

INSTALLATION AND OPERATING MANUAL

# SWH-190-300IRE SWH-190-300IRES

Heat pumps for domentic hot water



20-03-2019

M0MR00003-10

Dear Customer,

We congratulate you on choosing this product

For many years Clivet has been offering systems that provide maximum comfort, together with high reliability, efficiency, quality and safety.

The aim of the company is to offer advanced systems, that assure the best comfort, reduce energy consumption and the installation and maintenance cost for the life cycle of the system.

The purpose of this manual is to provide you with information that is useful from reception of the equipment, through installation, operational usage and finally disposal so that this advanced system offers the beat solution.

Yours faithfully.

# A Before any operation carefully read the GENERAL WARNINGS

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Pay particular attention to:



INSTALLER use



USER use



WARNING, identifies particularly important operations or information



PROHIBITIONS, identifies operations that must not be carried out, that compromises the operating of the unit or may cause damages to persons or things.

The data contained in this manual is not binding and may be modified by the manufacturer without prior notice.





This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

Before cleaning, be sure to stop the operation and turn the breaker off or pull out the power plug.

Otherwise, an electric shock and injury may be caused.



Do not insert fingers, rods or other objects into the air inlet or outlet.

When the fan is rotating at high speed, it will cause injury.

Do not touch the inner parts of the controller.

Do not remove the front panel.

Some parts inside are dangerous to touch, otherwise a machine malfunction may be caused.

Never use a flammable spray such as hair spray, lacquer paint near the unit, it may cause a fire.

Do not remove, cover or deface any permanent instructions, lables, or the data label from either the outside of the unit or inside of unit panels.

It is forbidden the use of the device to children and unassisted disables.

It is forbidden to touch the device if you are barefoot and with wet body parts. It is forbidden any cleaning, before having disconnected the device positioning the system main switch on "off".

It is forbidden to pull, remove, twist the electric cables that come out from the device even if it is disconnected from the mains supply.

It is forbidden to trample on the device and/or to put on it any type of object. It is forbidden to throw or spray water directly on the device.

It is forbidden to insert sharpened objects by the air return and supply grilles.

It is vorbidden to open the lids of access to the internal device parts, without having before positioned the main switch of the system on "off".

Do not turn off the power supply. If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person.

The wiring must be performed by professional technicians in accordance with national wiring regulations.

A disconnect device for all poles having a separation distance of at least 3 mm across all poles and that a residual current device (RCD) with a power greater than 10mA is incorporated into fixed wiring.

System will stop or restart heating automatically.

A continuous power supply for water heating is necessary, except service and maintenance.

Keep this manual with the wiring diagram in an accessible place for the operator.

Children should be supervised to ensure that they do not play with the unit.

Note the unit lable data so you can provide them at the assistance centre in case of intervention (see "Unit identification" section)

Provide a unit notebook that allows any interventions carried out on the unit to be noted and tracked making it easier to suitably note the various interventions and aids the search for any breakdowns. Water temperature over 50°C can cause severe burns instantly or death from scalds.







Children, disabled and elderly are at highest risk of being scalded.

Feel water before bathing or showering. Water temperature limiting valves are recommended.



If the unit has not been used for a long period of time(2 weeks or more), hydrogen gas will be produced in the water piping system.

Hydrogen gas is extremely flammable.

To reduce the risk of injury under these conditions, it is recommended that open the hot water tap for several minutes at the kitchen sink before using any electrical appliance connected to the hot water system. When hydrogen is present, there will probably be an unusual sound such as air escaping through the pipe as the water begins to flow.

There should be no smoking or open flame near the tap at the time it is open.

Ask qualified person for relocating, repairing and maintaining the unit instead of doing by yourself.

In case of breakdown or malfunction:

- immediately deactivate the unit
- contact a constructor certified assistance service.
- use original spares parts only

Ask the installer to be trained on:

- start-up / shutdown
- set points change
- standby mode
- maintenance
- what to do / what not to do in case of breakdown



# X GENERAL INSTRUCTIONS

### **Preliminaries**

Read carefully the IOM and use the unit strictly according to the instructions in order to avoid personal injuries, damages to the unit, damages to property and litigations.

Our company does not assume any legal liability for any damage caused by improper use of the unit.

The positioning, hydraulic system, refrigerating, electrics and the air duct must be determined by the system designer or by experts and must take into consideration both the decidedly technical requirements as well as any local regulations in act regarding specific authorisations.

Only qualified personnel can operate on the unit, as required by the regulation in

Using the unit in case of breakdown or malfunction:

- voids the warranty
- · may compromise the safety of the
- may increase time and repair costs.

Follow local safety regulations.

Keep packing material out of children's reach it may be dangerous.

Recycle and dispose of packing material in conformity with local regulations.

### Risk situations

The unit has been designed and created to prevent injures to people. During designing it is not possible to plane and operate on all risk situation. Read carefully "Residual risk" section where all situation which may cause damages to things and injuries to people are reported. Installation, starting, maintenance and repair required specific knowledge; if they are carried out by inexperienced personnel, they may cause damages to things and injuries people.

### Intended use

Use the unit only: domestic hot water

heating, within limits defined in the technical bulletin and on this manual. Any use other than intended does not involve the manufacturer in any commitment or obligation.

### **HYDRAULIC SYSTEM**

### Components

Selection and installation of system components must be carry out by installer.

## Water quality

The water quality is determined by the following factors, avoid therefore:

- Inorganic salts
- pH
- Biological load (seaweeds etc)
- Suspended solids
- Dissolved oxygen

Water with inadequate characteristics can cause:

- pressure drop increase
- energy efficiency decrease
- corrosive symptom increase

### Risk of freeze

If the unit or the relative water connections can be subject to temperatures close to 0°C adopt measures for prevent risk of freeze.

The appliance is intended to be permanently connected to the water mains and not connected by a hose-set. The water may drip from the discharge pipe of the pressure-relief device and that this pipe must be left open to the atmosphere.

The pressure-relief device is to be operated regularly to remove lime deposits and to verify that is not blocked. A discharge pipe connected to the pressure-relief device is to be installed in a continuously downward direction and in a frost-free environment.

### **ELETTRIC SYSTEM**



### General

The characteristics of the electrical lines must be determined by specialized personnel able to design electrical installations; moreover, the lines must be in conformity with regulations in force. Operate in compliance with safety regulations in force.

This unit is required reliable earthing before usage, otherwise might cause death or injury.

If you can't make sure that your house power supply is earthed well, please don't install the unit if it does not in conformity with regulations in force.

The power supply should be an independent circuit with rated voltage. Power supply circuit should be earthed effectively.

Do not use water pipes to earthing connection of the unit

Use single protection devices : gloves, glasses ecc.

The power cables and the protection cable section must be defined in accordance with the characteristics of the protections adopted. The serial number label reports the unit specific electrical data, included any electrical accessories.

### Connection

All electrical operations should be performed by trained personnel having the necessary requirements by the regulations in force and being informed about the risks relevant to these activities. Refer to the unit electrical diagram (the number of the diagram is









shown on the serial number label). Verify that the network has characteristics conforming to the data shown on the serial number label.

Make sure that the unit supply line is selected at start.

Shelter the cables using adequate measure fairleads.

Before starting work, verify that the sectioning device at the start of the unit power line is open, blocked and equipped with sign warning.

First create the earthing connection.

After wire connection, check it again and make sure the correctness before power on.

Prior to powering the unit ensure that all the protections that were removed during the electrical connection work have been restored.

### Signal lines/data-lay



Do not overpass the maximum power allowed, which varies, according to the type of signal.

Lay the cables far from power cables or cables having a different voltage and that are able to emit electromagnetic disturbances. Do not lay the cable near devices which can generate electromagnetic interferences.

Do not lay the cables parallel to other cables; cable crossings are possible, only if laid at 90°.

Connect the screen to the ground, only if there aren't disturbances.

Guarantee the continuity of the screen for the entire extension of the cable.

Respect impendency, capacity and attenuation indications.

### **MODIFICATION**

All unit modifications will end the warranty coverage and the manufacturer responsibility.



### **BREAKDOWN/MALFUCTION**

Disable the unit immediately in case of breakdown or malfunction.



Contact a constructor certified assistance service.

Use original spares parts only.

### **USER TRAINING**

The installer has to train the user on:

- ON / OFF
- set points change;
- standby mode;
- Maintenance:
- what to do / what not to do in case of breakdown.

### **DATA UPDATE**

Continual product improvements may imply manual data changes Visit manufacturer web site for updated data.



### **RESIDUAL RISKS**

### General

In this section the most common situations are signalled. As these cannot be controlled by the manufacturer these could be a source of risk situations for people or things.

### **Danger zone**

This is an area in which only an authorised operator may work. The danger zone is the area inside the unit which is accessible only with the deliberate removal of protections or parts thereof.

### **Handling**

The handling operations, if implemented without all of the protection necessary and without due caution, may cause the fall or the tipping of the unit with the consequent damage, even serious, to persons, things or the unit itself. Handle the unit following the instructions provided in the present manual regarding the packaging and in compliance with the local regulations in force.

Should the gas refrigerant leak please refer to the refrigerant "Safety sheet".

### Installation

An incorrect installation of the unit could cause water leaks, condensate accumulation, leaking of the refrigerant, electric shock, bad functioning or damage to the unit itself.

Check that the installation has been implemented by qualified technical personnel only and that the instructions contained in the present manual and the local regulations in force have been adhered to. The installation of the unit in a place where even infrequent leaks of inflammable gas and the accumulation of this gas in the area surrounding the area occur could cause explosions or fires. Carefully check the positioning of the unit. The installation of the unit in a place unsuited to support its weight and/or

guarantee adequate anchorage may cause the fall or the tipping of the unit with the consequent damage to things, people or the unit itself. Carefully check the positioning and the anchoring of the unit. Easy access to the unit by children, unauthorised persons or animals may be the source of accidents, some serious. Install the unit in areas which are only accessible to authorised person and/or provide protection against intrusion into the danger zone.

### **General risks**

Smell of burning, smoke or other signals of serious anomalies may indicate a situation which could cause damage to people, things or the unit itself. Electrically isolate the unit (yellow-red isolator). Contact the authorised service centre to identify and resolve the problem at the source of the anomaly.

Accidental contact with exchange batteries, compressors, air delivery pipes or other components may cause injuries and/or burns. Always wear suitable clothing including protective gloves to work inside the danger zone.

Maintenance and repair operations carried out by non-qualified personnel may cause damage to persons, things or the unit itself.

Always contact the qualified assistance centre.

Failing to close the unit panels or failure to check the correct tightening of all of the panelling fixing screws may cause damage to persons, things or the unit itself. Periodically check that all of the panels are correctly closed and fixed. If there is a fire the temperature of the refrigerant could reach values that increase the pressure to beyond the safety valve with the consequent possible projection of the refrigerant itself or explosion of the circuit parts that remain isolated by the closure of the tap. Do not remain in the proximity of the safety valve



and never leave the refrigerating system taps closed.

### **Electric parts**

An incomplete attachment line to the electric network or with incorrectly sized cables and/or unsuitable protective devices can cause electric shocks. intoxication, damage to the unit or fires. Carry out all of the work on the electric system referring to the electric layout and the present manual ensuring the use of a system thereto dedicated. An incorrect fixing of the electric components cover may favour the entry of dust, water etc inside and may consequently can electric shocks, damage to the unit or fires. Always fix the unit cover properly. When the metallic mass of the unit is under voltage and is not correctly connected to

Always pay particular attention to the implementation of the earthing system connections. Contact with parts under voltage accessible inside the unit after the removal of the guards can cause electric shocks, burns and electrocution.

the earthing system it may be as source of

electric shock and electrocution.

Open and padlock the general isolator prior to removing the guards and signal work in progress with the appropriate shield.

Contact with parts that could be under voltage due to the start up of the unit may cause electric shocks, burns and electrocution.

When voltage is necessary for the circuit open the isolator on the attachment line of the unit itself, padlock it and display the appropriate warning shield.

### Moving parts

Contact with the transmissions or with the fan aspiration can cause injuries. Prior to entering the inside of the unit open the isolater situated on the connection line of the unit itself, padlock and display the suitable sign.

Contact with the fans can cause injuries.

to removing the protective grill or the fans, open the isolator on the attachment line of the unit itself, padlock it and display the appropriate warning sign.

### Refrigerant

The intervention of the safety valve and the consequent expulsion of the gas refrigerant may cause injuries and intoxication. Always wear suitable clothing including protective gloves and eyeglasses for operations inside the danger zone.

Should the gas refrigerant leak please refer to the refrigerant "Safety sheet". Contact between open flames or heat sources with the refrigerant or the heating of the gas circuit under pressure (e.g. during welding operations) may cause explosions or fires.

Do not place any heat source inside the danger zone.

The maintenance or repair interventions which include welding must be carried out with the system off.

### **Hydraulic parts**

Defects in ducting, the attachments or the cut-off parts may cause a leak or water projection with the consequent damages to people, things or shortcircuit the unit.

### DISCONNECTION

Only authorised personnel must disconnect the unit.

Avoid leak or spills into the environment. Before disconnecting the unit, the following must be recovered, if present:

- refrigerant gas

When awaiting dismantling and disposal, the unit can also be stored outdoors, as bad weather and rapid changes in temperature will not cause damage to the environment, if the unit's electric, cooling and hydraulic circuits are integral and closed.



### **DISPOSAL**

### **CE WEEE DIRECTIVE**

The manufacturer is registered on the EEE National Register, in compliance with implementation of Directive 2012/19/EU and relevant national regulations on waste electrical and electronic equipment.

This Directive requires electrical and electronic equipment to be disposed of properly.

Equipment bearing the crossed-out wheelie bin mark must be disposed of separately at the end of its life cycle to prevent damage to human health and to the environment.

Electrical and electronic equipment must be disposed of together with all of its parts.

To dispose of "household" electrical and electronic equipment, the manufacturer recommends you contact an authorised dealer or an authorised ecological area. "Professional" electrical and electronic equipment must be disposed of by authorised personnel through established waste disposal authorities around the country.

In this regard, here is the definition of household WEEE and professional WEEE:

WEEE from private households: WEEE originating from private households and WEEE which comes from commercial, industrial, institutional and other sources which, because of its nature and quantity, is similar to that from private households. Subject to the nature and quantity, where the waste from EEE was likely to have been by both a private household and users of other than private household will be classed as private household WEEE:

Professional WEEE: all WEEE which comes from users other than private households.

This equipment may contain: refrigerant gas, the entire contents of which must be recovered in suitable

containers by specialised personnel with the necessary qualifications;

- lubrication oil contained in compressors and in the cooling circuit to be collected;
- mixtures with antifreeze in the water circuit, the contents of which are to be collected;
- mechanical and electrical parts to be separated and disposed of as authorised. When machine components to be replaced for maintenance purposes are removed or when the entire unit reaches the end of its life and needs to be removed from the installation, waste should be separated by its nature and disposed of by authorised personnel at existing collection centres.

### Dismantling and disposal

THE UNIT MUST ALWAYS BE SENT TO AUTHORISED CENTRES FOR DISMANTLING AND DISPOSAL. When dismantling the unit, the fan, the motor and the coil, if operating, may be recovered by the specialist centres for reuse. All the materials must be recovered or disposed of in compliance with the corresponding national standards in force. For further information on the decommissioning of the unit, contact the manufacturer.





### **UNIT INDENTIFICATION**

#### Serial number label

The serial number label is positioned on the unit and allows to indentify all the unit features.



It has not to be removed for any reason.

It reports the regulations indications such as:

- unit type,
- serial number (12 characters )
- year of manufacture
- wiring diagram number
- electrical data
- manufacturer logo and address.

#### Serial number

It identifies uniquely each machine.

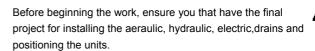
It identifies specific spare parts for the machine.

### Assistance request

Note data from the serial number label and write them in the chart on side, so you will find them easily when needed. In case of intervention you have to provide data.

Serie	
Size	
Serial number	
Year of manufacture	
Wiring diagram	

### PRELIMINARY INFORMATION





Operate in compliance with safety regulations in force .



Use single protection devices.











Recommended instruments

Set of Philips and flathead screwdrivers;

Cutters;

Drill;

Scissors;

Set of open spanners or pipe wrenches;

Range:

Hydraulic material for the sealing of the threads;

Electrical equipment for the connections;

Cut prevention gloves;

Tester and amperometric pliers.



