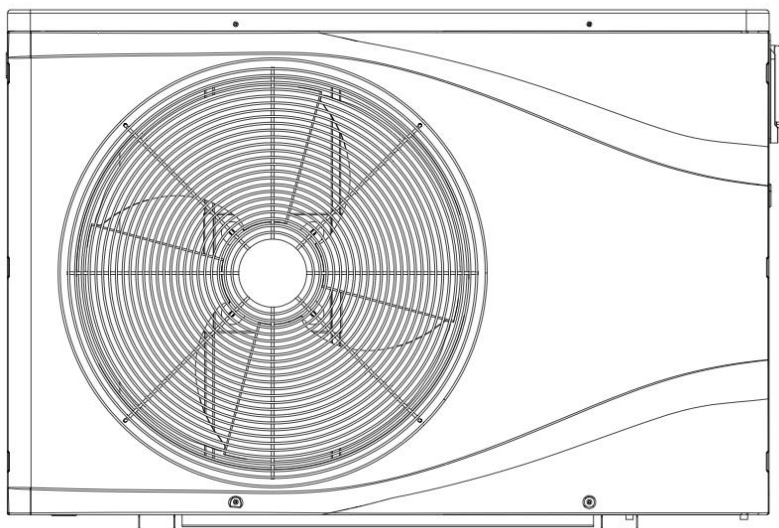


D DISTINCTION

par / by  **NIRVANA**

DC INVERTER SWIMMING POOL HEAT PUMP 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.

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1. FOREWORD

1.1. Statement

To keep users and property under safe operating conditions, please follow the instructions below :

- ① Wrong operation may result in injury or damage;
- ② Please install the unit in compliance with local laws, regulations and standards;
- ③ Confirm power, voltage and frequency – Requires permanent 240Volt, 1 Phase, 60HZ Connection;
- ④ The unit must be permanently connected to the power supply by a qualified electrician according to local rules and regulations.
- ⑤ Independent power disconnect switch must be installed with the unit per local laws and regulations.

1.2. Safety Factors

The following safety factors need to be considered:

- ① Please read the following warnings before installation.
- ② Be sure to check the details that need attention, including safety related warnings.
- ③ After reading the installation instructions, be sure to save them for future reference.

Warning

Make sure that the unit is installed safely and is properly secured to a suitable base

- If the unit is not secured or installed properly, it may cause damage to the unit and surrounding area.
 - Unit must be installed outdoors in a well ventilated or open area.
- ① Use the correct gauge wire determined by an electrician per local regulations and fasten it to the terminal block supported in a manner that there ensures no strain on the components or wiring.
 - ② Improper wiring may cause injury or fire.

Please connect power wire according to the wiring diagram in the manual to avoid fire or damage to the unit.

- ③ Be sure to use approved materials during installation. Wrong parts or wrong materials may result in fire, electric shock, or the unit falling or tipping over.
- ④ Install on the ground safely and properly secured, please read installation instructions. Improper installation may result in fire, electric shock, tipping of the unit, or water leaking.
- ⑤ Use professional tools for the electrical connections. If power supply capacity is insufficient or circuit is not completed, it may cause fire or electric shock.
- ⑥ The unit must have grounding device. If power supply does not have grounding device, do not connect the unit.
- ⑦ The unit should only be removed or repaired by a professional technician. Improper movement or maintenance of the unit may cause water leakage, electric shock, or fire.
- ⑧ Don't connect or disconnect unit without first disconnect the power at the breaker or power

disconnect. It may cause fire or electric shock.

- ⑨ Don't touch or operate the unit when your hands are wet. It may cause fire or electric shock.
- ⑩ Do not let water permeate into the electrical components.

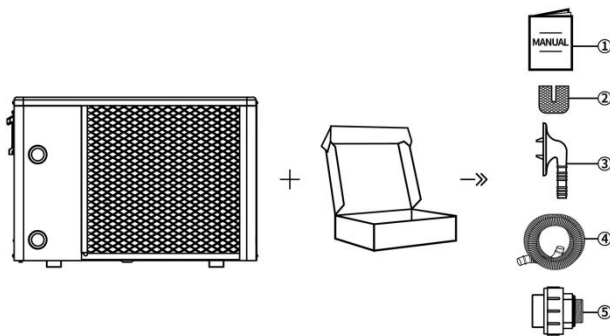
 **Warning**

- ① Do not install the unit in a location where there may be flammable gas.
- ② If there is flammable gas near the unit, it may cause an explosion.
- ③ Do not clean the unit while power is on. Disconnect power at the circuit breaker before cleaning the unit. Not disconnecting the power may result in injury from a running fan or electric shock.
- ④ Stop operating the unit when there is a problem or a fault code.
- ⑤ Be careful when the unit is unpacked and not yet installed. Pay attention to sharp edges and to the fins of the heat exchanger.
- ⑥ After installation or repair, please confirm refrigerant is not leaking. If there is not enough refrigerant, the unit will not work properly.
- ⑦ Don't put your fingers into fan or evaporator. Touching a running fan may result in serious injury.
- ⑧ This appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction a professional technician. Children must use it under the supervision of an adult to ensure that they use the appliance safely. If the power wire is damaged, it must be replaced by a professional technician to avoid danger.

