



NORDPOOL®

FOR SCANDINAVIA

INSTALLATION AND USER MANUAL

Thank you for choosing our product and trusting our company.

This manual is to provide you with necessary information for optimal use and maintenance, please read it carefully and keep it for subsequent use.

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WARNING:

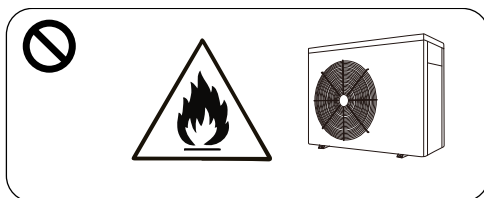
- a. Please read the following tips before installation, use and maintenance.
- b. Installation, removal and maintenance must be carried out by professional personnel in accordance with the instructions.
- c. Gas leakage test must be done before and after installation.

1. Use

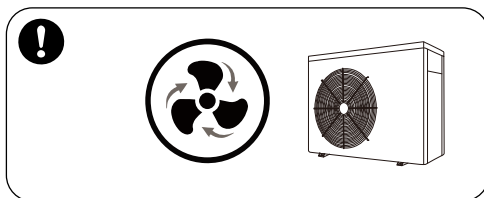
- a. It must be installed or removed by professionals, and it is forbidden to dismantle and refit without permission.
- b. **Don't put obstacles before the air inlet and outlet of the heat pump.**

2. Installation

- a. This product must be kept away from any source of fire source.

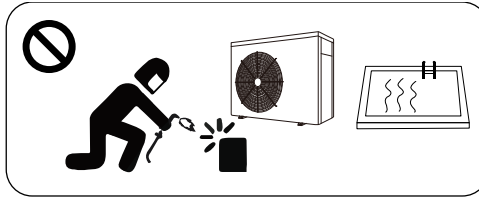


- b. The heat pump can not be installed in a closed environment or indoors, and must be kept well ventilated.

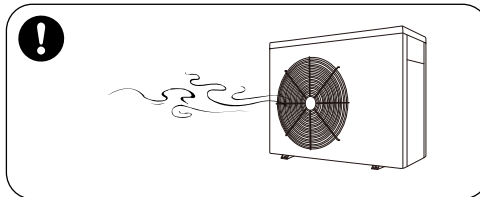


- c. The heat pump must be vacuumed completely before welding. Field welding is

forbidden. All welding should only be fulfilled by professionals in professional maintenance center.



- d. Installation must be stopped if any gas leakage, and the unit must be returned to professional maintenance center.



3. Transportation & Storage

- a. Sealing is not allowed during transportation
- b. Transporting goods at a constant speed is needed to avoid sudden acceleration or sudden braking, so as to reduce the collision of goods.
- c. The unit must be far away from any source of fire.
- d. Storage place must be bright, wide, open and good ventilation, ventilation equipment is required.

4. Maintenance Notice

- a. If maintenance or scrap is required, contact an authorized service center nearby
- b. Qualification requirement
All operators who dispose gas must be qualified by valid certification which issued by professional agency.
- c. Please strictly comply with the requirement from manufacturer when maintenance or filling gas. please refer to the technical service manual.

I . Introduction

Safety precaution

Caution: Electric shock risk

Always switch off power supply before repairing on the heat pump and stop the hydraulic circuit.

- The swimming pool heat pump must be installed by a qualified electrician.
- Always install a leakage protective device with a sensitivity of 30 mA in the power distribution unit before the electrical box.
- Always fit a circuit breaker for all active conductors on the power supply of the box.
- In case of abnormal behavior (noise, smell, smoke), cut off the power supply immediately and contact you reseller. Do not attempt to repair the system yourself.
- Keep the main power switch away the reach of children.
- Rotating parts: Never remove the grid from the fan. Never place your hand or any other object in the air inlet or outlet of the heat pump.

Important features of this product

This swimming pool heat pump is equipped with protection program that will automatically stop to protect your unit automatically and display error code on the LED controller in case of some issues as following:

Water Flow Switch

The water flow switch will be deactivated when pool water flows through the titanium heat exchanger. Low flow rates as well as no water flow will activate the water flow switch, the unit will shut down. The LED controller will display “EE3” if the water pressure is insufficient.