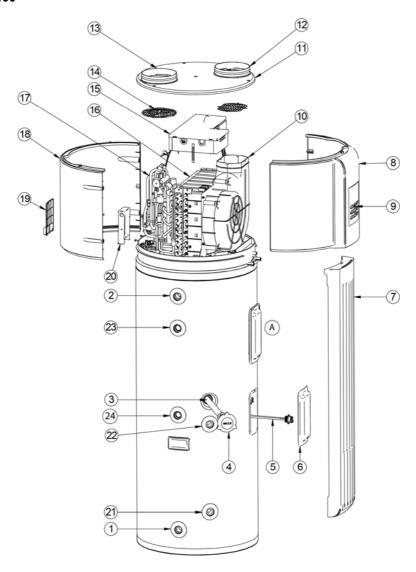
### **BEFORE REQUESTING START-UP**



- Completed aeraulic system and free of dirt
- Completed water system, circuit loading and venting
- Discharges unit connected
- Electric connections



### **PARTS NAMES - 190**



- 1) Water inlet 3/4" F
- 2) Domestic hot water outlet 3/4" F (ACS)
- 3) Sacrificial anode
- 4) Anode cap
- 5) Electric heater
- 6) Heating element cap
- 7) Front mask
- 8) Front cover
- 9) Unit control keypad
- 10) Far
- 11) Top cover
- 12) Air outlet flange
- 13) Air inlet flange

- 14) Air filter
- 15) Electric panel
- 16) Evaporator
- 17) Compressor
- 18) Rear closure
- 19) Electrical connector cover
- 20) Electrical connections box
- 21) Solar inlet 3/4" F (Solar version only)
- 22) Solar outlet 3/4" F (Solar version only)
- 23) DHW recirculation (Solar version only)
- 24) Probe sump for solar
- A ATCO (automatic temperature Switch)

TCO (temperature Switch)

When ordering repair parts please always give the following information: Model, serial and product number.

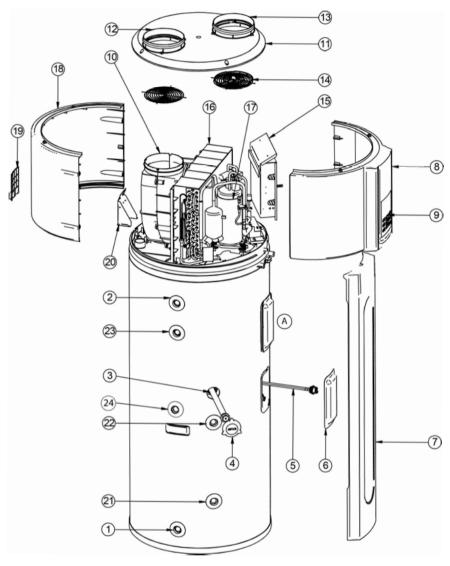
Parts name.



All the picture in this manual are for explanation purpose only. They may be slightly different from the unit you purchased (depand on model). Please refer to the real sample instead of the picture of this manual.



### **PARTS NAMES - 300**



- 1) Water inlet 3/4" F
- 2) Domestic hot water outlet 3/4" F (ACS)
- 3) Sacrificial anode
- 4) Anode cap
- 5) Electric heater
- 6) Heating element cap
- 7) Front mask
- 8) Front cover
- 9) Unit control keypad
- 10) Fan
- 11) Top cover
- 12) Air outlet flange
- 13) Air inlet flange

- 14) Air filter
- 15) Electric panel
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### 4.1 - DELIVERY CONTROL



Before accepting the delivery you have to check:

- that the unit hasn't been damaged during transport.
- Check that the materials delivered correspond with that indicated on the transport document comparing the data with the identification label 'A' positioned on the packaging.

In case of damage or anomaly:

- Write down on the transport document the damage you found and quote this sentence: "Conditional acceptance clear evidence of deficiencies/damages during transport".
- Contact supplier and the carrier by fax and registered mail with advice of receipt.



Any disputes must be made within the 8 days following the delivery. Complaints after this period are invalid.

### 4.2 - HANDLING

The following examples are indications the choice of the means and of the handling modes will depend on factors.



Verify the lifting equipment's load-bearing capacity: the shipped unit weighs

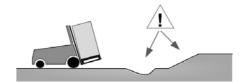
Unit		Shipping weight
190	kg	126
190S (with solar)	kg	149
300	kg	149
300S (with solar)	kg	171







Identify critical points during handling (disconnected routes, flights, steps, doors).



Use protection (A) to avoid the unit damaging



Stair climbing trolley.









Maximum inclination

When transporting the unit, do not carry it by holding on to the top part of the circuit.



This unit is heavy, it need to be carried by two or more persons, otherwise might cause injury and damage.



In order to avoid scratch or deformation of the unit surface, apply guard boards to the contacting surface.

No contact of fingers and other things with the vanes.

While moving it, do not tip the unit to an angle less than 45°

and keep it in a vertical position during installation.

If the unit has been tipped during transport, wait at least 2 hours before starting it up





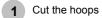
### 4.3 - PACKAGING REMOVING

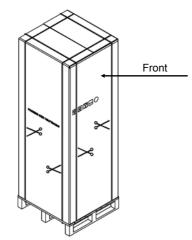


Be careful not to damage the unit.

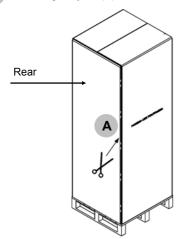
Keep packing material out of children's reach it may be dan-

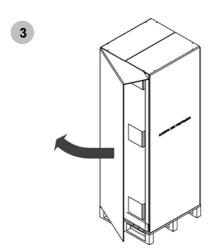
Recycle and dispose of the packaging material in conformity with local regulations.





## 2 Cut along the joint (A)







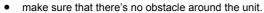
#### 5.1 - INSTALLATION REQUIREMENTS



The installation has been implemented by qualified technical personnel only and that the instructions contained in the present manual and the local regulations in force have been adhered to.

Choose the installation place according to the following criteria:

- customer approval
- Internal
- in a dry room/compartment where the temperature cannot fall below 0 degrees
- · guarantee good unit operation
- safe accessible position
- enough space for installation and maintenance shall be preserved.
- the air inlet and outlet should be free from obstacles and strong wind.
- the base surface should be flat, surface should be inclined no more than 2° and able to bear the weight of the unit and suitable for installing the unit without increasing noise or vibration.
- the operation noise and air flow expelled shall not affect neighbors.
- If the unit has to be installed on a metal part of building, make sure the well electric insulation which should meet the relevant local electric standard.
- use of air from heated rooms could penalise the heating performance of the building
- the unit must be securely fixed, elsewise, noise and shaking may be resulted.





The external air temperature must also be considered when installing this unit, in heat pump mode the external air temperature must be above -7°C and below 43°C. If the externalair temperature falls outside these upper and lower limits, the electrical elements will activated to meet the hot water demand and the heat pump does not operate.



The unit should be located in an area not subject to freezing temperatures. The unit located in unconditioned spaces(i.e., garages, basements, etc.) may require the water piping, condensate piping, and drain piping to be insulated to shelter against freezing.



Installing the unit in any of the following places may lead to malfunction:

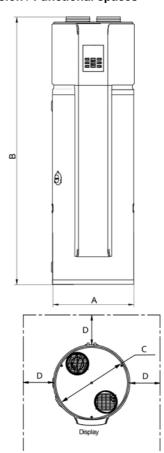
- The site contains mineral oils such as cutting lubricant
- Seaside where the air contains much salt.
- Hot spring area where corrosive gases exist, e.g., sulfide gas
- · Factories where the power voltage fluctuates seriously.
- Inside a car or cabin.
- The place with direct sunlight and other heat supplies. If there's no way to avoid these, please install a covering.
- Place like kitchen where oil permeates.
- Place where strong electromagnetic waves exist.
- Place where flammable gases or materials exist.
- Place where acid or alkali gases evaporate.

### 5.2 - CONSIDER SOUND EMISSIONS

Noise levels could represent an inconvenience if installed in areas that require extreme silence, example near bedrooms.



### Unit dimension / Functional spaces



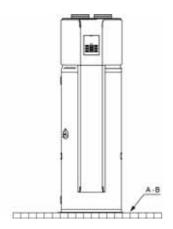
Unit		190 190S (with solar)	300 300S (with solar)
Width	Α	560	650
Height	В	1830	1930
Diameter	С	560	650
Functional spaces	D	= 600	= 600





Check that the floor can support the weight of the unit in operation:

- $A > 287 \text{ Kg/m}^2 (190)$ 
  - > 310 Kg/m<sup>2</sup> (190S with solar)
- $B > 412 \text{ Kg/m}^2 (300)$ 
  - > 435 Kg/m<sup>2</sup> (300S with solar)



### If installed in inclosed space

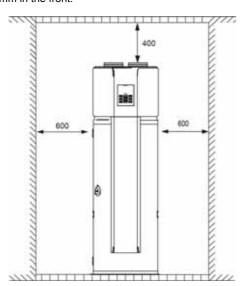


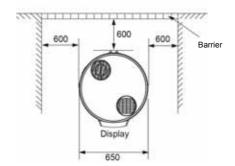
The unit must be located in a space >15m3, and must have unrestricted air flow.

Make sure there is enough Installation space.

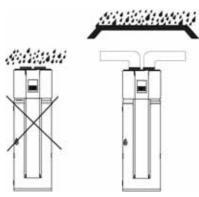


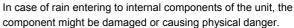
For optimal efficiency and serviceability, the following clearances should be maintained: 400mm on the air inlet side, 400mm on the air outlet side, 600mm in the back, and 600mm in the front.





Install the unit in the indoor space, it is not allow to install the unit at the rainy space

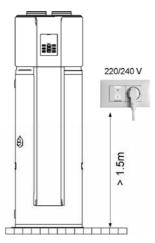






### **5.5 ELECTRICAL OUTLET**

The installation height of power supply should be over 1.5m, if separate the power supply from water.

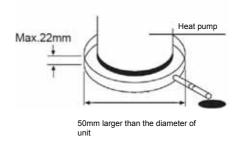


Configuration for electric power socket (schuko + On/Off switch) close to the unit

The plug must be accessible at all moment.

### 5.6 - CONDENSATE DRAIN

Condensate may be leaked from unit if drainage pipe is blocked, a drainage pan is recommended as shown as following figure.



### **6.1 - WATER FEATURES**



Fill the storage tank (DHW) only during the unit start-up.

If the house is not immediately lived,or the unit is turned off for long periods, empty the storage tank to avoid the stagnation of the water, or with temperatures close to 0°C the risk of freeze. See the Maintenance section for drain.

#### Water features

- · confirming to local regulations
- Water hardness (CaCo<sub>3</sub>) between 10°f and 15°f
- Langelier (I<sub>L</sub>) index between 0 and +0.4
- · within the limits indicated by table

The water quality must be checked by qualified personnel.



#### **Hardness**

If the water hardness is high install a system suitable to preserve the unit from harmful deposits and limestone formations.



#### Cleaning

Before making the water connections to unit clean carefully the system with specific and effective products for removing residues or impurities that could affect the operation.

The existing systems must be free from sludgs, contaminants and protected against foulings.



#### **Exclusions**

The warranty does not cover damages caused by limestone formations, deposits and impurities from the water supply and / or failure from failed system clearing to clean system. If necessary, fit a water softener to reduce water hardness.

Concentration limit values for preventing galvanic corrosion				
PH	7,5 ÷ 9,0			
SO <sub>4</sub> -	< 100	ppm		
HCO <sub>3</sub> - / SO <sub>4</sub>	> 1			
Total Hardness	4,5 ÷ 8,5	dH		
CI-	< 50	ppm		
PO <sub>4</sub> <sup>3-</sup>	< 2,0	ppm		
NH3	< 0,5	ppm		
Free Chlorine	< 0,5	ppm		
Fe₃ <sup>+</sup>	< 0,5	ppm		
Mn <sup>++</sup>	< 0,05	ppm		
CO <sub>2</sub>	< 50	ppm		
H <sub>2</sub> S	< 50	ppb		
Temperature	< 65	°C		
Oxygen content	< 0,1	ppm		

### 6.2 - PIPES CONNECTIONS



Connect the water outlet/inlet using pipes and couplings that are resistant to both the operating pressure and the hot water temperature, which can reach 70°C.



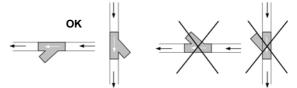
Do not use materials that cannot withstand high temperatures Do not use flexible pipes for unit connection.

### 6.3 WATER FILTER (Provided by the customer)

The filter is extremely important: it helps to lockout any impurities in the water and avoid clogging the system and heat exchanger.

It must be installed immediately at the entrance to the water mains, in a position that is easily accessible for cleaning. The filter should never be re-moved.

Installation



### 6.4 - PRESSURE REDUCER (Provided by the customer)

If the inlet water pressure is less than 0,2MPa (2bar), a pump should be installed at the water inlet.

For guarantee the safety usage of storage tank at the condition of water supply hydraulic higher than 0,65MPa (6,5bar), a pressure reducer should be installed at the water inlet pipe

A calibration pressure of 3-4 bar (0,3-0,4 MPa) is advisable. Periodically check the pressure



### 6.5 - EXPANSION VESSEL (Provided by the customer)

Be provided with an expansion tank proportioned to the boiler's dimensions (you are advise to let the circulation be made by a thermo technician).

To compensate the pressure variations and/or the water hammers in the cold water network and to avoid water losses, it is recommended to install an expansion vessel An expansion tank allows the correct system pressure to be maintained when the water temperature varies.

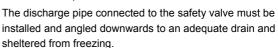
### 6.6 - SAFTEY VALVE (Provided by the customer)

Install all safety devices required by the local laws in force in the countries where the unit is installed.



The manufacturer of the heat pump shall not be held responsible for any damage caused by failure to comply with said laws.

Install the safety valve (7 Bar max) (0,7 MPa max) on the outlet of the domestic hot water, which must be connected to a suitable discharge. If this is not done and the valve trips and the room is flooded, the manufacturer of the heat pump shall not be held responsible.



The pressure-relief device is to be operated regularly to remove lime deposits and to verify that is not blocked.

See Maintenance section.

To the installation information refer to pag. 20-21

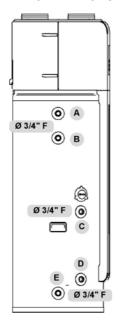






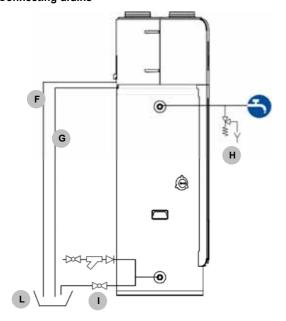


### 6.7 - HYDRAULIC CONNECTIONS



Α	DHW outlet
В	DWH recirculation (only version 190S - 300S)
С	Solar outlet (only version 190S - 300S)
D	Solar inlet (only version 190S - 300S)
Е	Aqueduct inlet

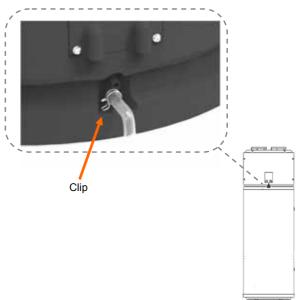
### **Connecting drains**

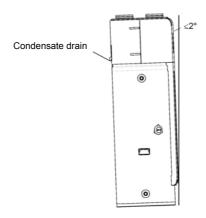


F	Upper condensate outlet ø 10
G	Condensate drain ø 10
Н	Domestic hot water safety valve
ı	Storage tank discharge
L	Drain accumulation / drain pit

Block the condensate drain pipe with the clip supplied.



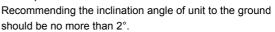




The condensate must be disposed in order to avoid damages to people and things.



To smoothly drain condensate, the unit should be installed at a horizontal floor. Otherwise, the drain vent is ensured at the lowest place.





Condensate drain lines installed and piped to an adequate drain accumulation /drain pit.



Arrange the drain pipe to ensure smooth draining. Improper drainage work may cause wetting of the building, furniture etc..

IMPORTANT: Water coming from the plastic shroud is an indicator that both condensation drain lines (F - G) may be blocked

Immediate action is required.

A discharge pipe connected to the pressure-relief (H) device is to be installed in a continuously downward direction and in a frost-free environment.



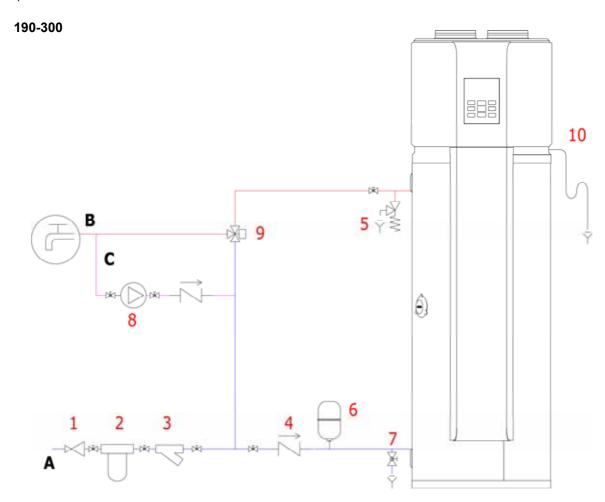




### **6.8 WATER SYSTEM PIPING**



In case of installing the unit at a place where outside temperature below freezing point, insulation must be provided for all hydraulic components.