2. OVERVIEW OF THE UNIT

2.1. Accessories Supplied with the Unit

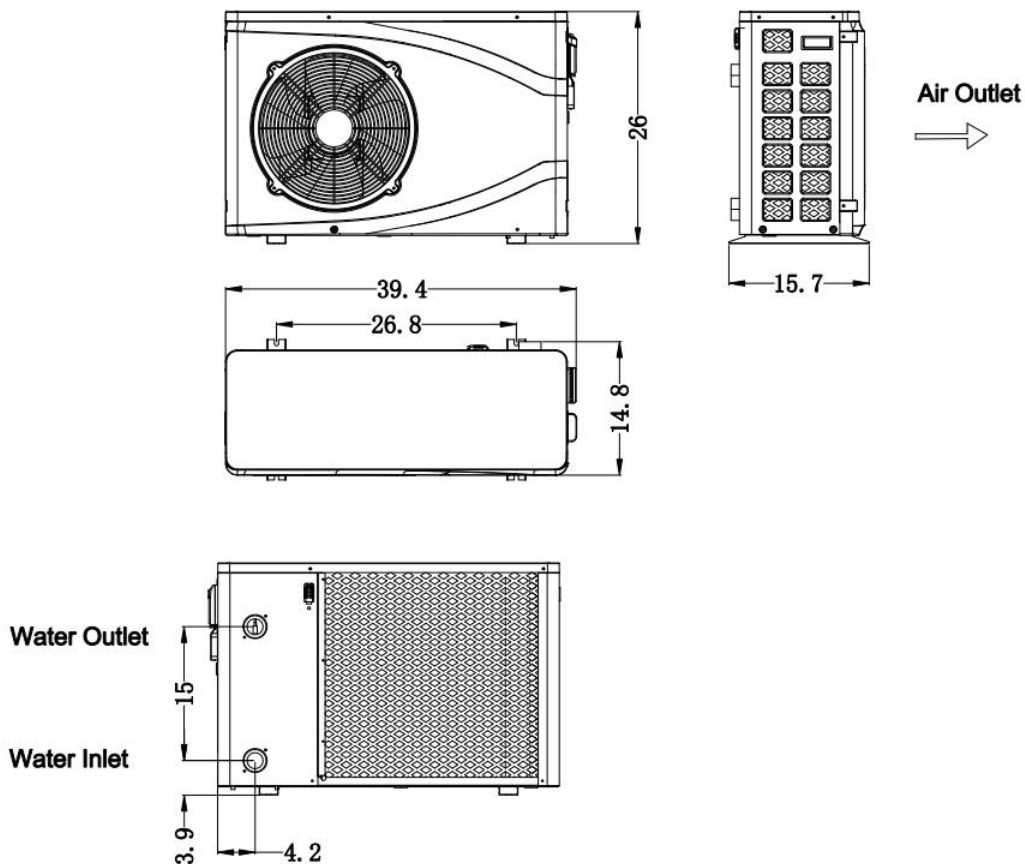
After unpacking, please check if you have all the following components.



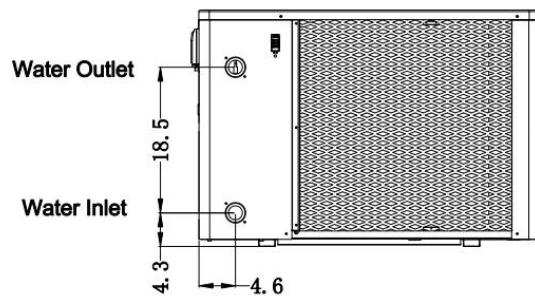
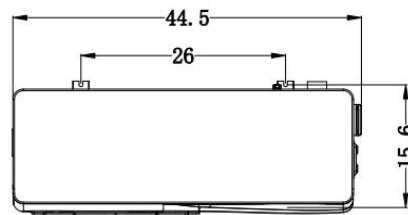
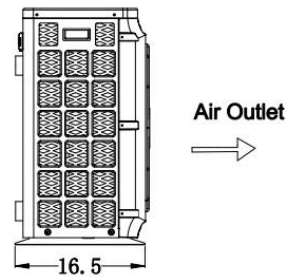
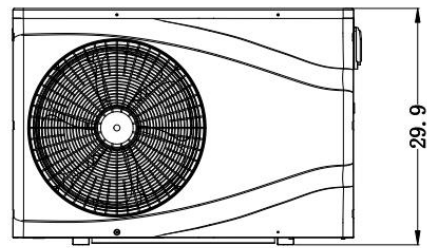
NO.	Components	Quantity	NO.	Components	Quantity
①	User Manual	1	④	Drain Pipe	1
②	Rubber Blanket	4	⑤	Water Pipe Joint	2
③	Drain Connector	1			