High / Low Refrigerant Pressure Switches

- The high-pressure switch detects the refrigerant pressure in the sealed refrigeration system and shuts the heat pump down when unsafe operating pressures are reached. The heat pump will automatically reset after the system pressure drops back to normal operating pressures. When this switch is tripped, digital display will read “EE1”
- The low-pressure switch detects the refrigerant pressure in the sealed refrigeration system to protect certain conditions that could be detrimental to compressor life. The switch shuts the unit down when refrigerant leakage or insufficient refrigerants. The switch automatically resets when the pressure rises to normal operating pressures. The display will show “EE2” if this switch is tripped.

Low Ambient Temperature

If the air outside the heat pump is not warm enough to generate heat, the system will shut down. The actual shutdown temperature point of your unit will vary subject to current weather conditions and the amount of sunlight reaching the heat pump due to low temperature. The shutdown can occur anywhere within a wide range of temperatures, usually below 0 degree. A shutdown occurs when the air temperature sensor detects the ambient temperature is lower than 0 degree (digital controller will display a code “PP7”). The unit will start up again when the temperature raises enough to reset this switch.

Time Delay

All models use a 3-minute time delay to prevent repeated tripping of the compressor thermal overload, which is caused by attempting startup before system pressures are equalized. Any interruptions, except of power loss, will result in a 3-minute time delay.

Parameters of product range

Specification

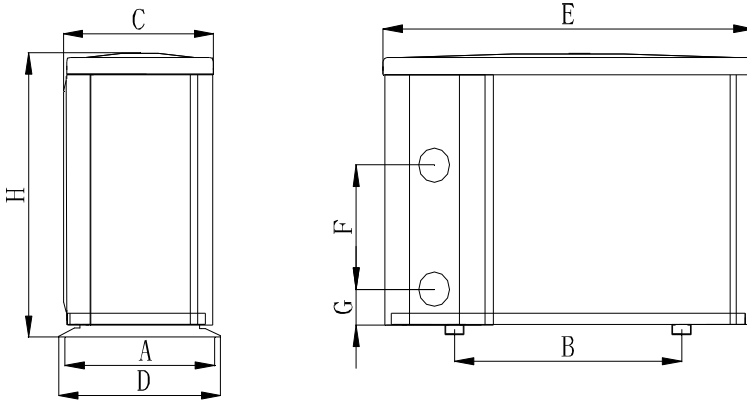
Model		SKON05	SKON08	SKON10	SKON12	SKON14
Function	Heating capacity kW (air 26°C, water 26°C)	5.0	7.5	9.6	11.5	14.0
	C.O.P. (air 26°C, water 26°C)	5.5	5.3	5.7	5.5	5.6
	Heating capacity kW (air 15°C, water 26°C)	3.3	5.0	6.5	7.5	10.0
	C.O.P. (air 15°C, water 26°C)	4.2	4.0	4.3	4.2	4.3
	Power supply	230V/1Ph/50Hz				
	Rated Input power kW	0.8	1.3	1.5	1.8	2.3
	Rated Input current A	3.5	5.2	6.5	7.8	10.0
Advised water flux m³/h		2-3	3-4	4-6	4-6	5-7
Water pipe in-out spec mm		50	50	50	50	50
Net weight /Gross weight Kg		38/45	42/49	58/66	60/68	68/78

*C.O.P: Coefficient of performance

Note:

1. The machine can work well under air temp +0 °C~43°C. Performance cannot be guaranteed outside the operating ranges. Meanwhile, selecting the suitable mode according to the exterior condition of use (such as location, pool size, and numbers of swimmer.)
2. Above parameters are subjected to adjustment periodically for technical improvement with further notice. Please refer to nameplate on each machine for accurate information.

Dimension:



Size(mm) Name Model	A	B	C	D	E	F	G	H
SKON05	315	429	312	340	800	250	76	558
SKON08	315	429	312	340	800	220	76	558
SKON10	315	590	312	340	961	280	77	658
SKON12	315	590	312	340	961	320	77	658
SKON14	395	590	392	420	961	310	77	658

- Above data is subject to modification without notice

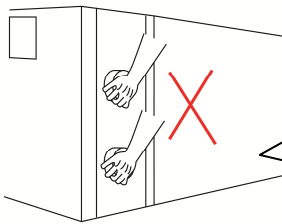
II . Installation Guide

Attention!