Indicative plumbing diagram

The system components must be defined by Designer and Installer (ex. expansion tanks, vents, taps, calibration/safety valves etc.)

1	Pressure reducing valve	2	Water treatment devices (water softener, etc.)	3	Filter Y
4	Non-return valve	5	Domestic hot water safety valve with discharge	6	DHW expansion vessel
7	Storage drain	8	Hot water circulator (recirculation) with check valve	9	Mixing valve thermostatic
10	Condensate drain	Α	Aqueduct inlet	В	DHW
С	DHW recirculation				

### Note:

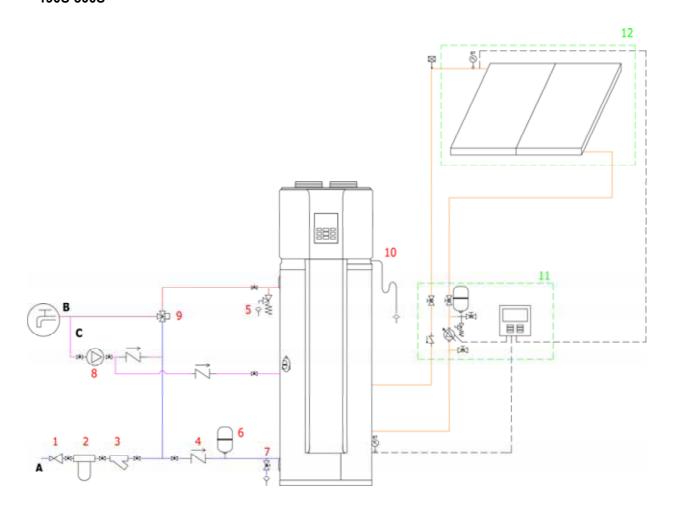


Water temperature limiting valve is recommended for mixing the inlet cold water with outlet hot water to prevent burns caused by hot water

Do not use flexible pipes for unit connection.



### 190S-300S



### Indicative plumbing diagram

The system components must be defined by Designer and Installer (ex. expansion tanks, vents, taps, calibration/safety valves etc.)

1	Pressure reducing valve	2	Water treatment devices (water softener, etc.)	3	Filter Y
4	Non-return valve	5	Domestic hot water safety valve with discharge	6	DHW expansion vessel
7	Storage drain	8	Hot water circulator (recirculation) with check valve	9	Mixing valve thermostatic
10	Condensate drain	11	Solar circulation unit (not supplied)	12	Solar panels (not supplied)
Α	Aqueduct inlet	В	DHW	С	DHW recirculation

### Note:



Water temperature limiting valve is recommended for mixing the inlet cold water with outlet hot water to prevent burns caused by hot

Do not use flexible pipes for unit connection.



#### 7.1 AERAULIC DESIGN CRITERIA



The dimensioning and the correct execution of the aeraulic connections are critical to ensure the unit operating and an appropriate level of guietness in the served area.

Pressure loss in the duct will reduce the air flow, which can cause a reduction in efficiency of the unit.

The maximum static pressure should be within 25Pa

### 7.2 AIR DUCT CONNECTION

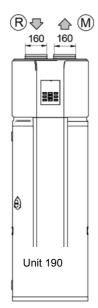


If the duct outlets for the outdoor air inlet and exhaust are outside of coverage, must end with a 90 ° bend downward, to prevent entry of water from the air inlet.

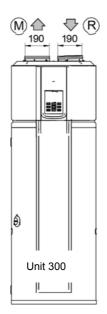
To perform the ductings:

- Connect the ductings fixing them to the connections with the special hookings to the circular flanges.
- The duct weight should not lie on the connection flanges.
- Put antivibration joints between ducts and units.
- The connection to the flanges and among the different duct sections must guarantee the air seal, avoiding air dispersions in supply and return that penalize the overall efficiency of the installation.
- Limit the pressure drops by optimizing the path, the type and the number of curves and branches.
- Use curves of large radius.
- For unit air outlet with duct, when unit operating, condensate will be generated aroud outside of duct.
- Thermically insulate the supply ducts to avoid heat losses and condensate.

### 7.3 DIMENSION CONNECTIONS

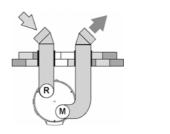


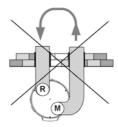
R - External air return M - Air supply



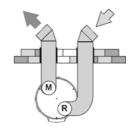
Avoid recirculation of exhaust/return air Use elbows with a 90° downward bend

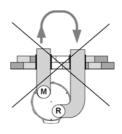
**Unit 190** 



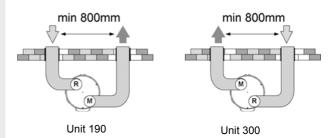


Unit 300





Minimum exhaust distance (M) / return distance (R)



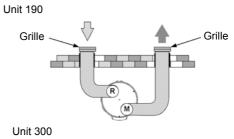
### Exhaust / return grille (Provided by the customer)

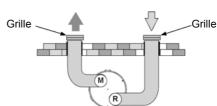
External air return

positioned in an area with a low concentration of impurities (dust, odours, exhaust fumes, etc.).

#### Exhaust outlet

- away from terraces, balconies, property boundary lines;
- avoid windward zones





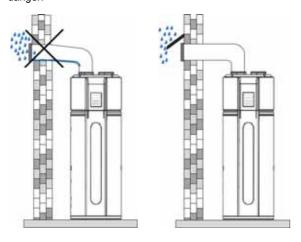


## 7 - AERAULIC CONNECTIONS

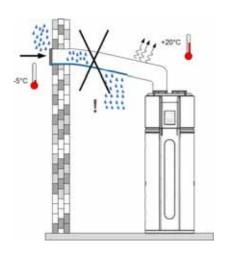


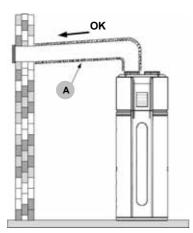
In terms of the unit connect with duct reaching to outdoor, a reliable water-resistant measure must be conduct on the duct, to prevent water from dropping into internal of the unit .

In case the water entering to internal components of the unit, the component might be damaged or causing physical danger.



The ducts should not be tilted towards unit to avoid the condensate and water return.





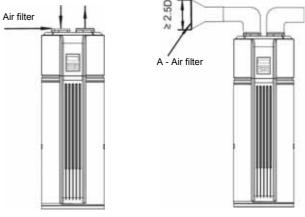
A - Insulated pipe

### Air filter

Filter installing at the unit inlet.

In terms of the unit with duct, filter in there must be put on the position of duct inlet. (Provided by the customer)

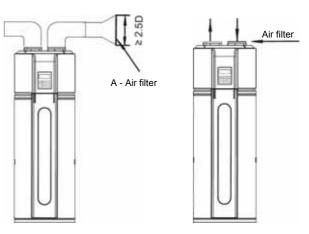
#### **Unit 190**



A - The air filter must be provided on the intake outlet of the external air or on the duct easily accessible for routine maintenance (Provided by the customer), the mesh size is about 1.2mm



### Unit 300



A - The air filter must be provided on the intake outlet of the external air or on the duct easily accessible for routine maintenance (Provided by the customer), the mesh size is about 1.2mm





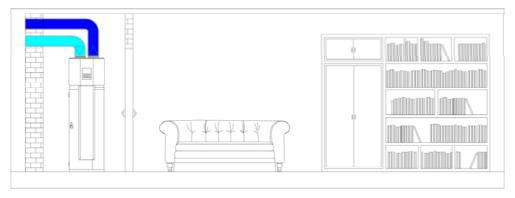
#### **Aeraulic Connections**

The unit must be installed inside the building, preferably in a technical room or a laundry room or a garage.

At any rate, it is always preferable to avoid installing the unit near bedrooms or in rooms that must be protected from noise. Outdoor installation is prohibited, as well as installation in places subject to external weather.

Examples below refer to the 190 version. For the 300 version, the expulsion and intake connections are inverted.

#### **INTAKE AND EXPULSION DUCTS (recommended)**

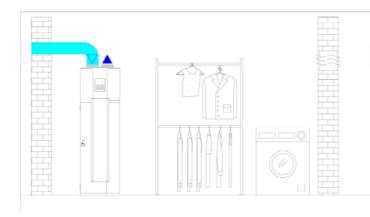


Channelling the intake and expulsion through ducts allows the unit to function with air taken from outside the house. Heat is extracted from the outdoor air, and used as a source for the heat pump.

Later this same air is expelled outside the building.

Therefore, unit operation does not cause an increase in heating requirements in the home. It is necessary to fit the system with correctly sized pipes in relation to the available pressure head supplied by the unit.

### **INTAKE DUCTS (conditioned)**

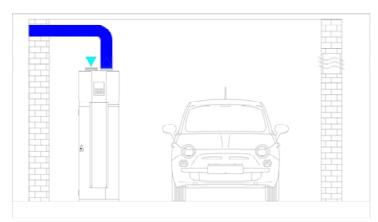


Installation with an intake duct and free expulsion is recommended if there is a desire to use the air expelled by the unit, cold dehumidified air (5-10°C colder than the intake air), to cool the room.

The unit must be installed preferably in a room that does not require heating, because the unit releases cold air into the environment and it would increase the cost of heating that room.

The unit must be installed in a room with a minimum volume greater than  $15m^2$ . The expulsion air flow must be guaranteed and cannot be blocked. It is necessary that the vents be correctly sized.

### **EXPULSION DUCTS (conditioned)**



In this particular type of installation, the unit takes in air from the room where it is installed, extracts the heat and then expels that air outside the house.

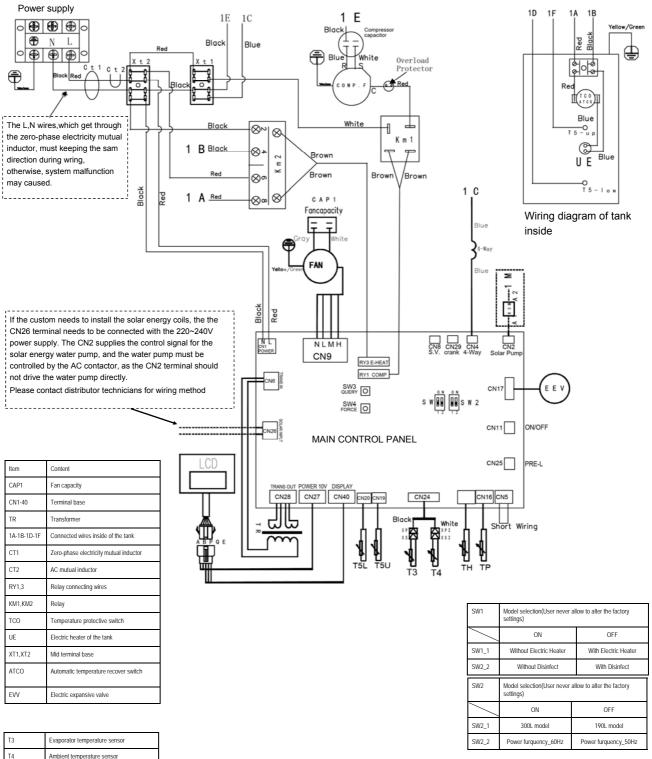
The unit must be installed in a room with suitable openings to allow the correct flow of air into the unit, which would prevent the air pressure in the room from falling. The unit must be installed in a room with a minimum volume greater than  $15\text{m}^2$ .





### 8.1 - ELECTRICAL WIRINGDIAGRAM - 190

1A/1B/1D/1F wire comes out from tank, must connect with the corresponding component.



T3	Evaporator temperature sensor
T4	Ambient temperature sensor
T5U	Tank temperature sensor (Upper)
T5L	Tank temperature sensor (Lower)
TP	Discharge temperature sensor
TH	Suction temperature sensor
PRO-H	High Pressure Protection Switch

T3: Evaporator temperature sensor

T4: Ambient temperature sensor

T5U: Storage tank temperature sensor (Upper)

T5L: Storage tank temperature sensor (Lower)

TP: Discharge temperature sensor

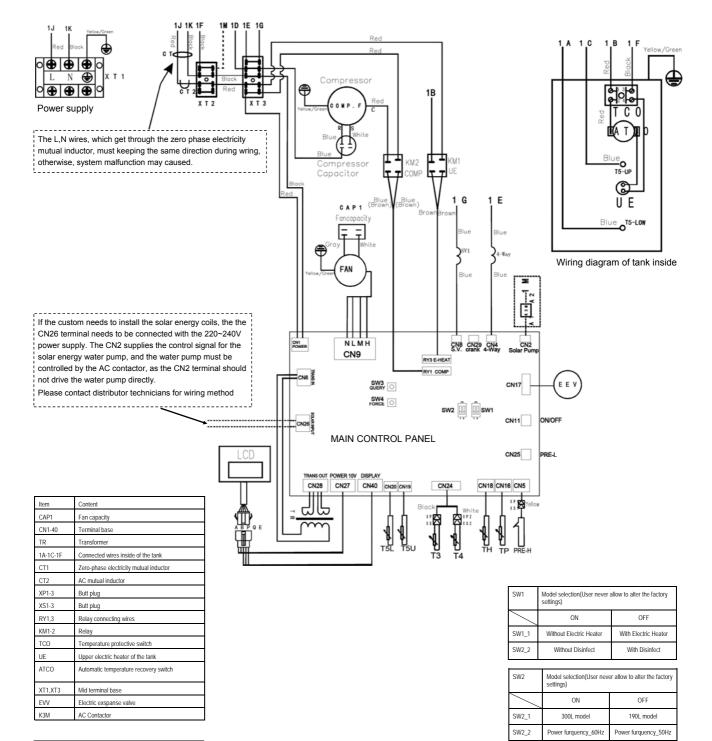
TH: Suction temperature sensor





### 8.2 - ELECTRICAL WIRINGDIAGRAM - 300

1A/1B/1C/1F wire comes out from tank, must connect with the corresponding component.



Т3	Evaporator temperature sensor
T4	Ambient temperature sensor
T5U	Tank temperature sensor (Upper)
T5L	Tank temperature sensor (Lower)
TP	Discharge temperature sensor
TH	Suction temperature sensor
PRO-H	High Pressure Protection Switch

T3: Evaporator temperature sensor

T4: Ambient temperature sensor

T5U: Storage tank temperature sensor (Upper) TH: Suction temperature sensor

T5L: Storage tank temperature sensor (Lower)

TP: Discharge temperature sensor





### 8.3 - PCB I/O PORTS DESCRIPTION



All electrical operations should be performed by trained personnel having the necessary requirements by the regulations in force and being informed about the risks relevant to these activities.

Mlin. Diameter of Power Supply Cord (mm²)	4
Earth Cord (mm <sup>2</sup> )	4
Manual Switch (A) Capacity/Fuse (A)	40/30
Creepage Breaker	30 mA ≤ 0,1 sec



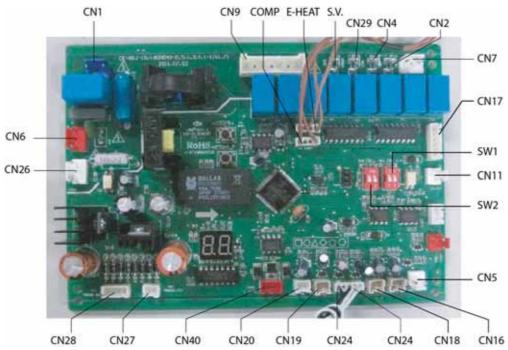
Please choose the power cord according to above table, and it should comply with local electric standard.

The power cord type, recommanded power cord mode is H05RN-F.

When wiring the power supply, please add additional insulation sheath at the place without rubber insulation layer.

The unit must be installed with an Creepage Breaker near the power supply and must be effectively earthed. A creepage breaker must be installed adjacent to the power supply

Never use the wire and fuse with wrong rated current, otherwise unit may break down and cause fire furthermore.



CN1	Power supply	CN17	Electronic expansion valve CN19		T5U: upper tank water temp. sensor
CN9	Fan	SW1	Factory setting for Disinfect &Electric Heater model selection T5L: lower tank water		T5L: lower tank water temp. sensor
СОМР	Compressor	CN11	On/off	CN40 Display output	
E-HEAT	Electric heater	SW2	Factory setting for 190/300 model & Power frequency 50/60Hz selection  CN27 Panel disply power su		Panel disply power supply
S.V.	Saftey valve	CN5	High pressure switch	CN28	Transformer output
CN29	Crankcase heather	CN16	Tp: compressor discharge temp. sensor	CN26	Solar input
CN4	4-way valve	CN18	Th: compressor suction temp. sensor	CN6	Transformer input
CN2	Solar pump	CN24	T4: ambient temp. Sensor (White)		
CN7	Alarm	CN24	T3: evaporator output temp.sensor (Black)		



### **Electric Connection**



The power supply should be an independent circuit with rated voltage.

Power supply circuit should be earthed effectively.