2.2. Dimensions of the Unit

Model: SIM50IV

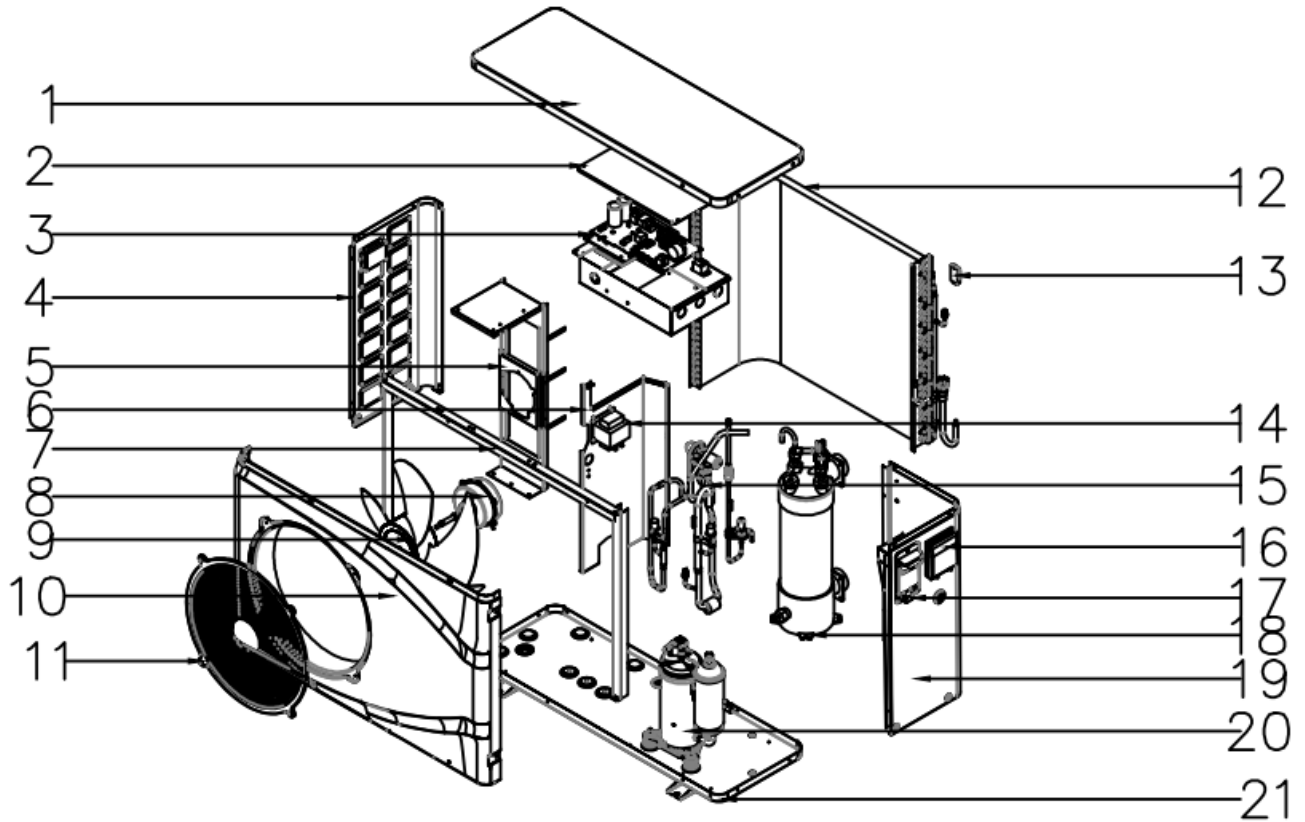


Model: SIM65IV, SIM80IV



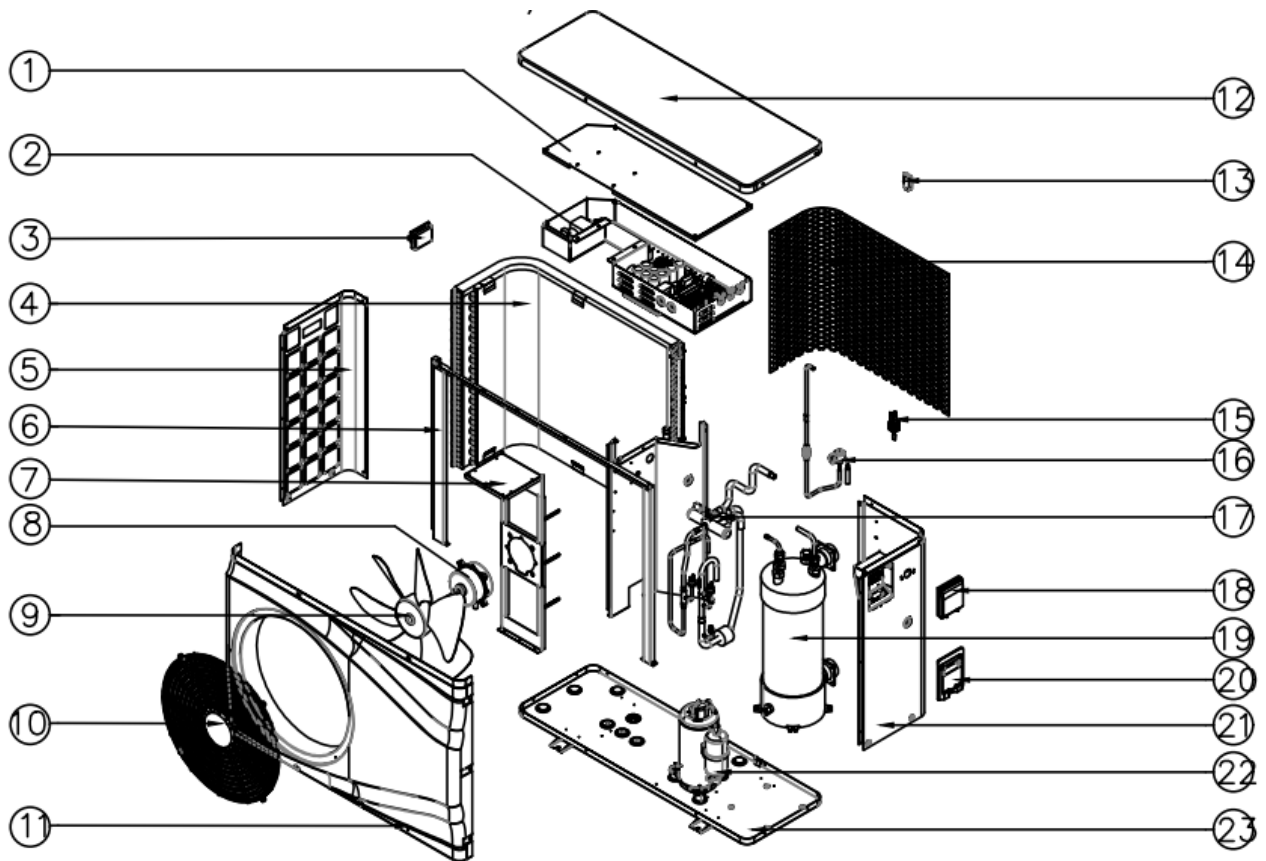
2.3. Main Parts of the Unit

Model: SIM50IV



1	Top cover	8	Fan motor	15	4-way valve
2	Electrical box cover	9	Fan blade	16	Wired controller
3	Electrical box	10	Front plate	17	Right handle
4	Left Grid Plate	11	Fan shield	18	Titanium heat exchanger
5	Motor support	12	Evaporator	19	Right plate
6	Middle partition plate	13	Ambient temp. sensor	20	Compressor
7	Fixed support	14	Reactor	21	Chasis

Model: SIM65IV, SIM80IV



1	Top cover	8	Fan motor	15	Water flow switch	22	Compressor
2	Electrical box cover	9	Fan blade	16	EEV	23	Chasis
3	Left handle	10	Fan shield	17	4-way valve		
4	Evaporator	11	Front plate	18	Wired controller		
5	Left plate	12	Top cover	19	Titanium heat exchanger		
6	Fixed support	13	Temp. sensor holder	20	Right handle		
7	Fan motor support	14	Plastic Mesh	21	Right plate		

2.4. Specifications

Model	SIM50IV	SIM65IV	SIM80IV
Power Supply (V/Ph/Hz)	208-230V~/60Hz		
Rated Ambient Temp Range (°F)	14~104		
Heating Capacity ₁ (kBtu/h)	11,6-50,5	14,4-64,8	17,8-77,1
COP ₁	15,1-5,80	15,07-5,98	14,47-5,85
Heating Capacity ₂ (kBtu/h)	10,1-22,8	9,2-39,9	10,7-40,7
