, lower the free residual chlorine concentration to 5ppm or less.
Taints	• Total alkalinity and/or pH value is too low Content of iron and copper in tap water is higher	• Adjust the total alkalinity and/or pH value • Use metal deposit inhibitors
Scaling	• Calcium content in the water is	• Adjust the total alkalinity and/or pH values - if

	higher, total alkalinity and pH value is too high	need to remove deposits, drain out water, clean fouling, adjust total alkalinity and pH value after re-adding water

If your ice bathtub seems not to work properly, please refer to the "Starting Up" and "Operation" instructions in this manual. If this does not help you solve the problem, please follow the following instructions. If you still can't resolve the problem, please contact your Authorized ice bathtub Dealer.

10.2. Ice Bathtub Problem Solution

Guide For Problem Solving In ice bathtub Water		
Error	**Possible reasons**	**Solutions**
Entire ice bathtub does not work	• Power failure • GFCI tripped • Heater overheat protection temperature switch tripped • ice bathtub lock is opened	• Check the power • Reset the GFCI. If it can be not reset, please call the service personnel • Disconnect the power for at least 30 seconds, reset heater overheat protection switch. If it can be not reset, please check whether the filter is clogged. If the switch still trips, please call the service personnel • Stop using the ice bathtub lock
Weakness or intermittent injection	• Water level is too low • The filter is clogged • Air valve is closed	• Add water • Clean the filter • Open the air valve
All the lights don't shine	• ice bathtub lock is opened • Connection or interface failure between the light and the control box	• Stop using ice bathtub lock • Call service personnel
All the lights don't shine	• Lamp wiring fault • The main light device failure • Lamp wiring is not connected to the fiber bundle	• Remove the panel, reconnect the LED lights with fiber bundles. • If the light still does not shine, call service personnel
Indicator light "Power and ready" is blinking	• Filter dirty • The water level is too low • The pressure switch has problem.	• Clean the filter • See the "Starting Up in this manual • Disconnect the power for at least 30 seconds. If the indicator continues to flash after powering, call service personnel
Power indicator light is flashing, four lines display on the screen	• Heater overheat protection temperature switch tripped	• Disconnect the power for at least 30 seconds, reset protection switch. If the switch can be not reset, check whether the filter is clogged. If it still trips,call the service personnel
Indicator light "Ready" flashes	• Temperature sensor fault	• Disconnect the power for at least 30 seconds. If the • lights continue to flash after power on, call the service personnel
ice bathtub can be not properly heated	• The temperature setting is too low • ice bathtub cover is not in place • The filter is dirty • Summer timer is turned on	• Set a higher temperature on the control panel • Align ice bathtub cover • Clean the filter • Switch the summer timer to the off position.
Jet pump motor	• Motor overloading	• Cooling one hour. Motor overloading will

does not work	• If the jetsymbol does notshine, it is a control switch malfunction	automatically reset. If the problem persists, please contact your Authorized ice bathtub Dealer.
Jet pump or motor noise is too high	• Water level is too lower	• Disconnect the power supply and contact your dealer. Add water to the normal level (2.5 cm or 1 inch above the highest jet)
Jet pump motor runs, but pressure/injection	• Air control valve closed or clogged	• Open or clean air valves
Pressure is very low	• Water level is too low • The filter is dirty • Jet clogged • Filter net or filter basket clogged	• Add water to the normal level (2.5 cm or 1 inch above the highest jet) • Clean the filter • Remove the eyeball on the jet panel and clean the jet hole • Clean filter net cover or filter basket
Diverter valve rotates difficult	• Sand deposits in valves	• Clean and lubricate the diverter valve in accordance with the diverter valve maintenance instructions
After filling or adding water, a jet pump works properly, but all jet spray no water.	• Jet pump does not start properly.	• Shut off the power on circuit breaker and remove the ice bathtub cabinet (see "Drain Your ice bathtub" section) • Loosen the joint on jet pump top (see "Winter Preparation"), so that air can enter, then tighten the joint with hand. • Restore power for ice bathtub, start the jet pump, check and make sure that the joint closely to prevent leakage. Replace the ice bathtub cabinet, or • remove and re-install the filter cap.