Do not use water pipes to earthing connection of the unit

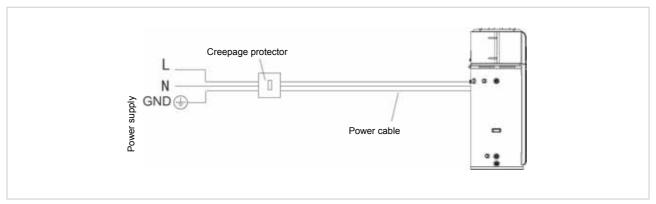
The wiring must be performed by professional technicians in accordance with national wiring regulations and this circuit diagram.

An all-pole disconnection device which has at least 3 mm separation distance in all pole and a residual current device (RCD) with the rating of above 10 mA shall be incorporated in the fixed wiring.

Set the electric leakage protector according to the relevant electric technical standards of the State.

The power cord and the signal cord shall be laid out neatly and properly without mutual interference or contacting the connection pipe or valve.

After wire connection, check it again and make sure the correctness before power on.



### CAUTION



The earthing pole of socket must be grounded well, make sure that power supply socket and plug are dry enough and connected tightly.

### Switch setting

PCB has 2 bits of switches.

SW1	Model selection (User never all	l selection (User never allow to alter the factory settings)		
	ON	OFF		
SW1 - 1	Without electric heater	With electric heater		
SW1 - 2	Without disinfect	With disinfect		

SW2	Model selection (User never allow to alter the factory settings)		
	ON	OFF	
SW2 - 1	300	190	
SW2 - 2	Power frequency 60Hz	Power frequency 50Hz	

### **Default factory setting**







### 8.4 - SOLAR SYSTEM (PROVIDED BY THE CUSTOMER)



Installation by a qualified technician in possession of the technical-professional requisites according to the current national and local regulations in force in the territory.

### Scheme 1: the heat pump can also operate when the solar pump is in operation

### Electrical connections

CN26	Solar controller signal input	220-240 🖜
CN2	Solar pump control	220-240 ∿

### Operating logic

<b>T5U</b> (Storage tank temp. sensor Upper)	CN26 (in)	CN2 (out)	SOLAR PUMP	Unit
≤ 60°C	220-240 🕠	220-240 🖜	ON	Enabled
≥ 65°C	0 <b>~</b>	0 <b>Ⴠ</b>	OFF	Enabled

Note: solar pump must be controlled through AC contactor.

Solar control unit

The CN2 is not allowed to drive the pump directly.

Power supply CN26 CN2 Solar probe Ν 2T1 1L1 4T2 3L2 Power supply ⊚ 22 21 0 AC contactor Solar probe Solar panel Solar pump

When the solar control unit check the temperature is OK in

solar panel, it will output 220-240V signal.



0



### Scheme 2: the heat pump cannot operate together with the solar pump.

### Electrical connections

CN26 Solar controller signal input 22		220-240 🖜
CN2 Solar pump control		220-240 🖜
CN11	Unit control	Enabled / disabled

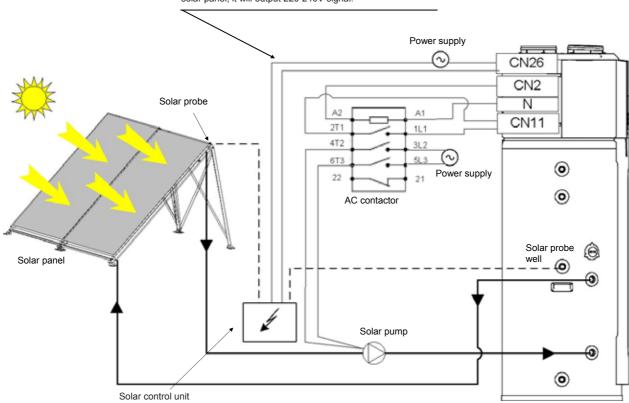
### Operating logic

T5U (Storage tank temp. sensor Upper)	CN26 (in)	CN2 (out)	SOLAR PUMP	CN11	Unit
≤ 60°C	220-240 🖜	220-240 🖜	ON	ON	Disabled
≥ 65°C	0 <b>~</b>	0 💠	OFF	OFF	Enabled

Note: solar pump must be controlled through AC contactor.

The CN2 is not allowed to drive the pump directly.

When the solar control unit check the temperature is OK in solar panel, it will output 220-240V signal.





### 9.1 PRELIMINARY INFORMATION



If the unit has been tipped during transport, wait at least 2 hours before starting it up

#### General

- The indicated operations should be done by qualified technician with specific training on the product.
- The service centres shall perform by request the start-up; the electrical, hydraulic connections and the remaining work on the system are provided by the installer.
- Agree upon the start-up date with the service centre sufficiently in advance .

Before checking, please verify that:

- the unit should be installed properly and in conformity with this manual.
- the electrical power supply line should be sectioned at the beginning.
- the line sectioning device is open, locked and equipped with the suitable warning signs.
- ensure no voltage is present .



After turning off the power, wait at least 5 minutes before accessing to the electrical panel or any other electrical component.



Before accessing check with a multimeter that there are no residual stresses.

#### Refrigerant circuit

 Visually check the refrigerating circuit: the presence of oil stains can mean leakage (caused, for example, by transport, handling or other).



 Use the pressure taps only if you need to load or unload the refrigerant circuit.

#### Hydraulic circuit

- Before realizing the unit connection make sure that the hydraulic system has been cleaned up and the clearing water has been drained.
- Check that the water circuit has been charged and pressurised.
- Check that the cut-off valves on the circuit are in the "OPEN" position.
- Check that no air is present in the circuit, if required, evacuate using the air bleeding valve placed at the system's high points.

### Aeraulic system

Verify that:

- the rooms are clean (free from dirt)
- ducting are completed, connected and without obstructions

#### Electrical circuit

• Verify that the unit is connected to the ground plant .

- Check tightening of the conductors: the vibrations caused by handling and transport might cause loosing.
- Feed the unit by closing the sectioning device, but leave it on OFF
- Check the voltage and frequency net values which must be within the limits:

#### 220-240Vac

Check that the phases unbalancing must be lower than 2%

The operating out of the limits can cause malfunctions damages and makes decay the warranty.



### Verify tensions - Absorbitions

Check that the air and water temperatures are within the operating limits.

With unit at steady state, i.e. in stable and close-to-work conditions, check:

- supply voltage
- unit total absorption
- absorption of each electric load...

#### 9.2 - GENERAL

The indicated operations should be done by qualified technician with specific training on the product.

Upon request, the service centres performing the start-up.

The electrical, water connections and the other system works are by the installer.

Agree upon in advance the star-up data with the service centre.

Before checking, please verify the following:

- the unit should be installed properly and in conformity with this manual
- the electrical power supply line should be isolated at the beginning
- the unit isolator is open, locked and equipped with the suitable warning
- make sure no tension is present



After turning off the power, wait at least 5 minutes before accessing to the electrical panel or any other electrical component. Before accessing check with a multimeter that there are no residual stresses.

### 9.3 - PRELIMINARY CHECKS



# Before starting the unit, make sure that the room is free of dust and debris and that the conduits are not blocked

The following check list is a brief reminder of the points to check and of the operations to perform to start-up the unit. For details refer to the various chapters in the manual.

	<b>V</b>	Preliminary checks
1		The flooring beneath the unit must be able to support the weight of the unit when filled with water (more than 287kg, model 190 – more than 310kg, model 190S) - (more than 412kg, model 300 - more than 435kg, model 300S)
2		Located indoors (such as a basement or garage) and in a vertical position. Sheltered from freezing temperatures.
3		Drain pan installed and piped to an adequate drain.
4		Sufficient room to maintenance the unit.
5		Sufficient air for the heat pump to function, the unit must be located in a space >15m³, and must have unrestricted air flow.
6		The unit cannot be placed into any type of closet or small enclosure.
7		The site location must be free from any corrosive elements in the atmosphere such as sulfur, fluorine, and chlorine. These elements are found in aerosol sprays, detergents, bleaches, cleaning solvents, air fresheners, paint, and varnish removers, refrigerants, and many other commercial and household products. In addition excessive dust and lint may affect the operation of the unit and require more frequent cleaning.
8		The externalair temperature must be above -7°C and below 43°C. If the externalair temperature falls outside these upper and lower limits the electrical elements will be activated to meet the hot water demand.
9		DHW safety valve properly installed with a discharge pipe run to an adequate drain and sheltered from freezing.
10		Filter for water coming from water mains present and accessible for maintenance
11		Water temperature limit valve or mixer tap (recommended) installed per manufacturer's instructions.



All piping properly installed and free of leaks.

12		All piping properly installed and free of leaks.
13		Hydraulic system filled, pressurised and drained
14		Expansion tank checked / filled with nitrogen
15		Condensate and safety valve drains
16		Condensate drain line installation  Must be located with access to an adequate drain
17		Condensate drain lines installed and piped to an adequate drain
18		The unit requires 220-240 VAC for proper operation.
19		Wiring size and connections comply with all local applicable codes and the requirements of this manual.
20		The unit and electrical supply are properly grounded.
21		Proper overload fuse or circuit breaker protection installed.
22		How to check the power supply socket and plug are qualified?  Turn on power supply and keep the unit running for a half hour, then turn off power supply and plug out, check whether the socket and plug is hot or not.
Post I	nstall	ation Review
1		Understand how to use the User Interface Module to set the various modes and functions.
2		Understand the importance of routine inspection/maintenance of the condensate drain pan and lines. This is to help prevent any possible drain line blockage resulting in the condensate drain pan overflowing.
3		IMPORTANT: Water coming from the plastic shroud is an indicator that both condensation drain lines may be blocked. Immediate action is required.
4		To maintain optimal operation check, remove and clean the air filter.





#### 9.4 - TRIAL-RUNNING

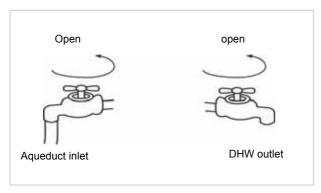
#### Water effusion before operation



Before using this unit, please follow the steps below.

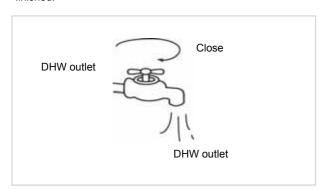
Storage tank water filling:
 If the unit is used for the first time or used again after emptying the storage tank, please make sure that the storage tank is full of water before turning on the power

Open the cool water inlet valve and the hot water outlet valve.



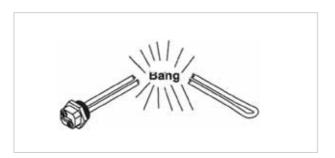
When water flows out from the water outlet (DHW), the storage tank is full.

Turn off the hot water outlet valve and water effusion is finished.





Operation without water in water storage tank may result in the damage of auxiliary e-heater. Due to such damage, manufacturer will not be liable for any damages caused by this issue

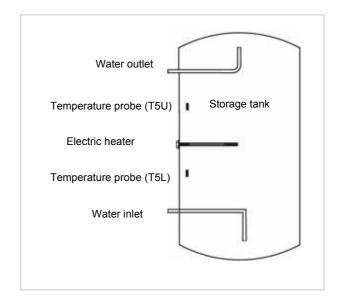


### 9.4 - CHECKING LIST BEFORE COMMISIONNING

- 1) Checking list before trial-running.
- 2) Correct installation of the system.
- 3) Correct connection of water/air piping and wiring;.
- Condensate draining smoothly well insulation work for all hydraulic part.
- 5) Correct power supply.
- 6) No air in the water pipeline and all valves opened.
- 7) Effective electric leakage protector installation.
- 8) Sufficient inlet water pressure, between 1,5 Bar ~ 6,5 Bar (0,15 MPa ~ 0,65 MPa) (≥1,5Bar) (≥0,15MPa)

#### **About Running**

System Structure Figure
 Unit has two kinds of heat sources: Heat pump
 (compressor) and electric heater.
 Unit will automatically select heat sources to heat water to the target temperature.



2) Water Temperature Display

The temperature shown on the display depends on the upper sensor. So it is normal that the display temperature has reached to target temperature but compressor still running, because the lower water temperature does not get to target temperature.

Modes will be automatically selected by unit. manually mode selection is unavailable.

# 9 - START-UP

 Heat source will be automatically selected by unit. But manually E-Heater operation is available.

#### 4) Heat Source Shift

The default heating source is heat pump. If externalis range out of heat pump, heat pump will stop running, the unit will shift automatically to activate E-heater and show the icon LA on the display, then if the externaltemperature goes into the running range of heat pump again, it will stop E-heater and shift automatically to heat pump again, and the icon LA will be extinguished.

If the target setting water temperature is higher than Max. temp(Heat pump), the unit will activate heat pump firstly to the Max. temperature, then stop heat pump, activate E-heater to continually heat water to the target temperature.



If manually activate the E-heater running mode when heat pump running, E-heater and heat pump will work together until the water temperature gets to target temperature. So if want to heat quickly, please manually activate E-heater.

#### NOTE

E-heater will be activated once for the current heating progress, if want to apply E-heater again please push E-HEATER.

If system occurs some malfunctions, error code "E7" and ¶ will be shown on the display, then heat pump will stop running, and the unit will activate automatically E-heater as the backup heat source, but the code "E7" and ¶ will be shown until power off.

If only use E-heater, about only 75 liters water (unit 190) will be heated or about only 150 liters water (unit 300), so must set higher target water temperature if external temperature is out of heat pump running range.

### **Defrosting During Water-heating**

In heat pump running period, if the evaporator frosted in lower ambient temperature, the system will defrost automatically to keep effective performance(about 3~10min). At defrosting time, the fan motor will stop, but compressor will still run.

#### About TCO and ATCO

The power of compressor and E-heater will be automatically shut-off or turn on by TCO and ATCO.

If the water temperature is higher than 78°C, the ATCO will automatically shut off the power of compressor and E-heater, and reconnect it if the temperature falls down below 68°C.

If the water temperature is higher than 85°C, the TCO will automatically shut off the power of compressor and E-heater.

After that it needs to be reset manually by pressing the red button on the TCO.

#### Notes

While the external temperature below than -7°C, heat pump efficiency will decrease dramatically, the unit will automatically shift to E-heater mode.



#### 9.6 - BASIC FUNCTION

#### How is the unit running

If unit is OFF, press unit will be waken, press to set target water temperature (38-70°C), press unit will automatically select mode and start to heat water to target temperature.

#### Vacation mode

After pressing "Vaction" button, Unit will automatically heat water to 15°C for the purpose of energy saving during vacation days.

#### Weekly disinfect function

Under disinfection mode unit immediately start to heat water up to 70°C to kill the potential legionella bacteria inside water

of storage tank," "icon will light on the display screen during disinfection; Unit will quit disinfection mode if water

temperature is higher than 70°C and extinguish " icon.

### **Query function**

N.	Hour low bit	Min. higt bit	Min. low bit	Temp. / Days	Description
1	Ŀ	5	U	Temp.	T5U: Storage tank temperature sensor (Upper)
2	٤	5	L	Temp.	T5L: Storage tank temperature sensor (Lower)
3		Ł	3	Temp.	T3: Evaporator temperature sensor
4		٤	4	Temp.	T4: Ambient temperature sensor
5		Ł	ρ	Temp.	Tp: Discharge temperature sensor
6		Ł	Ь	Temp.	Th: Suction temperature sensor
7		٤	Ε	Current	Compressor
8	1				Last error code
9	2				Previous 1 st error or protection code
10	3				Previous 2 st error or protection code
11					Software number

### 9.7 STARTING REPORT

Reading the objective operating conditions is useful for checking the unit over time.



With unit of full load, namely in stable conditions and close to those of work, take the following data:

- Voltage and general absorptions with unit at full load
- Absorption of varied electrical loads (compressors, fans, etc)
- Temperature and air flow, both inlet and outlet from unit, fridge data
- The readings should be stored and made available during maintenance.

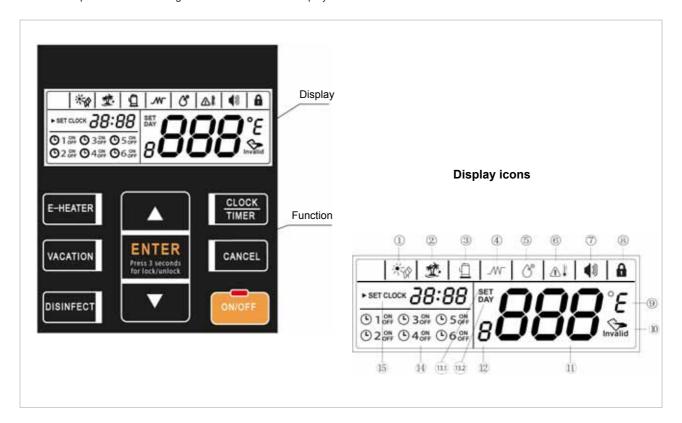




#### **10.1 - DISPLAY**

After powered on, the display lights up.

Users can operate the unit through the buttons under the display.