COP ₂	7,4-4,73	10,76-4,16	7,88-4,40
Max. Water Outlet Temp. (°F)	104		
Rated Water Flow (gpm)	22,7	28,75	32,58
Rated Water Pressure Drop (psi)	2,18	1,37	1,67
Maximum Input Power (kBtu/h)	13,65	14	17,1
Maximum Input Protection (A)	17,6	19	22,1
Refrigerant / Quantity (lbs)	R410A/2,43	R410A/5,51	R410A/5,73
Net Weight (lbs)	108,5	160,9	176,4
Net Dimensions WxDxH (inch)	39,37x15,75x25,98	44,49x16,54x29,92	
Water Pipe Connection (mm)	48,3		
Noise dB(A)	58	63	63
Water Proof Class	IPX4		
Electricity Shock Proof Class	I		
Max. Exh./Suc. Pressure (psi)	638/218		
Max. Allowable Pressure (psi)	638		

1.Ambient Temperature: (DB/WB) 80.6°F/75.74°F; Water Inlet/Outlet Temperature: 80°F/84.56°F.
 2.Ambient Temperature: (DB/WB) 50°F/44.29°F; Water Inlet Temperature: 80°F.

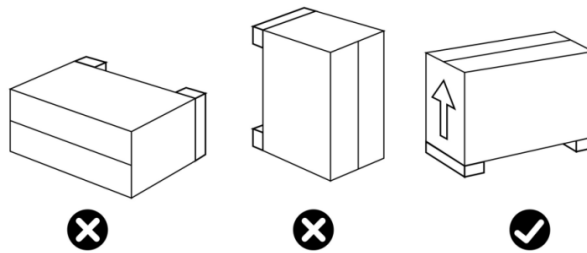
3. INSTALLATION

⚠ WARNING: The heat pump must be installed by a qualified technician. Improper installation, adjustment, service, maintenance or use can cause fire, electrical shock or other conditions which may cause injury or property damage.

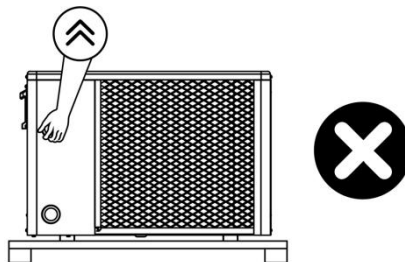
This section is provided for information purposes only and must be adapted according to the actual site conditions.