This swimming pool heat pump must be installed by a technician.

Transport it in proper manner

1. Transport it in original package.
2. Do not lift the nozzle when moving the machine, because the titanium heat exchanger is on the side the machine will be damaged. Please refer to the following WRONG operation picture:



!!Warning:

Since the machine is very heavy, the water nozzle can not used as the stress point during transportation and installation

The manufacturer cannot accept responsibility for damage incurred or repairs necessitated due to improper handling of our equipment.

Determining Optimum installation position

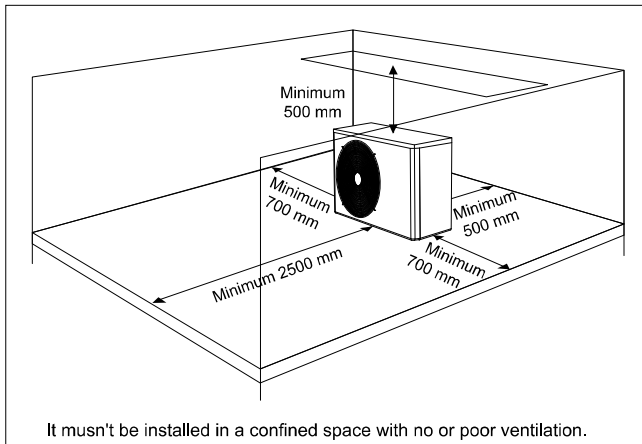
The location of the swimming pool heat pump installation is very important for efficient operation, please consider the following factors when choose the proper place:

- ✧ Avoidance of air recirculation
- ✧ Easy installation for wire and pipe connection and the length of the pipe should not exceed 10m
- ✧ Easy for maintenance.
- ✧ Drainage of condensation.

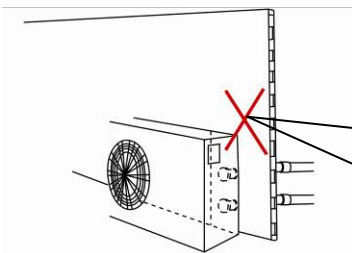
Pay attention to the following points:

1. The heat pump must be installed OUTSIDE in a well ventilated place to avoid air recirculation or in a place with adequate room area both for installation and maintenance. Please refer to the following illustration:

A minimum of 500mm of clearance from walls, shrubbery, equipment, etc. is required around the entire pump circumference. This allows for ample air intake. No less than 2500mm clearance on the air outlet is required to prevent recirculation of air. We recommend not to place the unit underneath eaves, decks, or porches, as this causes recirculation of discharged air, or the efficiency of the heater will be reduced or even stopped.



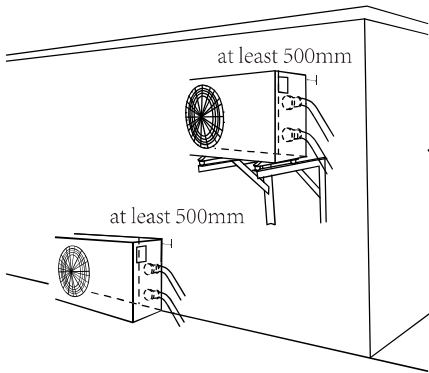
Wrong installation



!!Warning:

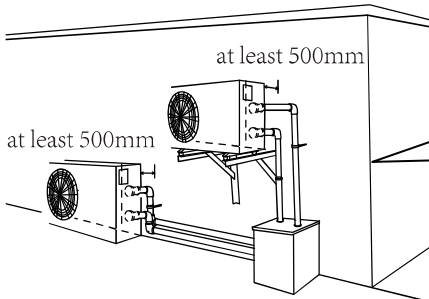
Don't install the heat pump close to a wall or plants. And Never inside a closed building!

2. The heater should be located in a solid, level and non-corrodible structure that is capable of supporting the weight of the heat pump. It must be fixed by bolts (M10) to concrete foundation.