#### 1 - Outside solar heat source

If an outside solar heat source has been connected to the unit , icon will flash with 0.5 sec. frequency; otherwise will be extinguished.

## 2 - Vacation mode (Vacation)

Icon will be lightened if the unit is under vacation mode, will flash with 2 sec. frequency when setting vacation mode, otherwise will be extinguished.

#### 3 - Compressor

Icon  $\Box$  will be lightened when compressor is running, otherwise  $\Box$  will be extinguished

## 4 - Electrical resistance mode (E-Heater)

Icon  $\mathcal{M}$  will be lightened if e-heater is activated, otherwise  $\mathcal{M}$  will be extinguished.

If e-heater is automatically activated by unit,  $\mathcal{M}$  will be lightened;

If e-heater is manually activated,  $\stackrel{\mathcal{M}}{}$  will flash with 2 sec. frequency.

When setting e-heater manually ON/OFF, will flash with 2 sec. frequency.



#### 5 - Anti-legionella mode (Disinfect)

Icon will be lightened when the unit is under disinfect mode, otherwise will be extinguished.

will flash with 0.5 sec frequency, if disinfect mode is manually activated;

will flash with 2 sec. frequency when setting disinfect mode or setting disinfect timer.

#### 6 - High temperature Alarm

If setting water temperature is higher than 50°C, icon will be lightened, otherwise will be extinguished.

#### 7 - Alarm

When unit is under protection/error, icon will flash with 5 sec. frequency as well as buzzer will sound 3 times every 1 minute until protection/error eliminated or press for 1 second.

#### 8 - Lock

If button is locked, icon will be lightened, otherwise will be extinguished.

#### 9 - Temperature unit

If setting temperature unit as celsius, °C will be lightened, icon 888 will show celsius degree;

If setting temperature unit as Fahrenheit, °F will be lightened, icon 888 will show Fahrenheit degree.

Press E-HEATER for 10sec, it will change between °C and °F

#### 10 - Invalid

If button is under lock mode, press any button except unlock button, this icon will be lightened.

## 11 - 888

Icon 888 will be lightened if screen is unlocked.

It shows water temperature on normal mode;

It shows remaining vacation days on vacation mode;

It shows setting temperature under setting mode;

It shows unit setting/running parameters, error/protection code under query mode.

## 12 - 🖁

#### Reserved





## 13.1 - Water Temperature setting (SET)

Icon SET will be lightened when setting water temperature or setting days for vacation.

#### 13.2 - Date setting (Day)

Icon DAY will be lightened when setting days for vacation;

Icon DAY will be lightened when under vacation mode.

#### 14 - Programmes (Timer)

There are six timers can be set.

@1# @3# @5# @2# @4# @6#

If anyone of them has been set, icon

will lighten the corresponding one when screen is unlocked;

If there is none of timers has been set, will keep extinguished.

013 033 053 023 043 063

If timer is being set, icon

will flash the corresponding one with 2 sec. frequency as well lighten the timer which has

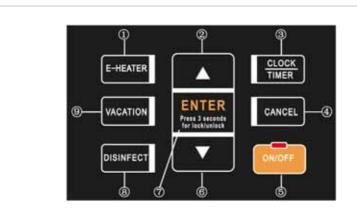
been set.

#### 15 - Clock and clock setting

.... *38:88* 

shows the clock.

Whenever there is any setting for clock, **SET CLOCK** will be lightened.





Any press of button is effective only under button and display unlocked state.

## 1 - Manually turn e-heater ON (E-heater)

If E-heater is OFF, follow these steps below to manually turn it on.

Press	E-HEATER
Icon will flash.	<b>_</b> W_
Press For confirm manually turning E-heater on, then E-heater is activated to Heat up water to the target temperature.  After that, if need manually turn E-heater on again, please repeat these steps.	ENTER Prose 2 seconds for lack/united.
If E-heater is already ON, Press <b>'E-HEATER"</b> will lead to show invalid icon on the display.	
Long pressing the "E-HEATER" key for 10 sec. then can shift to set the temperature display unit; from "°F" to "°C" or from "°C" to "F"; the default is "°C"; (when it's shifted to display "°F", it still will display "°C" while it operates spot check).	





## 2 - Increase / up

If screen is unlocked, corresponding value will increase by pushing	_
When setting temperature, press more than 1sec., temperature value will be increased continuously	
When Setting clock/timer, press more than 1sec., clock/timer value will be increased continuously	Δ
When setting vacation days, press more than 1sec., day value will be increased continuously	
Under query mode, check items will page up by pressing	

## 3 - Set Clock

Press button CLOCK/TIMER for 3 sec to enter clock setting.  Then icon  SET CLOCK will be lightened and the hour value of clock will flash slowly.	CLOCK TIMER
Set the hour value of clock.	AV
Press For confirm the hour setting. Then the minute value of clock will flash slowly	CLOCK
Set the minute value of clock	AV
Press For confirm the minute setting and quit clock setting.	ENTER Press 2 seconds for locklanies

## 3.1 - Set Timer (Scheduling)

CLOCK TIMER
AV
CLOCK
TIMER
<b>A V</b>
CLOCK
TIMER
AV
CLOCK
TIMER
AV
CLOCK



The display screen will automatically display different value at by different action.  It will display the last set temperature and icon <b>SET</b> , if the action is ON, and will display if the action is OFF.  Set the water temperature of the setting timer.	ON/OFF OFF
Confirm and complete the timer.  Then repeat this process to set another timer.	ENTER Press 2 seconder for lock/unitex

## 3.2 - Cancel Timer (Scheduling)

Press	CLOCK
Enter timer setting.	TIMER
Select timer ( ${}^{\bigodot}$ 1 ${}^{\frown}$ ${}^{\bigodot}$ 6 ) which needs to be cancel. The timer icon will flash slowly if it is selected.	
Confirm to cancel the timer  Then repeat selecting timer and cancelling. If the timer has not been set, when press button CANCEL  the display will show  After complete cancelling timer, press button CANCEL for 3sec to quit timer cancelling.	CANCEL
Check Timer (Scheduling)	
Press Enter timer checking.	CLOCK TIMER
Select time (	<b>A V</b>
Press button <b>CANCEL</b> for 3 sec. or no button pressing for 30 sec. to quit timer checking.	CANCEL
If there is confliction between Timer and Manually ON:  1. The moment of Manually ON has priority;  2. The moment of timer OFF has priority;	

## 4 - Cancel

Press	
To cancel setting, quit setting, clear alarm, ect	CANCEL
To clear alarm buzzer, need to press for 1sec.	





## 5 - Start-up/shutdown

DN/OFF button and LED indicator	
If unit is standby, press Then unit will be OFF.	ON/OFF
If unit is ON, press Then unit will be OFF.	ON/OFF
If unit is OFF, press Then unit will be ON.	ON/OFF
LED indicator will be lightened if unit is ON or standby and extinguished if unit is OFF.	

## 6 - Decrease/down

If screen is unlocked, corresponding value will decrease by pushing	V
When setting temperature, press more than 1sec, temperature value will be decreased continuously.	V
When Setting clock/timer, press more than 1sec, Clock/timer value will be decreased continuously.	V
When setting vacation days, press more than 1sec, day value will be decreased continuously.	V
Under query mode, check items will page down by pressing.	V

## 7 - ENTER (Confirm/unlock)

If screen and buttons are unlocked, press to upload setting parameters after setting any parameter:

- If press within 10sec, setting parameters will be uploaded to unit;
- If press beyond 10sec, please resetting all parameters.

If screen and buttons are locked, press for 3sec. to unlock them.



## 8 - DISINFECT (anti-legionella)

Manually turn on disinfect function Press	DISINFECT
Icon will flash.	ඊ
Confirm manually activate disinfection function .  The unit will heat up water to 70°C at least for disinfection.	ENTER Press 2 seconds for locklunises
Disinfect Clock Setting	
Press for 3sec., to enter Disinfect clock setting.	DISINFECT





Icon ' * will flash, and icon * SET CLOCK will be lightened and the hour value of clock will flash slowly.	
Set the hour	AV
Confirm the hour setting.	CLOCK
Then the minute value of clock will flash slowly.	TIMER
Set the minutes	
Confirm the disinfect clock setting and quit out.	ENTER Press 2 seconds for lock-harders
Unit will automatically start disinfect function at the above-set clock every 7 days.	
If user don't set disinfect clock, unit will automatically start disinfect function at 23:00 every 7 days.	
If unit is OFF or under disinfect mode, press will lead to show on the display.	

## 9 - VACATION

Enter vacation setting. Press	VACATION
Icon will flash	登.
Icon will be lightened.	SET DAY
Will show the last setting vacation days.	888
Set vacation days. The days range is 1~99 days (default as 14 days).	AV
Confirm vacation setting and quit out.  The unit will immediately go into vacation mode.	ENTER Press 2 seconds for lock/united
In vacation mode, the setting target water temperature is 15°C as default.	
888 will show the remanent vacation days.	
On the last day of vacation, unit will automatically start Disinfect function, and automatically reset the target	
temperature to the last one before vacation.	
If unit has already been under vacation mode or OFF, press VACATION will lead to show on the display.	

## **8.2 COMBINATION BUTTON**

Clear error code	Press the two buttons at the same time to clear all stored error & protect codes, and the buzzer will buzz one time.	ENTER Pres 3 respect for tackharlant
Diagnostic function	Press the two buttons at the same time for 1sec to go into diagnostic function.  Under diagnostic mode user can check unit setting & running parameters by pressing buttons.  Press button for 1sec. or no button diagnostic function.	E-HEATER + DISINFECT





#### 10.3 AUTO-RESTART

If electricity power failed, unit can memorize all setting parameters, unit will be back to the previous setting when power recover.

#### **10.4 BUTTON AUTO LOCK**

When there is no operation of button for 1 minute, button will

be locked except Unlock button (





for 3 sec., unlock buttons.

#### 10.5 SCREEN AUTO LOCK

If there is no operation of button for 30sec., screen will be locked (extinguished) except for error code and alarm light. Press any button will unlock the screen (lighten)

# 10.6 SOMETHING ABOUT SELF-PROTECTION OF

When the self-protection happens, the system will be stopped and start self-check, and restart when the protection resolved. When the self-protection happens, the buzzer will buzz in

will flash and error code will be every other minute, the shown at water temperature indicator.

Press button for 1sec to stop buzz, but the and error code does not disappear until protection resolved. In the following circumstance, self-protection may happen:

- Air inlet or outlet is blocked;
- The evaporator is covered with too much dust;
- Incorrect power supply (exceeding the range of 220-240V ±10%).

Contact service center.



#### 10.7 WHEN ERROR HAPPENED

If some normal errors happen, unit will automatically shift to E-Eheater for emergent DHW supply.



Please contact qualified staff to repair.

If some sever error happen, unit will not start, please contact qualified staff to repair.

If some errors happen, the buzzer will buzz 3 times every other minute and the will flash fast.





for 1 sec to stop the buzzer but the alarm icon will keep glittering.

#### Trouble shooting

Error	Possible reason	Solution		
Cold water tapped out and display screen extinguished  Bad connection between power supply plug and socket; Setting water temperature too low; Temper sensor broken; PCB of indicator broken.		Connect again the supply plug Setting water temp. higher; Contact service center.		
No hot water tapped out	Public water supply ceased; Cold water inlet pressure too low (<0,15 Bar) (<0,015 MPa); Cold water inlet valve closed.	Waiting for public water supply recover; Waiting for inlet water pressure increase; Open water inlet valve.		
Water leakage	Hydraulic pipeline joints are not sealed well.	Check and reseal all joints.		



10.8 ALARMS TAB

IU.O ALA	a tino	IAD
Code	Description	Solution
E0	Error of sensor T5U (upper water temperature sensor)	Maybe the connection between sensor and PCB has released or sensor has been broken.  Contact a qualified person to service the unit.
E1	Error of sensor T5L(lower water temperature sensor)	Maybe the connection between sensor and PCB has released or sensor has been broken.  Contact a qualified person to service the unit.
E2	Storage tank and Wired Controller communication error	Maybe the connection between controller and PCB has released or PCB has been broken.
E4	Evaporator temperature sensor T3 error	Maybe the connection between sensor and PCB has released or sensor has been broken.  Contact a qualified person to service the unit.
E5	Ambient temperature sensor T4 error	Maybe the connection between sensor and PCB has released or sensor has been broken.  Contact a qualified person to service the unit.
E6	Compressor discharge temperature sensor TP error	Maybe the connection between sensor and PCB has released or sensor has been broken.  Contact a qualified person to service the unit.
E8	Electric leakage error  If PCB current_induction_circuit check the current difference between L,N >14mA, system consider it as "electric leakage error"	Maybe some wires have been broken or bad wire connection.  Contact a qualified person to service the unit.
<b>E</b> 9	Compressor suction temperature sensor TH error	Maybe the connection between sensor and PCB has released or sensor has been broken.  Contact a qualified person to service the unit.
EE	E-heater open-circuit error IEH (Current difference E-heater on and off )<1A	Maybe the E-heater has been broken or bad wire connection after repair.  Contact a qualified person to service the unit.
EF	Clock chip error	Maybe the chip has been broken, but unit can work well without clock-memory, so it is needed to reset clock when power put on again.  If necessary, contact a qualified person to service the unit.
Ed	E-EPROM chip error	Contact a qualified person to service the unit.



10.8 ALARMS TAB

Code	Description	Solution
P1	System high pressure protection: Unit 300 : >=3.0Mpa active; <=2.4MPa inactive. Unit 190 : P1 error code never appear because pressure switch	Maybe because of system blocked, air or water or more refrigerant in system (after repair), water temperature sensor malfunction, ect.  Contact a qualified person to service the unit.
P2	High discharge temperature protection Unit 190/300 : >115 °C Protection active; <90 °C Protection inactive	Maybe because of system blocked, air or water or less refrigerant(leakage) in system( after repair), water temperature sensor malfunction, ect.  Contact a qualified person to service the unit.
P3	Compressor abnormally stopped protection The discharge temperature is not so higher than evaporator temperature after compressor running a term.	Maybe because of compressor broken or bad connection between PCB and compressor.
P4	Compressor overloaded protection (10 sec after compressor startup, Current checking starts, 1) only compressor running, if it is >10A, the compressor will be stopped and protected.)  2) Compressor + e-heater opened, if it is >IEH+10,the compressor will be stopped and protected.)  Possible absorption or abnormal activation of the electrical resistance.	Maybe because of compressor broken, system blocked, air or water or more refrigerant in system(after repair), water temperature sensor malfunction, ect.  Check that the resistance does not absorb current when the display is turned off. This circumstance is interpreted by the unit as a compressor anomalous absorption.  Contact a qualified person to service the unit.
LA	When the ambient temp T4 is out of Heat Pump running range (-7 $\sim$ 43 °C) Heat Pump will stop, unit will show LA on the position of clock on display until T4 back to (-7 $\sim$ 43 °C). Only valid for the unit without e-heater. Unit with e-heater will never show "LA".	It is normal, and no necessary to repair.



The alarm codes listed above are the most common. If a alarm code not listed above is displayed, contact technical assistance.



If any of P3/P4/P2/P1 continuously appear 3 times within single heating cycle, system will consider it as "Heat Pump system error". Contact a qualified person to service the unit.

#### 10.9 NON-ERROR TIPS

- Q: Why compressor can't start immediately after setting?
- A: Unit will wait for 3 min to balance the pressure of system before start compressor again, it's a self protection logic of unit.
- Q: Why sometimes the temperature shown on the display panel decreased while unit is running?
- A: R. When hot water is sampled, it is mixed with cold water which is added from the low part of the accumulator.
- Q:Why sometimes the temperature shown on the display decreased but unit still keep closed?
- A: To avoid unit ON/OFF frequently, unit will activate heat source only when bottom storage tank temperature is lower than setting temperature for at least 6°C.
- Q:Why sometimes the temperature shown on the display will decreased dramatically?
- A: Because storage tank is pressure-bearable type, if there is massive hot demand, hot water will quickly tapped out from upper part of storage tank as well as cold water will quickly tapped into bottom part of bank, if the cold water surface emerge the upper temperature sensor, temperature shown on the display will decreased dramatically.
- Q: Why sometimes the temperature shown on the display is decreased a lot, but there is still a mount of hot water can be tapped?
- A: Because the upper water sensor is located on the upper 1/4 storage tank, when tapping hot water out, it means there is at least 1/4 storage tank of hot water available.
- Q: Why sometimes unit shows "LA" on display?
- A: The heat pump available running external range is -7  $\sim$  43°C, if external temperature is out of range, system will show abovementioned signal to let user notice it.
- Q: Why something there is nothing shown on the display?
- A: To maintain display screen lifespan within along term, when there is no button operation for 30 sec, it will extinguish the display except the LED indicator.
- Q: Why sometimes the buttons are unavailable?
- A: If there is no operation on panel for 1 min, unit will lock the panel, shows " 🛍 ", to unlock the panel, please press the "Enter" button for 3 seconds.
- Q: Why sometimes there is some water flowed from drainage pipe of saftey valve?
- A: Because the storage tank is pressure-bearable one, when water is heated inside the storage tank, water will expand, so the pressure inside of tank will increase, if pressure goes up more than 7Bar (0,7Mpa), saftey valve will activate to relief the pressure and hot water drop will be discharged correspondingly. If water drop is continually discharged from saftey valve drainage pipe, it is abnormal, please contact qualified stuff to repair.