3.1. Transportation

1. When storing or moving the heat pump, the heat pump should be in an upright position. Never Tilt the unit more than 30 degrees

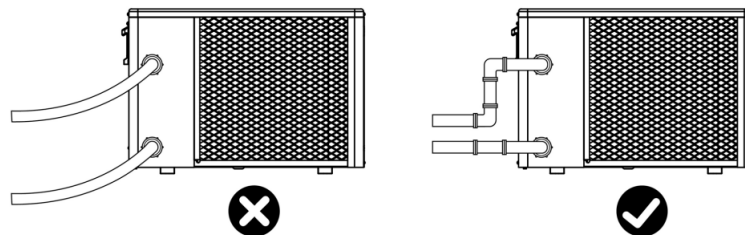


2. When moving the heat pump, do not lift it by the water unions as this may damage the titanium heat exchanger inside the heat pump.



3.2. Notice Before Installation

1. The water unions are not designed to support the weight of unsupported flexible tubing. The heat pump must be connected with properly supported tubing that does not pull or strain on the heat pump unions!



2. To ensure heating efficiency, the length of the piping between the pool and the heat pump should be less than 30ft.

3.3. Installation Instructions

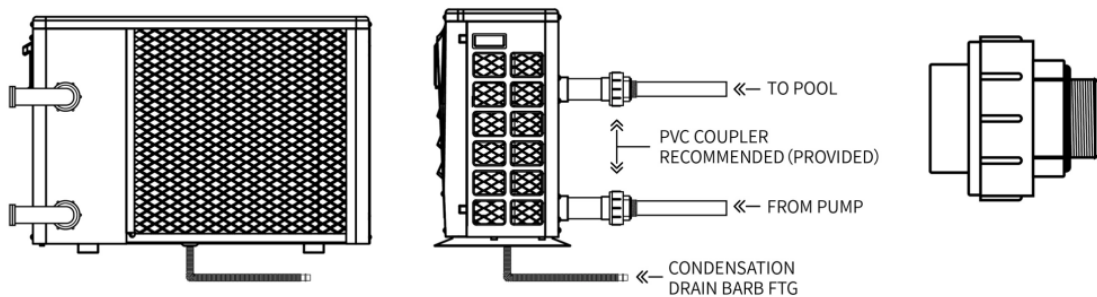
3.3.1 Pre-requirements

Equipment necessary for the installation of your heat pump:

- ① Power supply cable suitable for the unit's power requirements and compliant with your local regulations.
- ② A By-Pass kit, sufficient PVC tubing suitable for your installation, as well as PVC , PVC adhesive and sandpaper.
- ③ A set of wall plugs and expansion screws suitable to attach the unit to your support or base.
- ④ We recommend that you connect the unit to your installation by means of well supported flexible PVC pipes to reduce the transmission of vibrations.
- ⑤ Suitable fastening studs may be used to raise the unit.

3.3.2 Heat Pump Installation

- ① The heat pump must be fixed using bolts (M10) to a concrete foundation or suitable brackets. The concrete foundation must be solid; the brackets must be strong enough and treated against corrosion.
- ② The heat pump needs a water pump (Supplied by the user). Max. lift 30ft;
- ③ When the heat pump is running, there will be condensate water discharged from the bottom that must be properly managed and directed away from the heat pump. Please insert the drainage tube (accessory) into the hole and clip it in properly, then connect a pipe to drain the condensate water away. Install the heat pump, at least 3" off the ground with solid, water-resistant pads, then connect the drainage pipe to the opening located under the heat pump.



3.3.3 Location and Size

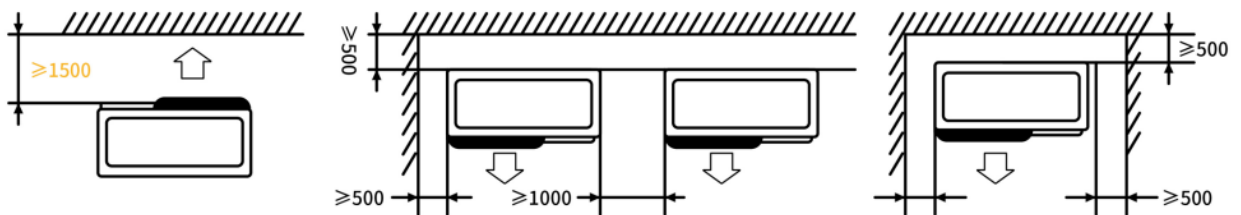
Please comply with the following rules concerning the choice of heat pump location.

- ① The unit's location must be easily accessible for convenient operation and maintenance.
- ② It must be installed on the ground, fixed ideally on a level concrete floor. Ensure that the floor is sufficiently stable and can support the weight of the unit.
- ③ A water drainage device must be provided close to the unit in order to protect the area where it is installed.
- ④ If necessary, the unit may be raised by using suitable mounting pads designed to support its weight.
- ⑤ Check that the unit is in a properly ventilated area, that the air outlet is not facing the windows of neighboring buildings and that the exhaust air cannot return to the heat pump. In

addition, provide sufficient space around the unit for servicing and maintenance operations.