!!Warning:

*The machine must not be hung onto the wall **with soft pipe** since the inlet/outlet union on the machine can't hold weight.*



*The machine must always be connected **with hard pipe**!*

3. The heat pump should be far from any source of combustibles and corrosive material to avoid any damage to this unit.

Never place heat pump near sprinkler systems, evaporator of acid or alkaline. If you live in a seaside area, the heat pump should be placed out of direct spray of sand and salt, since this will also clog, damage, and corrode the unit. You may consider protecting your heat pump by planting shrubbery or a private fence between the unit and the sea wind.

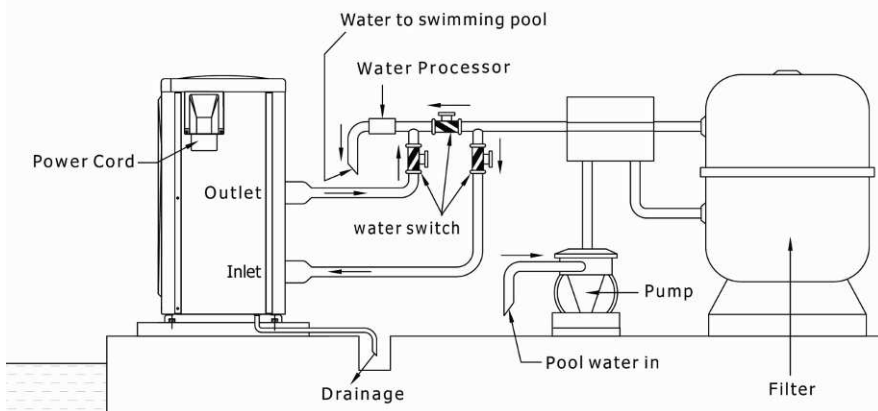
4. When the machine is running, there will be condensation water discharged from the bottom. Make sure there is enough space for water drainage.

TIPS: HEAT PUMPS GENERATE WATER CONDENSATION DURING NORMAL OPERATION. THIS SHOULD NOT BE MISTAKEN FOR A LEAK IN THE UNIT.

Water pipe connection

- The water flow through this machine needs to be driven by an auxiliary water pump (Prepared by the user). The recommended pump specification-flux is shown on the product specification and Max. lift $\geq 10\text{m}$;
- Pipe length between heat pump and swimming pool should not be longer than 10m.

Swimming Pool Heat Pump Piping Diagram

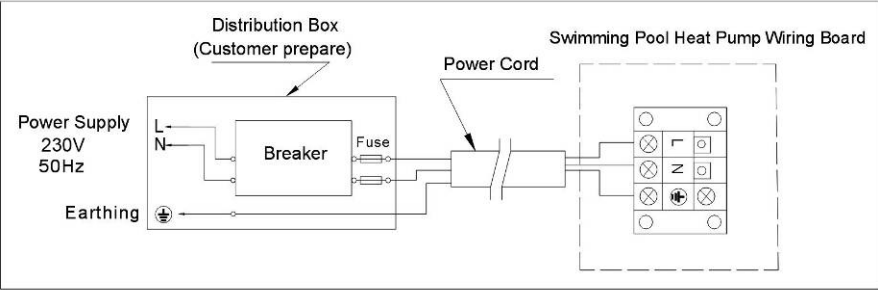


Noted: The drawing is just for demonstration, and layout of the pipes for reference only.

Electric connection

- Wiring must be handled by professional technician according to the circuit diagram
- Connecting the heat pump to appropriate power supply and the voltage should comply with the rated voltage of each model stated on the specification.
- Making sure the machine is earthed well.
- Setting up leakage protection according to local leakage standard (leakage operating current $\leq 30\text{mA}$).
- Protect the circuit with a suitable circuit breaker or fuse.

A.For power supply: 230V 50Hz



Attention: The swimming pool heater must be earthed well.

Recommendation for protecting devices and cable specification

MODEL		SKON05	SKON08	SKON10	SKON12	SKON14
Breaker	Rated Current A	7.0	9.0	12.0	15.0	16.5
	Rated Residual Action Current mA	30	30	30	30	30
Fuse A		7.0	9.0	12.0	15.0	16.5
Power Cord (mm ²)		3×1.5	3×2.5	3×2.5	3×2.5	3×4
Signal cable (mm ²)		3×0,5	3×0,5	3×0,5	3×0,5	3×0,5

※ Above data is subject to modification without notice.