## 11.1 CHECKLIST FOR RECOMMENDED REGULAR CHECKS

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-	:	-

Disconnect the power supply before each operation.

	Checking content	Checking frequency	Action
1	Air filter (inlet/outlet)	Every month	Clean the filter
2	Anode	Every 6 - 12 months	Replace it if it has been used out
3	Inner storage tank	Every half year	Clean the storage tank
4	Electric heater	Every half year	Clean the resistance
5	Saftey valve	Every year	Turn the knob
	If water doesn't flow freely when opera	ating the handle, replace s	safety valve with a new one
6	Water filter	Every year	Clean the filter
7	Expansion vessel	Every year	Check charge
8	Checking for leaks*	Every year	Check

<sup>\*</sup>Refer to the local provisions for implementation; in an extremely brief and purely indicative manner, the regulation specifies the following.

Companies and technicians carrying out installation, maintenance/repair interventions, checks for losses and recovery operations must be CERTIFIED in accordance with the local regulations.

The check for losses must be carried out an an annual basis.

Check the connection between power supply plug and socket and ground wiring regularly;

The missing or lacking maintenance of the magnesium anode, can lead to the corrosion of the storage tank with a subsequent loss of water and the warranty coverage and the manufacturer responsibility fall.

It is recommended to clean the inner storage storage tank and e-heater to keep an efficient performance.

It is recommended to set a lower temperature to decrease the heat release, prevent scale and save energy if the outlet water volume is sufficient.

Clean the air filter every month in case of any inefficiency on the heating performance.

Notes/interventions suggested to the owner



#### 11.2 GENERAL



Maintenance must be done by authorized centres or by qualified personnel

The maintenance allows to:

- maintain the unit efficiency
- reduce the deterioration speed to whom every equipment is subject over time
- assemble information and data to understand the state of the unit efficiency and avoid possible damages

Before checking, please verify the following:

- the electrical power supply line should be isolated at the beginning
- the unit isolator is open, locked and equipped with the suitable warning
- · make sure no tension is present



After turning off the power, wait at least 5 minutes before accessing to the electrical panel or any other electrical component.



Before accessing check with a multimeter that there are no residual stresses.

#### 11.3 INSPECTIONS FREQUENCY



After a long term use, check the unit base and fittings.

If damaged, the unit may sink and result in injury. Perform an inspection every 6 months minimum.

The frequency, however, depends on the use.

In the event of frequent use it is recommended to plan inspections at close intervals:

- frequent use (continuous or very intermittent use, near the operating limits, etc)
- critical use (service necessary).

## 11.4 UNIT BOOKLET

It's advisable to create a unit booklet to take notes of the unit interventions.

In this way it will be easier to adequately note the various interventions and aid any troubleshooting.

Report on the booklet:

- data
- type of intervention effected
- intervention description
- carried out measures etc

#### 11.5 PUT AT REST

In some cold areas (under  $0^{\circ}$ C), if the system will be stopped for a long time, empty the storage storage tank in order to avoid the water freezing and damage of E-heater.



If a long period of inactivity is foreseen:

- put the unit in OFF
- wait a few minutes to allow all the actuators to reach the rest position
- Turn off the power in order to avoid electrical risks or damages by lightning strikes
- Evacuate all the water storage storage tank and the pipeline and close all the valves;

It's recommended that the starting-up after the stopping period is performed by a qualified technician, especially after seasonal stops or seasonal switch.



When restarting, refer to what is indicated in the START-UP section

Schedule technical assistance in advance to avoid hitches and to guarantee that the system can be used when required.

#### 11.6 COIL

Accidental contact with the exchanger flaps can cause injuries from cut: use protective gloves.



The coil must allow maximum thermal exchange, therefore, the surface must be clear from dirt and scaling.

Clean the air inlet side.

Use a soft brush or aspirator.

Check the aluminium flaps have not been damaged or folded, otherwise will be from "comb" the coil for excellent air flow. ( contact an authorised after-sales assistance centre )

#### 11.7 STRUCTURE

Check the condition of the structure parts .

Paint so as to eliminate or reduce oxidation where needed.

Check that the paneling is correctly fastened. Poor fastening may give rise to malfunctions and abnormal noise and vibration.

## 11.8 SAFETY VALVE

The safety valves must be checked regularly.

Almost all losses are caused by impurities deposited inside the valve

It's normal if some water drops from the hole of saftey valve during operation.

But, if there is a great amount of water, call your service agent for instructions.

Please beware of burn, beware of the hot water from the valve



To clean the valve:

- Manually open the valve
- 2. Turn the knob as indicated by the arrow on the knob itself

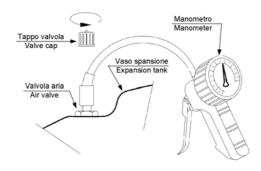




## 11.9 EXPANSION TANK

Check the expansion vessel charge (at least once a year). First check that the expansion vessel is totally drained of

If you necessary load with nitrogen, take care that the pressure does not exceed the value indicated on the label.



## 11.10 ANODE ROD REPLANCE

The magnesium sacrificial anodes assure the storage tank anti-corrosive protection.

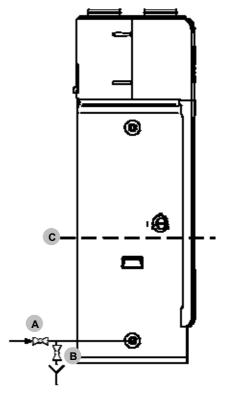


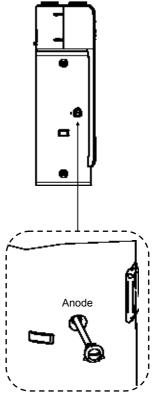
The magnesium anode is replaced when its diameter is ≤ of a third of the original anode.

- Remove power supply
- Turn off the water inlet valve (A)
- Open hot water tap for decrease the pressure of the storage tank.
- Open tap (B)
- Empty the storage up to point (C)
- Unscrew the screws and remove the cover cap.
- Get off the anode rod.
- Replace with a new one, and make sure effective sealed.
- Control that there are no water losses from the fitting.
- Put the cover cap and fix
- Open the water inlet tap (A) untill water flows out from outlet tap, then turn of water outlet tap.
- Power on then restart the unit.

The anode must be:

- Checked all 6 12 months
- Replaced all 2-3 years





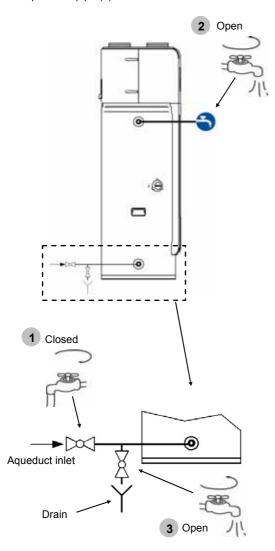


#### 11.11 STORAGE TANK EMPTYING

If the unit needs cleaning, moving etc, the storage tank should be emptied.

#### Witch off the unit:

- close the cool water inlet valve (1);
- open valve the domestic hot water (DHW) outlet valve (2);
- open drainpipe (3)





Beware of your body for burns.

The outlet water temperature maybe very high when emptying

#### 11.12 RESTART AFTER A LONG TERM STOP

When the unit is restarted after a long term stop (included trail running), it is normal that outlet water is unclean. Keep the tap on and the water will be clean soon.

#### 11.13 FILTER CLEANING

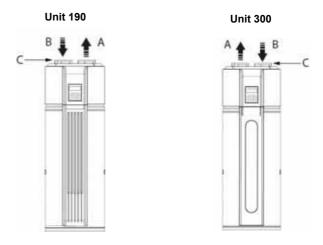
The air filter blocks dust.

If the filter is blocked, the unit will not work as well.

The operating with clogged filters leads to a reduction of the air flow, leading to malfunctions and unit shutdowns.

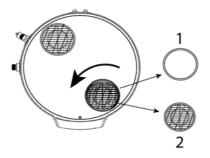
How often the filters need to be checked depends on the quality of outdoor air, unit operating hours, dust and number of persons in the rooms.

Approximately, cleaning should ideally take place between weekly and monthly. It is advisable to start with frequent checks, and to adjust the frequency based on how much dirt is discovered.



Α	Air outlet
В	Air inlet
С	Air filter

In terms of the filter set in air inlet directly (namely, air inlet without connect with canvas), the method of dismantle the filter is: anti-clockwise unscrew the air inlet (1) ring, take out the filter (2) and clean it completely, finally, remount it to the unit.

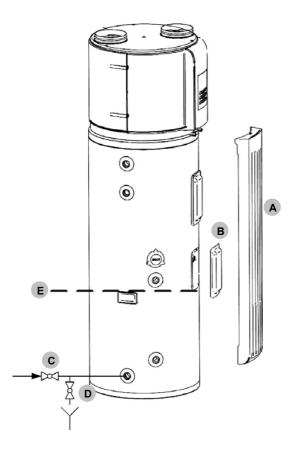


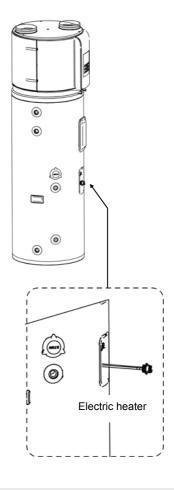


# 11.14 REPLACE OR CONTROL THE ELECTRIC

If the replace or control of the electric heater

- Remove power supply
- Remove frontal cover (A)
- Unscrew the screws and remove the cover cap (B)
- Turn off the water inlet valve (C)
- Open hot water tap for decrease the pressure of the storage tank.
- Open tap (D)
- Empty the storage up to point (E)
- Disconnect the cable from the electric heater
- Remove and replace the electric heater (If faulty)
- Install the electrical resistance and make sure effective
- Check that there are no water losses from the fitting
- Restore the electric connections
- Put the cover cap (B) and fix
- Put de frontal cover (A)
- Open the water inlet tap (C) untill water flows out from outlet tap, then turn of water outlet tap.
- Power on then restart the unit.





## 11.15 CONDENSATE DISCHARGE

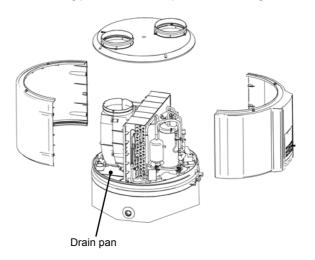
Dust and deposits could cause obstructions .

In addition in the pan can proliferate microorganisms and moulds.

It is very important to provide a periodic cleaning with appropriate detergents and in case a disinfection with sanitizing products.

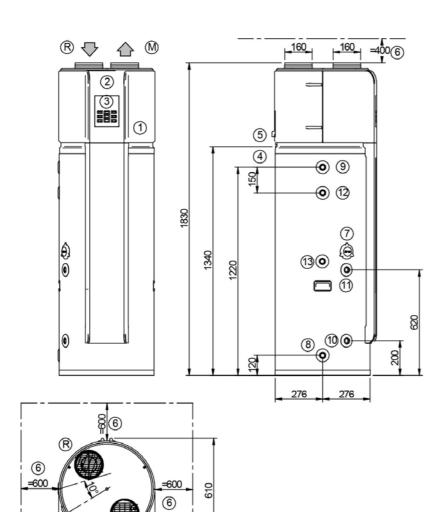
After cleaning pour water into the pan to ensure a regular flow.

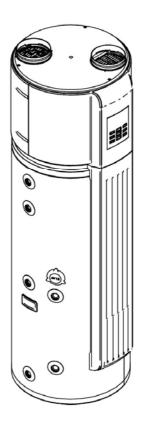




## **DIMENSIONAL**

## 190 - 190S





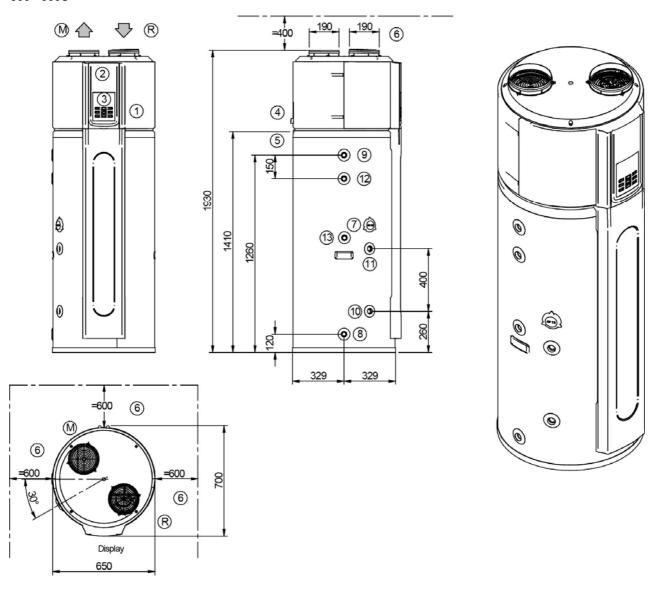
1	1 Compressor compartment		Functional spaces	11	Solar outlet 3/4" F (only 190S)
2 Electric panel 7 Magnesium anode		Magnesium anode	12	Domestic hot water recirculation (only 190S)	
3	Unit keypad	8	Water inlet 3/4" F	13	Probe sump for solar
4	Electric line input	9	Water outlet 3/4"F	R	Air inlet
5	Condensate drain	10	Solar inlet 3/4"F (only 190S)	М	Air supply

Size		190	190S
Operating weight	kg	287	310
Shipping weight	kg	126	149
Shipping height	mm	2070	2070
Shipping depth	mm	680	680
Shipping width	mm	680	680



## **DIMENSIONAL**

## 300 - 300S



1	1 Compressor compartment 6		Functional spaces	11	Solar outlet 3/4" F (only 300S)	
2 Electric panel 7 Magnesium anode		Magnesium anode	12	Domestic hot water recirculation (only 300S)		
3	Unit keypad	8	Water inlet 3/4" F	13	Probe sump for solar	
4	Electric line input	9	Water outlet 3/4"F	R	Air inlet	
5	Condensate drain	10	Solar inlet 3/4"F (only 300S)	М	Air supply	

Size		300	300S
Operating weight	kg	412	435
Shipping weight	kg	149	172
Shipping height	mm	2200	2200
Shipping depth	mm	775	775
Shipping width	mm	745	745



## **GENERAL TECHNICAL**

		190	300	190S	300S
Thermal power	kW	1,62	2,30	1,62	2,30
Total power absorbed	kW	0,42	0,53	0,42	0,53
COP		3,86	4,34	3,86	4,34
Thermal power	kW	2,31	3,25	2,31	3,25
Total power absorbed	kW	0,546	0,627	0,546	0,627
COP		4,23	5,18	4,23	5,18
	kW	1,50	1,50	1,50	1,50
	V		220-240	/1/50	
(1)	h/min	3/53	4/22	3/53	4/22
	°C	7	7	7	7
(6)	°C	70	70	70	70
(5)	dB(A)	36,6	38,2	36,6	38,2
	dB(A)	51	53	51	53
Energy class of generator		A+	A+	A+	A+
Domestic hot water profile		L	XL	L	XL
$\eta_{wh}$	%	115	123	115	123
Annual consumption AEC	kWh	890	1356	890	1356
Daily consumption	kWh	4,22	6,34	4,22	6,34
COP EN 16147		2,76	3,01	2,76	3,01
Domestic hot water profile		L	XL	L	XL
$\eta_{wh}$	%	125	143	125	143
Annual consumption AEC	kWh	819	1173	819	1173
Daily consumption	kWh	3,86	5,49	3,86	5,49
Domestic hot water profile		L	XL	L	XL
$\eta_{wh}$	%	99	91	99	91
	kWh	1034	1845	1034	1845
•					8,56
Daily concamption	IXVIII	1,00	0,00	1,00	0,00
ulator	1	176	284	168	272
ALCO I					10
					1
	1411 G				•
	mm	50	<u>-</u>		50
	111111	30	30	30	30
		Potany	Potany	Potany	Rotary
		<u> </u>	-	-	Rolary R134-a
Coolant Gas  Quantity of coolant					
	-				1,50 1430
	ι				
	1	4 57	0 4 4	4 57	0 4 4
	t <sub>CO2</sub>	1,57 350	2,14 350	1,57 350	2,14 350
	Total power absorbed  COP  Thermal power  Total power absorbed  COP  (1)  (6)  (5)  Energy class of generator  Domestic hot water profile $\eta_{wh}$ Annual consumption  COP EN 16147  Domestic hot water profile $\eta_{wh}$ Annual consumption  COP EN 16147  Domestic hot water profile $\eta_{wh}$ Annual consumption AEC  Daily consumption  Annual consumption AEC  Daily consumption	Total power absorbed  COP  Thermal power  Total power absorbed  COP  kW  COP  kW  V  (1) h/min  °C  (6) °C  (5) dB(A)  dB(A)  Energy class of generator  Domestic hot water profile $\eta_{wh}$ Annual consumption AEC  Daily consumption  Annual consumption AEC  Daily consumption  Annual consumption AEC  Daily consumption  kWh  Domestic hot water profile $\eta_{wh}$ Annual consumption AEC  kWh  Domestic hot water profile $\eta_{wh}$ Annual consumption AEC  kWh  Daily consumption  kWh  Domestic hot water profile $\eta_{wh}$ Annual consumption AEC  kWh  Daily consumption  kWh	Total power absorbed   kW	Total power absorbed   KW   0,42   0,53   COP   3,86   4,34     Thermal power	Total power absorbed COP    3,86