- ⑥ The unit must not be installed in an area exposed to oil, flammable gases, corrosive products, sulfur compounds or close to high frequency equipment.
- ⑦ To prevent external damage to the unit, do not install it near a road or track.
- ⑧ To avoid causing nuisance to neighbors, make sure the unit is installed in an area that is not sensitive to noise.
- ⑨ Keep the unit out of the reach of children.
- ⑩ Installation space:

Unit: mm



Do not put anything less than 1500mm (5ft) in front of the heat pump.

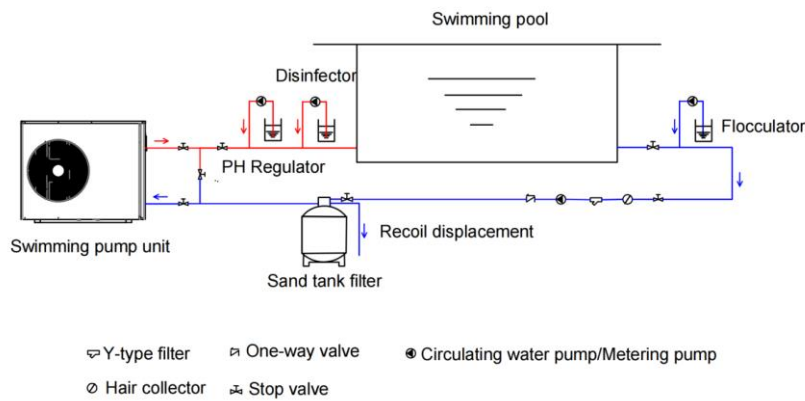
Leave 500mm (2ft) of empty space on the sides and back of the heat pump and free space for air circulation above

Do not leave any obstacles above or in front of the device!

3.3.4 Installation Layout

The installation diagram is shown in the following figure –

Pool → Pump → Filter → Heat Pump → Sanitizer → Return to Pool:



No.	Item	Quantity	No.	Item	Quantity
1	Swimming Pump Unit	1	7	PH Regulator	1
2	Y-Type Filter	1	8	Sand Tank Filter	1
3	One-Way Valve	1	9	Flocculator	1
4	Circulating Water Pump	1	10	Disinfectant	1
5	Hair Collector	1	11	Metering Pump	3
6	Stop Valve	7			

Notice: The filter must be cleaned regularly to ensure that water in the system is clean and to avoid lack of water flow. It is necessary that a drainage valve is fixed at the lowest point in the lower water pipe to completely drain water out of the system for winterizing. If the unit is not running during winter months, please disconnect power supply and drain water from the unit through the drainage valve or by disconnecting the quick connect fittings. If unit is used at ambient temperatures below 0°C, please keep ensure that the water pump continuously runs to avoid water freezing inside the machine.

3.3.5 Electrical Installation


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

- ① The heat pump must be connected to a suitable circuit breaker in accordance with current standards and regulations in the country where the system is installed.
- ② The electrical supply cable must be adapted to match the unit’s rated power and the length of wiring required for the installation. The cable must be suitable for outdoor use.
- ③ In places open to the public, or where required by law, an emergency stop button or power disconnect switch should be installed near the heat pump.

Power Supply Wire Size

Model	Power Supply Wires		
	Electrical Supply	Cable Diameter	Specification
SIM50IV	208-230V~/60Hz	selected by electrician	selected by electrician
SIM65IV	208-230V~/60Hz	selected by electrician	selected by electrician
SIM80IV	208-230V~/60Hz	selected by electrician	selected by electrician

3.3.6 Electrical Connection

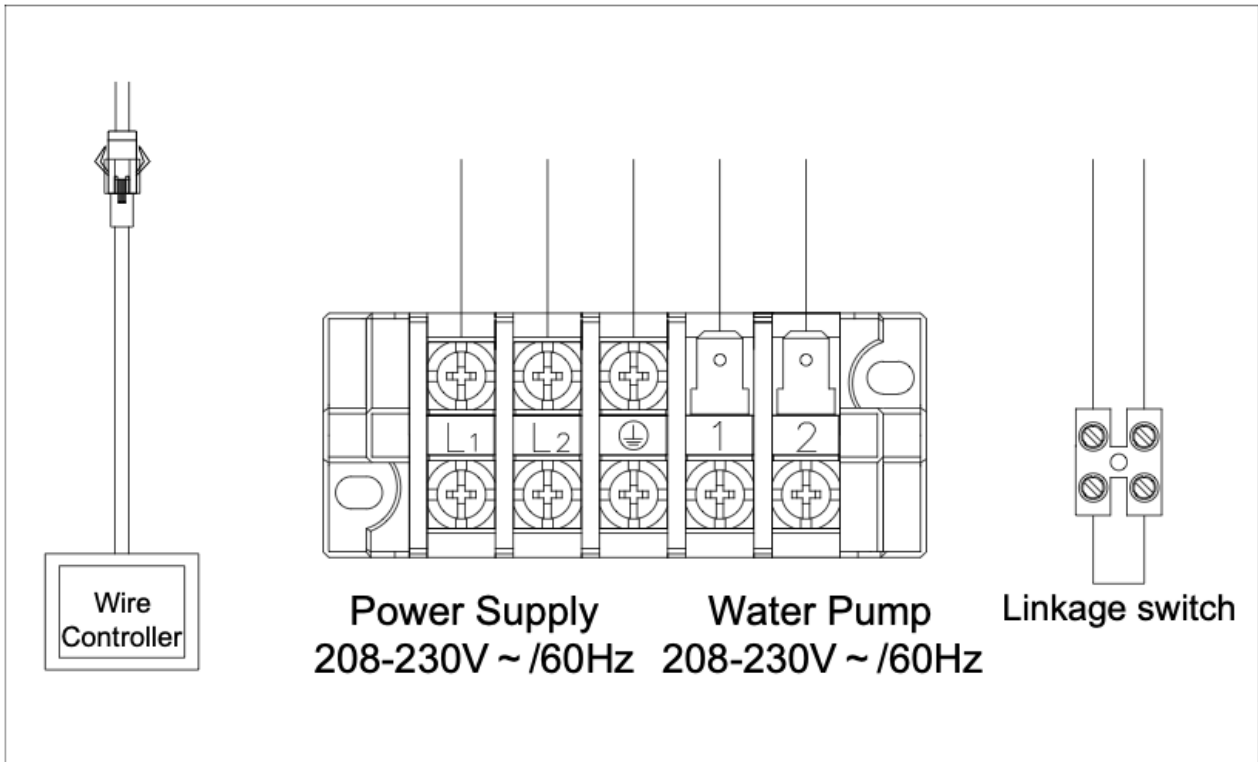
 **WARNING:** Power supply must be disconnected before performing any work on the heat pump.