Note: The above data is adapted to power cord ≤ 10m. If power cord is > 10m, wire diameter must be increased. The signal cable can be extended to 50m at most.

Trial after first installation

Attention:

Always Start the water pump **before** turning on this machine
Turn off this machine **before** turning off the water pump.

Inspection before connecting power supply

- Check the installation of the whole machine and the pipe connections according to the pipe connecting drawing.
- Check the electric wiring according to the electric wiring diagram, and ground well.
- Make sure no blockage on the air inlet and outlet, or the efficiency of the heater will be reduced or cause machine to stop operation.

Trial after connecting power supply

- Connect the machine with electric power supply, then relative information will display on the LED controller.

(For Detail operation of LED controller, please refer to Chapter "Operation guide".)

- Start the water pump before turning on the Machine to avoid any damage.
- Press power on/off on LED controller to turn on/off machine.
- on the first start of machine, please check if there is any water leakage in the piping connection system. Then set suitable temperature.
- After the swimming pool heater runs, check if there is any abnormal noise or smell.

In any abnormal situation, such as serious noise, smell or smoking, please cut the power supply immediately and inform resellers, never try to repair it by yourself.

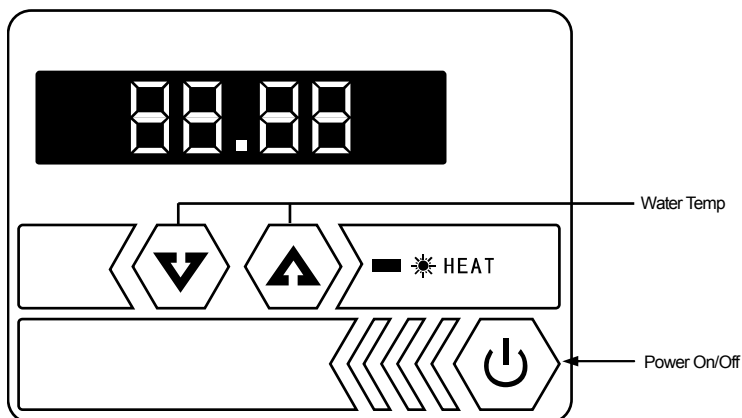
Special cases:

- In the event of an unexpected power cut, the heat pump will automatically restart. Check the setting and adjust if necessary.
- In the event of an expected power cut, switch off the heat pump. When power is restored, switch on the pump, check the settings and adjust if necessary.
- Always switch off the machine in stormy weather.

III. Operation guide

LED controller

Picture for keys



Power on/off



HEAT

Shows the heat mode has been set



Down-ALLOW

Set required temperature



UP-ALLOW

Set required temperature



LED screen

Display temperature and machine failure code

Permanent Display

The LED screen will display **Water temperature** in swimming pool when the machine is on.

Common setting

1. Heat/Cool Mode

Press the Mode button to switch from one mode to another.

(Available only in heat and cool machine.)

2. Required pool water temperature

It can be adjusted both when the machine is on or off.

- A. Available no matter the machine is on or off;

- B. Press the key  or  to set water temperature. The controller indicates twinkling temp. Press  or  adjust to your required water temp;
- C. 5 seconds later, the controller display will back to the normal mode.
- D. When you want to check setting temperature, press  or  to see the current setting.

Testing

1 . Inspection before use

- A. Check installation of the whole machine and the pipe connections according to the pipe connecting drawing;
- B. Check the electric wiring according to the electric wiring diagram and earthing connection;
- C. Make sure that the main machine power switch is off;
- D. Check the temperature setting;
- E. Check the air inlet and outlet.

2 . Trial

- A. The user must “Start the Pump before the Machine, and Turn off the Machine before the Pump”, or the machine will be damaged;
- B. The user should start the pump, check for any leakage of water; and then set suitable temperature in the thermostat, and then switch on power supply;
- C. In order to protect the swimming pool heater, the machine is equipped with a

time lag starting function, when starting the machine, the blower will run 1 minutes earlier than the compressor;

- D. After the swimming pool heater starts up, check for any abnormal noise from the machine.