Size		190	300	190S	300S			
Ventilation								
Type of fan		Centrifugal						
Air flow	m³/h	270	414	270	414			
Available pressure head	Pa	25	25	25	25			
Integration								
Solar coil surface	m <sup>2</sup>	-	-	1,10	1,30			
Solar coil material		Enamel			nel Steel			
Maniana	bar	-	-	10	10			
Maximum operating pressure	MPa	-	-	1	1			

- 1. Inlet water temperature 15 °C, accumulator set 45 °C, air on source side 15 °C D.B /12 °C W.B.
- 2. The product complies with the European Directive ErP, which includes the Commission Delegated Regulation (EU) N. 812/2013 and the Commission Delegated Regulation N. 814/2013, Average Climate, Heat Pump Water Heater
- 3. The product complies with the European Directive ErP, which includes the Commission Delegated Regulation (EU) N. 812/2013 and the Commission Delegated Regulation N. 814/2013, Warmer Climate, Heat Pump Water Heater
- 4. The product complies with the European Directive ErP, which includes the Commission Delegated Regulation (EU) N. 812/2013 and the Commission Delegated Regulation N. 814/2013, Colder Climate, Heat Pump Water Heater
- 5. Data referred to completely ducted unit.
- 6. Maximum temperature that can be reached during Anti-legionella mode(Dinsifect)

## **ELECTRICAL DATA**

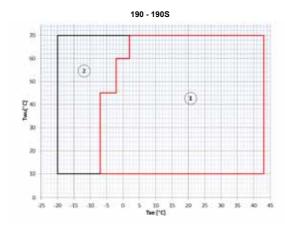
Size		190	300	1908	3008
Power supply (1)	V	220-240/1/50	220-240/1/50	220-240/1/50	220-240/1/50
F.L.A Current absorbed at the maximum allowed conditions	Α	9,10	9,80	9,10	9,80
F.L.I Power absorbed at full load (at the maximum allowed conditions)	kW	2,10	2,25	2,10	2,25
M.I.C - Maximum inrush current	Α	22,2	33,7	22,2	33,7

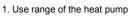
<sup>1)</sup> Power supply 220-240/1/50 Hz

For power voltages other than the standard, contact the Clivet technical department

Warning: when defining the correct size, verify that all absorption is compliant with current electrical supply contracts in force in the country of installation

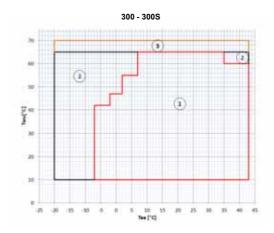
## **OPERATING LIMITS**





2. Use range of the electrical heating element

Use range of the electrical heating element only in Anti-Legionella mode (Disinfect)



Twu [°C] water temperature in the accumulator Tae [°C] air temperature at exchanger inlet



<sup>\*</sup>It contains fluorinated greenhouse gases

The units are conforming with the prescriptions of European Standards CEI EN 60204 and CEI EN 60335



## **DECLARATION OF CONFORMITY EU**

DICHIARAZIONE DI CONFORMITÀ UE KONFORMITÄTSERKLÄRUNG EU DECLARATION DE CONFORMITE EU DECLARACIÓN DE CONFORMIDAD EU

#### WE DECLARE UNDER OUR SOLE RESPONSIBILITY THAT THE MACHINE

DICHIARIAMO SOTTO LA NOSTRA SOLA RESPONSABILITÀ CHE LA MACCHINA WIR ERKLÄREN EIGENVERANTWORTLICH, DASS DIE MASCHINE NOUS DÉCLARONS SOUS NOTRE SEULE RESPONSABILITÉ QUE LA MACHINE EL FABRICANTE DECLARA BAJO SU EXCLUSIVA RESPONSABILIDAD QUE LA MÁQUINA

**HEAT PUMP – domestic hot water production CATEGORY** 

POMPA DI CALORE – produzione acqua calda sanitaria CATEGORIA

WÄRMEPUMPE - warmwasserproduktion **KATEGORIE** 

**POMPE A CHALEUR – production eau chaude sanitarie** CATEGORIE

BOMBA DE CALOR – producción de agua calientesanitaria **CATEGORIA** 

TYPE / TIPO / TYP / TYPE / TIPO

SWH-190IRE - SWH-300IRE

SWH-190IRES - SWH-300IRES

- COMPLIES WITH THE FOLLOWING EC DIRECTIVES, INCLUDING THE MOST RECENT AMENDMENTS, AND THE RELEVANT NATIONAL HARMONISATION LEGISLATION CURRENTLY IN FORCE:
- RISULTA IN CONFORMITÀ CON QUANTO PREVISTO DALLE SEGUENTI DIRETTIVE CE, COMPRESE LE ULTIME MODIFICHE, E CON LA RELATIVA LEGISLAZIONE NAZIONALE DI RECEPIMENTO:
- DEN IN DEN FOLGENDEN EG-RICHTLINIEN VORGESEHENEN VORSCHRIFTEN, EINSCHLIEßLICH DER LETZTEN ÄNDERUNGEN, SOWIE DEN ANGEWANDTEN LANDESGESETZEN ENTSPRICHT:
- EST CONFORME AUX DIRECTIVES CE SUIVANTES, Y COMPRIS LES DERNIÈRES MODIFICATIONS, ET À LA LÉGISLATION NATIONALE D'ACCUEIL CORRESPONDANTE:
- ES CONFORME A LAS SIGUIENTES DIRECTIVAS CE, INCLUIDAS LAS ÚLTIMAS MODIFICACIONES, Y A LA RELATIVA LEGISLACIÓN NACIONAL DE RECEPCIÓN:

M 2014/35/UE low voltage directive

direttiva bassa tensione

Bestimmungen der Niederspannungsrichtlinie

directive basse tension directiva de baja tensión

M 2014/30/LIE electromagnetic compatibility

compatibilità elettromagnetica Elektromagnetische Verträglichkeit compatibilité électromagnétique compatibilidad electromagnética

 $\boxtimes$ 2009/125/UE Ecodesign / Progettazione ecocompatibile / Ecodesign / Éco-conception / Ecodiseño

 $\boxtimes$ 2011/65/UE RoHs

-Unit manufactured and tested according to the followings Standards:

-Unità costruita e collaudata in conformità alle seguenti Normative:

-Unité construite et testée en conformité avec les Réglementations suivantes

-Unidad construida y probada de acuerdo con las siguientes Normativas

-Gebautes und geprüftes Gerät nach folgenden Normen

EN 60335-1: 2012+A11:2014

EN 60335-2-40: 2003 + A11: 2004 +A12: 2005 + A1: 2006 + A2: 2009+A13:2012

EN 60335-2-21:2003+A1:2005+A2:2008 EN 62233:2008 EN 55014-1:2006+A1:2009+A2:2011 EN 55014-2:2015

EN 61000-3-12:2011 EN 61000-3-3:2013

-Responsible to constitute the technical file is the company n°.00708410253 and registered at the Chamber of Commerce of Belluno Italy

-Responsabile a costituire il fascicolo tecnico è la società nº 00708410253 registrata presso la Camera di Commercio di Belluno Italia

-Verantwortliche für die technischen Unterlagen zusammenstellen n°.00708410253 ist das Unternehmen bei der Handelskammer von Belluno Italien registriert -Responsable pour compiler le dossier technique est la société n°00708410253 enregistrée à la Chambre de Commerce de Belluno en Italie

-Encargado de elaborar el expediente técnico es la empresa n º 00708410253 registrada en la Cámara de Comercio de Belluno Italia

NAME / NOME / VORNAME / PRÉNOM / NOMBRE SURNAME / COGNOME / ZUNAME / NOM / APELLIDOS

London . 01/08/2019COMPANY POSITION / POSIZIONE / BETRIEBSPOSITION / FONCTION / CARGO Nešpor

Ivo

CEO

Product fiche: water heaters / Scheda prodotto: scaldacqua							
Supplier's name / Nome del fornitore	1		SINCLAIR CORPORATION Ltd.				
Series / Serie	2		SWH				
Model / Modello	3		SWH-190IRE				
Size / Grandezza	4		190IRE				
Declared load profile / Profilo di carico dichiarato	5		L				
Class / Classe	6		A+				
$\eta_{wh}$	7	%	115				
$Q_{HE}$	8	kWh	890				
Thermostat temperature settings / Impostazioni di temperatura del termostato	9		53				
$L_{WA\_IN}$	10	dB	51				
Precautions / Precauzioni	11		see use and maintenance manual				
Enabled smart control settings / Impostazioni con controllo intelligente attivato	12						

- <sup>1</sup> Supplier's name or trademark.
- <sup>2</sup> Supplier's model identifier.
- <sup>5</sup> Declared load profile, expressed by the appropriate letter and typical usage in accordance with Table 3 of Annex VII;
- Water heating energy efficiency class of the model, determined in accordance with point 1 of Annex II, whereby: for solar water heaters and heat pump water heaters, under average climate conditions;
- Water heating energy efficiency in %, rounded to the nearest integer and calculated in accordance with point 3 of Annex VIII, whereby: for solar water heaters and heat pump water heaters, under average climate conditions;
- Annual electricity consumption in kWh in terms of final energy and/or the annual fuel consumption in GJ in terms of GCV, rounded to the nearest integer and calculated in accordance with point 4 of Annex VIII, whereby: for solar water heaters and heat pump water heaters, under average climate conditions;
- $^{9}$  Thermostat temperature settings of the water heater, as placed on the market by the supplier;
- $^{10}$  The sound power level LWA , indoors, in dB, rounded to the nearest integer (for heat pump water heaters if applicable);
- Any specific precautions that shall be taken when the water heater is assembled, installed or maintained;
- Where the value of smart is declared as being '1', an indication that the information on water heating energy efficiency, annual electricity and fuel consumption, as applicable, relate to enabled smart control settings only;

Product fiche: water heaters / Scheda prodotto: scaldacqua							
Supplier's name / Nome del fornitore	1		SINCLAIR CORPORATION Ltd.				
Series / Serie	2		SWH				
Model / Modello	3		SWH-300IRE				
Size / Grandezza	4		300IRE				
Declared load profile / Profilo di carico dichiarato	5		XL				
Class / Classe	6		A+				
$\eta_{wh}$	7	%	123				
$Q_{HE}$	8	kWh	1361				
Thermostat temperature settings / Impostazioni di temperatura del termostato	9		54				
$L_{WA\_IN}$	10	dB	53				
Precautions / Precauzioni	11		see use and maintenance manual				
Enabled smart control settings / Impostazioni con controllo intelligente attivato	12						

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Product fiche: water heaters / Scheda prodotto: scaldacqua							
Supplier's name / Nome del fornitore	1		SINCLAIR CORPORATION Ltd.				
Series / Serie	2		SWH				
Model / Modello	3		SWH-190IRES				
Size / Grandezza	4		190IRES				
Declared load profile / Profilo di carico dichiarato	5		L				
Class / Classe	6		A+				
$\eta_{wh}$	7	%	115				
$Q_{HE}$	8	kWh	890				
Thermostat temperature settings / Impostazioni di temperatura del termostato	9		53				
$L_{WA\_IN}$	10	dB	51				
Precautions / Precauzioni	11		see use and maintenance manual				
Enabled smart control settings / Impostazioni con controllo intelligente attivato	12						

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Product fiche: water heaters / Scheda prodotto: scaldacqua								
Supplier's name / Nome del fornitore	1		SINCLAIR CORPORATION Ltd.					
Series / Serie	2		SWH					
Model / Modello	3		SWH-300IRES					
Size / Grandezza	4		300IRES					
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Thermostat temperature settings / Impostazioni di temperatura del termostato	9		54					
${ m L_{WA\_IN}}$	10	dB	53					
Precautions / Precauzioni	11		see use and maintenance manual					
Enabled smart control settings / Impostazioni con controllo intelligente attivato	12							

<sup>&</sup>lt;sup>1</sup> Supplier's name or trademark.

<sup>&</sup>lt;sup>2</sup> Supplier's model identifier.

<sup>&</sup>lt;sup>5</sup> Declared load profile, expressed by the appropriate letter and typical usage in accordance with Table 3 of Annex VII;

Water heating energy efficiency class of the model, determined in accordance with point 1 of Annex II, whereby: for solar water heaters and heat pump water heaters, under average climate conditions;

Water heating energy efficiency in %, rounded to the nearest integer and calculated in accordance with point 3 of Annex VIII, whereby: for solar water heaters and heat pump water heaters, under average climate conditions;

Annual electricity consumption in kWh in terms of final energy and/or the annual fuel consumption in GJ in terms of GCV, rounded to the nearest integer and calculated in accordance with point 4 of Annex VIII, whereby: for solar water heaters and heat pump water heaters, under average climate conditions;

 $<sup>^{9}</sup>$  Thermostat temperature settings of the water heater, as placed on the market by the supplier;

 $<sup>^{10}</sup>$  The sound power level LWA , indoors, in dB, rounded to the nearest integer (for heat pump water heaters if applicable);

Any specific precautions that shall be taken when the water heater is assembled, installed or maintained;

Where the value of smart is declared as being '1', an indication that the information on water heating energy efficiency, annual electricity and fuel consumption, as applicable, relate to enabled smart control settings only;