Please comply with the following instructions to connect the heat pump.

Step 1: Detach electrical side panel with a screwdriver to access electrical terminal block.

Step 2: Insert cable into the heat pump unit port.

Step 3: Connect power supply cable to terminal block according to the diagram below.



3.4. Commissioning the heat pump after Installation

⚠ WARNING: Please check all the wiring carefully before turning on the heat pump.

3.4.1 Inspection Before First Trial Run

Before performing initial functional test, confirm below items and write ✓ in block;

<input type="checkbox"/>	Correct unit installation
<input type="checkbox"/>	Power supply voltage is the same as unit rated voltage
<input type="checkbox"/>	Correct piping and wiring
<input type="checkbox"/>	Air inlet & outlet port of unit are unblocked
<input type="checkbox"/>	Drainage and venting are unblocked and there are no water leaks
<input type="checkbox"/>	GFCI Breaker / Current Leakage protector are working (If required by local regulations) if required only Siemens GFCI breakers are acceptable
<input type="checkbox"/>	Ground wire / bonding wire are connected correctly

3.4.2 Trial Run

Step 1: Run test can begin after completing the installation;

Step 2: All wiring and piping should be connected well and carefully checked, then start circulating the water before power is switched on;

Step 3: Empty all air within the water circulation pipes, then press the “on-off” button on the control panel to run the unit at the temperature setting;

Step 4: Items that need to be checked during the commissioning test:

- ① Check that unit current is normal per nameplate specifications;
- ② Check that each button on the control panel functions normally;
- ③ Check that the screen is displaying information normally and that there are no error codes;
- ④ Check for any water leaks in the circulation system;
- ⑤ Check that the Condensate drain is not obstructed;
- ⑥ Check for any abnormal sounds or vibrations?
- ⑦ Check that heat pump shuts off on a water flow error as soon as the water pump is turned off

4. REMOTE CONTROLLER OPERATION GUIDANCE

4.1. Control Panel Diagram
























Table 1












No.	Key	Function	No.	Key	Function
1		Turn on/off	4		Mode Key
2		Menu Key	5		Up Key
3		Timer Key	6		Down Key

Table 2

Key	Function	Key	Function
	Auto mode		Keypad lock
	Cooling mode		Heating mode

4.2. Key Operating Instruction

No.	Item	Operation Way
1	ON/OFF	At the main interface, press "  " to control system on / off.
2	Query System Status	<ul style="list-style-type: none"> At the main interface, press " "for 3s to enter the system status interface.Press " " and " " to adjust. Press " " or 1 minute without key operation, this interface will exit.
3	Select Mode	At the main interface, short press "  " to select mode between heating mode and cooling mode.
4	Set Temperature	<ul style="list-style-type: none"> At the main interface, press " " or " " to enter temperature setting, at this point, the set temperature flashes. And then press " " or " " to set the temperature. Press " " or " " key to save the setting value.
5	Set Clock	<ul style="list-style-type: none"> Long press " " at the main interface to enter the current time hour setting. The hour part flash. Press " " and " " to adjust. Then press " " enter the current time minute setting.The digital pipe minute part flash.Press " " and " " to adjust. Press " " or 1 minute without operation to save the setting and exit automatically.
6	Lock/Unlock	Press "  +  " at the same time for 3s to lock/unlock. When the lock icon appears on the screen, it means that the display is locked.