Precautions

1 . Attention

- A. Set proper temperature in order to get comfortable water temperature to avoid overheating or overcooling;
- B. Please don't stack substances that can block air flow near inlet or outlet area, or the efficiency of the heater will be reduced or even stopped;
- C. Please don't put hands into outlet of the swimming pool heater, and don't remove the screen of the fan at any time;
- D. If there are abnormal conditions such as noise, smell, smoke and electrical leakage, please switch off the machine immediately and contact the local dealer. Don't try to repair it yourself;
- E. Don't use or stock combustible gas or liquid such as thinners, paint and fuel to avoid fire;
- F. In order to optimize the heating effect, please install heat preservation insulation on pipes between swimming pool and the heater. During running period of the swimming pool heater, please use a recommended cover on the swimming pool;

- G. Connecting pipes of the swimming pool and the heater should be $\leq 10\text{m}$, or the heating effect of the heater cannot be ensured;
- H. This series of machines can achieve high efficiency under air temperature of $+15^{\circ}\text{C} \sim +25^{\circ}\text{C}$.

2 . Safety

- A. Please keep the main power supply switch far away from the children;
- B. When a power cut happens during running, and later the power is restored, the heater will start up automatically. So please switch off the power supply when there is a power cut, and reset temp when power is restored;
- C. Please switch off the main power supply in lightning and storm weather to prevent from machine damage that caused by lightning;
- D. If the machine is stopped for a long time, please cut off the power supply and drain water clear of the machine by opening the tap of inlet pipe.

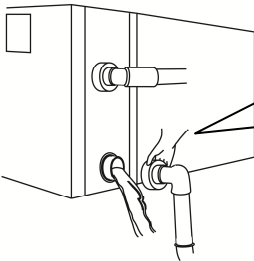
IV. Maintenance

Caution: Danger of electric shock

“Cut off” power supply of the heater before cleaning, examination and repairing

A. In winter season when you don't swim:

1. Cut off power supply to prevent any machine damage.
2. 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

3. Cover the machine body when not in use.

- B. Please clean this machine with household detergents or clean water, NEVER use gasoline, thinners or any similar fuel.
- C. Check bolts, cables and connections regularly.

V . Trouble shooting

Common faults

	Phenomenon	Possible reason
Not failure	A. Noticeable White vaporous cold air or water. B. Plopping sound	A. The fan motor stops automatically for defrost. B. There will be sound from the solenoid valve when machine starts or ends to defrost. C. During machine working or just stopping, a sound like water flow, in 2~3 minutes of starting the machine. This sound comes from refrigerant flowing or water drainage during dehumidification. D. The plopping sound during the operation is caused by expand on heating and contract on cooling of the heat exchanger when temperature varies.
	Automatic start or stop	Check whether there is mal-function on the timer.
Recheck	Heat pump does not run	A. Power supply failure B. Check manual power supply switch to make sure it is on. C. Fuse burned. D. If machine auto- protector has started (check failure code display on controller).
	Running but not heating	Check if there is blockage on air inlet and outlet of the unit.

Note: If the following conditions happen, please stop the machine and cut off the power supply immediately, then contact your dealer:

- a) Inaccurate switch action;
- b) The fuse is frequently broken or leakage circuit breaker jumped.

Failure code

NO.	Failure code	Failure description	Action
1	EE 1	High pressure protection	Contact your dealer.
2	EE 2	Low pressure protection	Contact your dealer.
3	EE 3	Low water pressure protection	1. Check if there is no water through the machine; make sure the pump is on. 2. Or contact your dealer.
4	EE 4	A. Single phase machine: (1)Failure connection due to loosen wire terminal of PROT2 on the PC board (2)If machine is equipped with soft start, the another reason is over current protection due to low voltage or bad installation; B. Three phase machine: 3 phase sequence protection	Contact your dealer.
5	PP 1	Pool water temp sensor failure	Contact your dealer.
6	PP 2	Heat only type: Exhaust temp sensor failure	Contact your dealer.
7	PP 3	Heating coil pipe temp sensor failure	Contact your dealer.
8	PP 4	Gas return temp sensor failure	Contact your dealer.
9	PP 5	Air temp sensor failure	Contact your dealer.
10	PP 6	Compressor exhaust overload protection	Contact your dealer.
11	PP 7	When the temperature $< 0^{\circ}\text{C}$, auto stop for protection (Not Failure);	Machine Auto-protection
12	EE8/888 /Messy Code	Communication Failures	Contact your dealer.