Start Water Pump: By adding or replacing the water, if the pump is operating but no water flows out from any jet, this indicates that the pump may not start properly. To solve this problem, please refer to the above mentioned steps and operate according the following procedures:

- Turn off the power of the ice bathtub with the circuit breaker and remove the ice bathtub cabinet.
- Loosen the joint on the pump top to discharge air, and tighten the joint again when water flows.
- Turn on the power, start the water pump and confirm that the joint was really tightened to prevent water leakage.

11. SERVICE

11.1. Other Service Information

Control device and overheat protection temperature switch is equipped with a number of electronic sensors connected with ice bathtub pipes. The connection cables between sensors and the temperature switch in the control box may not be damaged or knotted.

The jet pump is equipped with a thermal overload circuit breaker to prevent overheating of the water pump. If the pump shuts itself down after the ice bathtub is used for some time, it is may be a failure of the pump motor bearing. If the water pump shuts itself off by a new type ice bathtub, it is usually caused by one or more of the following factors:

- Some of them are more sensitive and can close the water pump at a lower temperature.
- High temperature: All models of the ice bathtub are equipped with a jet pump and the motor of the jet pump will generate heat. Your ice bathtub has an air outlet leading to outside of the ice bathtub cabinet to prevent the jet pump motor from overheating. If the outlet is blocked by debris or grass clippings, it could lead to overheating of the jet pump. After the jet pump motor has been sufficiently cooled down and the blockage has been removed, the jet pump can be restarted.
- Friction: The moving parts of a new pump are sometimes too tight, this can lead to friction heat.
- After a normal break-in period, the pump temperature will be reduced.
- Improper Connection: When an extended cable is used or the cable diameter in your home is too small, the voltage could be too low for the water pump. This can lead to an excessive current and heat.

If the jet pump stops due to overheat, you must ensure a sufficient ventilation of the ice bathtub cabinet. Don't block the air vents at the bottom of the ice bathtub cabinet. If the jet pump also stops after use for some time, please contact a qualified service personnel.

11.2. Behaviors Leading To Invalid Warranty

- The limited warranty will be invalid, if there are the improper installation, alteration, misuse or abuse of the ice bathtub or reparation by personnel who are not authorized by company, behaviors such as alteration of any parts or pipes, any electrical change as well as the installation of unapproved sanitation equipment, water purification equipment or heating system, that lead to the promotion of component failure, main equipment failure or unsafe working conditions, are defined for the alteration.
- Misuse and abuse should include that the ice bathtub is not operated or used in a non-specified location according to instructions printed by company, detailed including: use of the ice bathtub in the non-residential applications; the damage because of the operation of the ice bathtub beyond the water temperature range 1.5°C(35°F) to 49°C (120°F) will let the limited warranty invalid.
- Damage caused by dirty filters, blocking or scaling, the surface damage of the ice bathtub caused the use of trichloroisocynurate, bromochlorohydantoin (BCDMH), misuse of chemical tablets in floating devices, acid and any other company

recommended ice bathtub surface chemicals or ice bathtub tub surface cleaning agents and cause damage will let the limited warranty invalid.

- Damage caused by the attachment of the insoluble ice bathtub disinfectants on the ice bathtub tub surface (no ice bathtub tub surface material can withstand this kind of abuse) and the damage of the components or the ice bathtub tub surface due to improper water chemistry maintenance will let the limited warranty invalid.
- The damage of the ice bathtub tub surface caused by direct sun exposure without water and tub cover (in warm climate regions, this might involve the solar heating) will let the limited warranty invalid. All such cases are treated as abuse.

⚠**WARINING**

Operating a ice bathtub does not mean "using" the ice bathtub! Recommends not to use the ice bathtub, when the water level is above or below the temperature range of the control panel.

11.3. Disclaimer

- For the loss resulting from the use of the ice bathtub or other incidental, consequential, special, indirect, or punitive costs, expenses or damages, including but not limited to remove permanent platform, other customized fixtures or requirement on the crane for removing work. Company shall be not liable. Any implied warranty period is equal to the above applicable warranty period.
- SSome states (or countries) don’t allow to make a duration limit for the implied warranty. For any personal injury or property damage, for whatever cause, and regardless of the circumstances, Company and its representatives shall be not be responsible.

⚠**Tips**

Some countries or regions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations may not apply to you.

11.4. Customer Service

- If you have any questions in the installation, operation or maintenance of the ice bathtub that this manual does not answer, please consult with your Authorised ice bathtub Dealer.

Declaration: Our company reserves the right to modify the product without notice.