No.	Item	Operation Way
7	Timer	<ul style="list-style-type: none"> ● Press "+ " and " " and " ● After timer 1 ON is completed, it will automatically enter the timer 1 OFF setting state, and the "OFF" icon will display. ● Press "+ ● Short press the " ● Press and hold the "
8	Manual Defrosting	<p>At the main interface, press "+ </p>
9	Frequency Mode Settings	<p>On the startup interface and the unit is not in automatic mode, short press the " <p>On the startup interface and the unit is in automatic mode, the frequency is fixed at standard mode.</p> </p>

4.3. System Status

Code	Description	Range	Unit
01	Compressor frequency	0~120	Hz
03	Inlet water temp.	-99~999	°C
04	Outer coil temp.	-99~999	°C
05	Exhaust temp.	-99~999	°C
06	Suction temp.	-99~999	°C
07	Inter coil temp.	-99~999	°C
08	Ambient temp.	-99~999	°C
11	Outlet water temp.	-99~999	°C
17	Main valve step	0~999	p
21	High pressure value		Mpa
22	Low pressure value		Mpa
25	Driver AC voltage	0~999	V
26	Driver AC current	0~99.9	A
27	Driver DC voltage	0~999	V
28	Driver phase current	0~99.9	A
29	Driver IPM temp.	-99~999	°C
30	Driver DC fan 1 speed	0~999	rpm
31	Driver DC fan 2 speed	0~999	rpm

4.4. Fault & Protections


Fault Code	Fault Details	State
EE	Inlet and outlet water temp.sensor fault	Stop
E01	Wire controller communication protection	Stop
E02	Driver communication protection	Stop
E03	AC current protection	Stop
E04	AC voltage protection	Stop
E05	DC voltage protection	Stop
E06	Phase current protection	Stop
E07	IPM over temp. protection	Stop
E08	DC current protection	Stop
E09	High exhaust temp. protection	Stop
E10	Ambient temp. protection	Stop
E11	High pressure protection	Stop
E12	Low pressure protection	Stop
E14	Low outlet water temp. protection (Cooling)	Stop
E15	High coil temp.protection (Cooling)	Stop
E16	High outlet water temp. protection (Heating)	Stop
E17	Water flow protection	Stop
E18	High pressure switch protection	Stop
E19	Low pressure switch protection	Stop
E20	Power supply phase sequence error	Stop
E21	Power supply phase A lost fault	Stop
E22	Inlet and outlet temp. difference too high protection	Stop

E23	Low ambient temp. protection (Heating)	Stop
E24	Low ambient temp. protection (Cooling)	Stop
E25	Low inside coil temp. protection (Cooling)	Stop
E26	DC-Fan fault (No feedback speed)	Stop
E27	Power supply phase B lost fault	Stop
E28	Power supply phase C lost fault	Stop
E29	Parameter reading fault(Reserved)	Run
E37	IPM protection	
E38	Driver module protection	Stop
E49	Inlet sensor fault	
E50	Coil sensor fault	Keep running
E51	Exhaust sensor fault	Stop
E52	Suction sensor fault	Keep running
E53	Inside coil sensor fault	Keep running
E54	Ambient sensor fault	Keep running
E57	Outlet sensor fault	
E63	High pressure sensor fault	
E64	Low pressure sensor fault	
D17	Driver 1 IPM over current protection	Stop
D18	Driver 1 compressor fault (except IPM fault)	Stop
D19	Driver compressor over current protection	Stop
D22	Driver IPM high temp. protection	Stop

D23	Driver PFC fault	Stop
D24	Driver DC bus high voltage protection	Stop
D25	Driver DC bus low voltage protection	Stop
D26	Driver AC low voltage protection	Stop
D27	Driver AC over current protection	Stop
D32	Driver communication fault	Stop
D33	Driver IPM temp. protection	Stop
D34	Driver DC fan 1 fault	Stop
D35	Driver DC fan 2 fault	Stop
D36	Driver transformer input 15V low voltage protection	Stop

5. MAINTENANCE AND WINTERIZING

5.1. Maintenance

 **WARNING:** Before undertaking maintenance work on the unit, ensure that you have disconnected the electrical power supply.

1. Cleaning

- The heat pump's casing must be cleaned with a damp cloth. The use of detergents or other household products could damage the surface of the casing and affect its properties.
- The evaporator at the rear of the heat pump must be carefully cleaned with a vacuum cleaner and soft brush attachment.

2. Annual maintenance

The following operations must be undertaken by a qualified person at least once a year.

- Carry out safety checks.
- Check the integrity of the electrical wiring.
- Check the grounding/bonding connections.

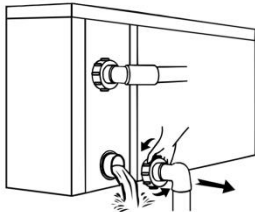
5.2. Winterizing



“CUT OFF” power supply to the heater before cleaning, examination and repairs

In winter season when you don't swim:

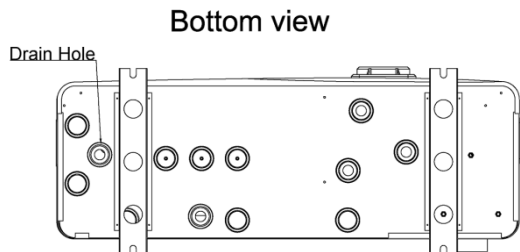
- Cut off power supply to prevent any machine damage.
- Drain water out of the machine.



!! Important:

Unscrew the water inlet pipe fitting to let the water flow out of the unit. If water freezes in the machine during the winter season, the titanium heat exchanger may be damaged.

- Drainage of chassis condensate.



!! Important:

When the unit runs at an ambient temperature of less than 5°C, please remove the rubber plug of the drain hole of the chassis to ensure its smooth drainage.

- Cover the machine body when not in use.

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