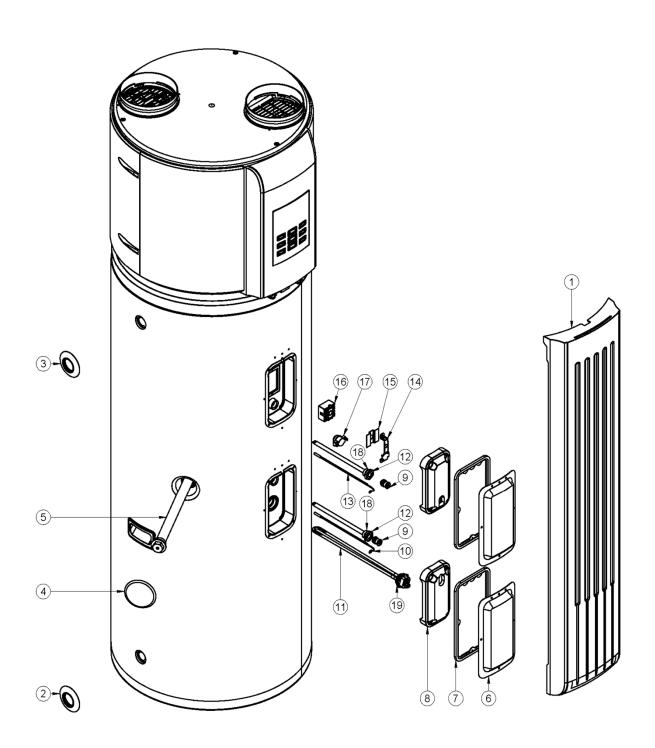


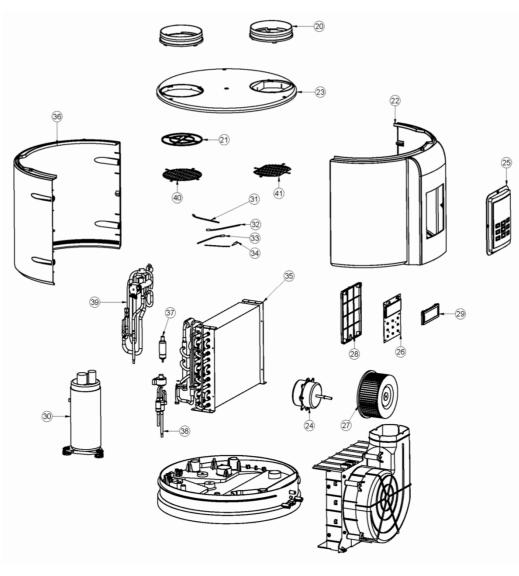


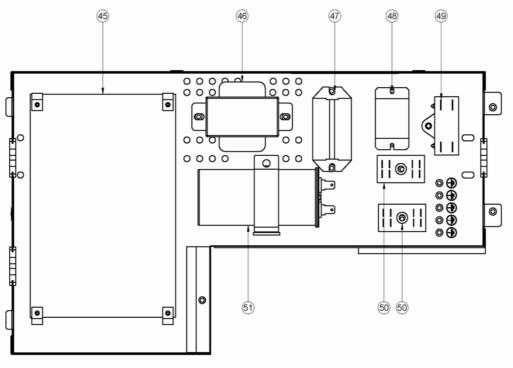
# WATER HEATERS

SWH-190IRE, SWH-300IRE SWH-190IRES, SWH-300IRES



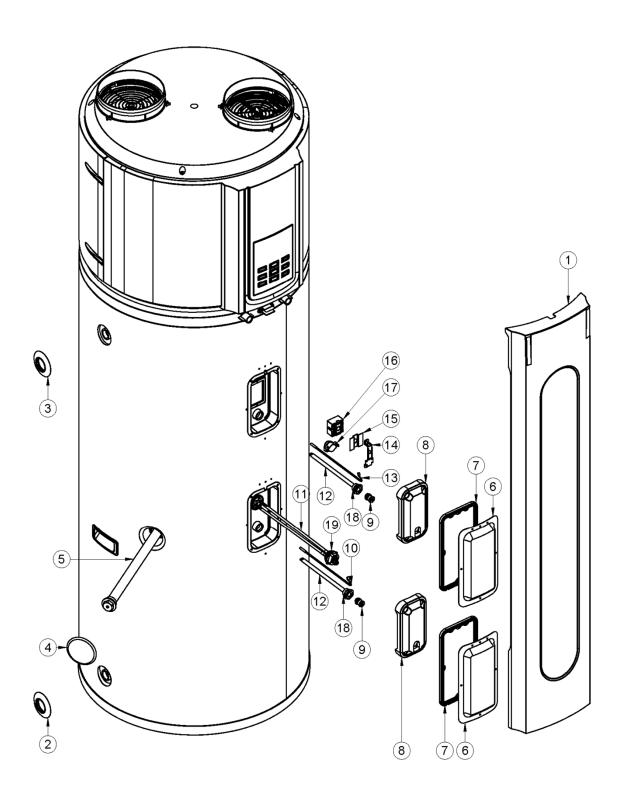


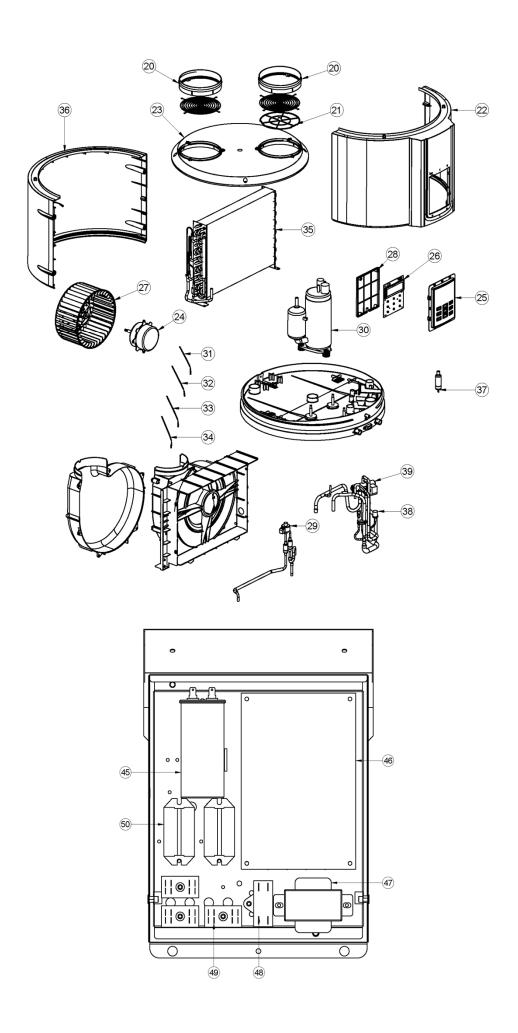




No	Description	Part Code	Note	Qty	Price Code
	MODEL: SWH-190IRE W	ATER HEATER	•		
1	Frontal Cover Black	C63910100			
2	Inlet Water Cover 3/4"	C63910129			
3	Outlet Water Cover 3/4"	C63910130			
4	Black Cover For Anode	C63810064			
5	Anode 1"	CRIC10400			
6	White Cover For Heater And Thermostats	C63910111			
7	Gasket For Heater And Thermostats Cover	C63910099			
8	PE Enclusure	C63910094			
9	Cable Gland PG7	C95110067			
10	NTC Probe 3 Poles	C51110008			
11	Electrical Heater 1,5 kW	C87310017			
12	Probe Holder	C75410119			
13	NTC Probe 2 Poles	C51110007			
14	Thermostat Holder	C63910092			
15	Safety Cover For Thermostat	C63910098			
16	Thermostat WKQ-66T-L85C Manual Reset	C95710074			
17	Thermostat WKQ-60T01-L78-10C Automatic Reset	C95710075			
18	Gasket For Probe Holder	C63810057			
19	Gasket For Heater	C63810058			
20	Duct Ring	12125300001201			
21	Inlet Air Filter	201190590315			
22	Front Cover, Up	12125300001210			
23	Top Cover	12125300001203			
24	Fan Motor	11002012003645			
25	Display Panel	201190590318			
26	Display Board Assembly	17125300002321			
27	Fan Impeller	12100103000136			
28	Display Cover	12125300000222			
29	Lens Hood	201190590324			
30	Fixed Speed Rotary Compressor	11103010000228			
31	Discharge Temperature Sensor	11201007002462			
32	Room Temperature Sensor	11201007000063			
33	Suction Pipe Temperature Sensor	11201007000328			
34	Coil Pipe Temperature Sensor	11201007001782			
35	Evaporator Assembly	201590590043			
36	Rear Cover Up	12125300001220			
37	Dry Filter	201600900702			
38	Expansion Valve Assembly	201690590884			
39	Four-Way Valve	201600630576			
40	Wire Net	201290590261			
41	Wire Net	201290590169			
45	Outdoor Main Control Board Assembly	17125300002323			
46	Linear Transformer	202300930280			
47	Dual Relay	202300830544			
48	Relay	11203401000039		1	
49	Capacitor	202401100964			
50	Wire Joint	202301400220			
51	Capacitor	202401000888			

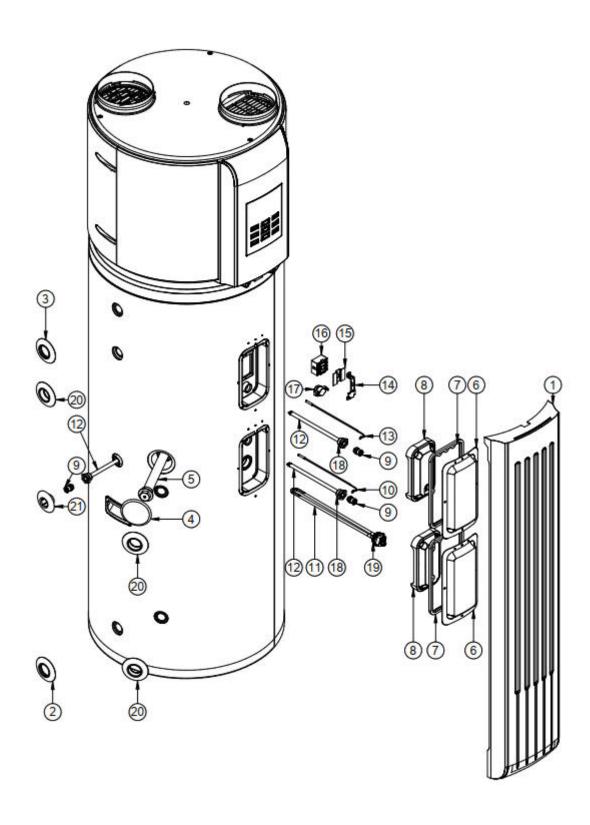
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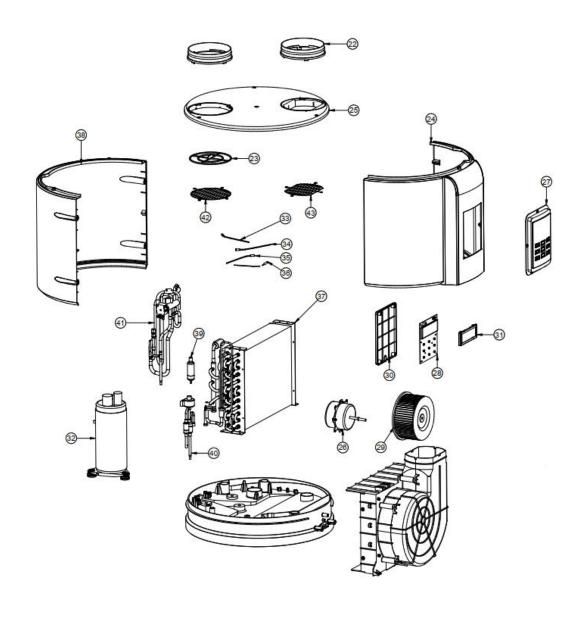


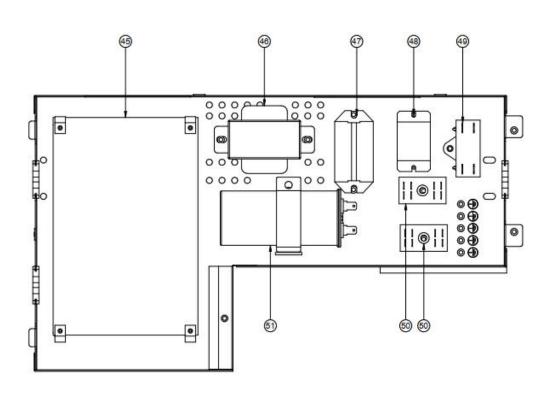


No	Description	Part Code	Note	Qty	Price Code
	MODEL: SWH-300IRE WA	ATER HEATER			-
1	Frontal Cover Black	C63910095			
2	Inlet Water Cover 3/4"	C63910129			
3	Outlet Water Cover 3/4"	C63910130			
4	Black Cover For Anode	C63810064			
5	Anode 1"	CRIC10400			
6	White Cover For Heater And Thermostats	C63910111			
7	Gasket For Heater And Thermostats Cover	C63910099			
8	PE Enclusure	C63910094			
9	Cable Gland PG7	C95110067			
10	NTC Probe 3 Poles	C51110008			
11	Electrical Heater 1,5 Kw	C87310017			
12	Probe Holder	C75410119			
13	NTC Probe 2 Poles	C51110007			
14	Thermostat Holder	C63910092			
15	Safety Cover For Thermostat	C63910098			
16	Thermostat WKQ-66T-L85C Manual Reset	C95710074			
17	Thermostat WKQ-60T01-L78-10C Automatic Reset	C95710075			
18	Gasket For Probe Holder	C63810057			
19	Gasket For Heater	C63810058			
20	Duct Ring	12125300000182			
21	Inlet Air Filter	12125300000197			
22	Front Cover, Up	12125300000214			
23	Top Cover	12125300000052			
24	Fan Motor	11002012001785			
25	Display Panel	12125300000227			
26	Display Board Assembly	17125300002321			
27	Fan Impeller	12100103000158			
28	Display Cover	12125300000221			
29	Expansion Valve Assembly	15425300002020			
30	Fixed Speed Rotary Compressor	11103010001963			
31	Discharge Temperature Sensor	11201007002463			
32	Room Temperature Sensor	11201007000063			
33	Suction Pipe Temperature Sensor	11201007000164			
34	Coil Pipe Temperature Sensor	11201007001784			
35	Evaporator Assembly	15825300000820			
36	Rear Cover Up	12125300000058			
37	Dry Filter	15500504000090			
38	Pressure Switch	17400516000065			
39	Four-Way Valve Kit	15500216001121			
45	Compressor Capacitor	17400103000153			
46	Outdoor Main Control Board Assembly	17125300002325			
47	Linear Transformer	11203103000150			
48	Fan Motor Capacitor	17400101000024			
49	Terminal Block, 2P	17400401000194			
50	Wire Joint	17400401000012			
51	Relay	11203401000039			

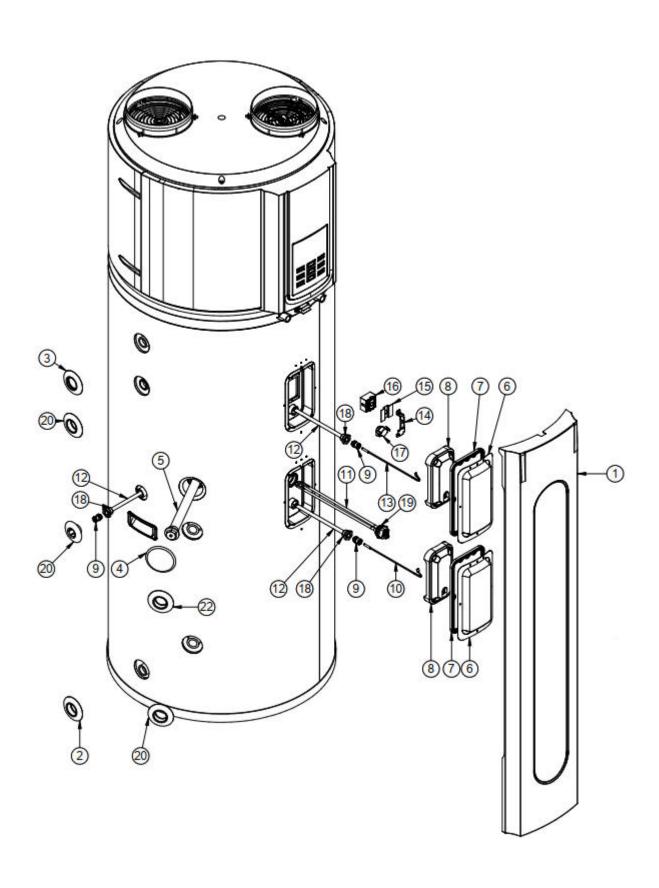
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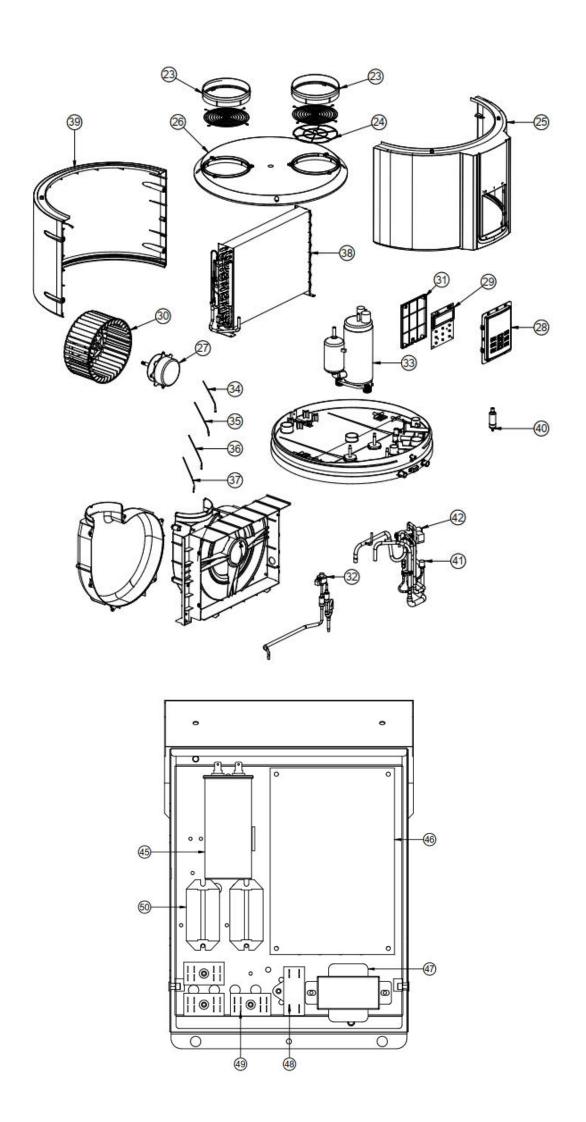






No	Description	Part code	Note	Qty	Price code
	MODEL: SWH-190IRES	WATER HEATER			
1	Frontal Cover Black	C63910100			
2	Inlet Water Cover 3/4"	C36910129			
3	Outlet Water Cover 3/4"	C63910130			
	Black Cover For Anode	C63810064			
5	ANODE 1"	CRIC10400			
6	White Cover For Heater And Thermostats	C63910111			
7	Gasket For Heater And Thermostats Cover	C63910099			
8	PE Enclosure	C63910094			
9	Cable Gland PG7	C95110067			
10	NTC Probe 3 Poles	C51110008			
11	Electrical Heater 1.5 kW	C87310017			
12	Probe Holder	C75410119			
13	NTC Probe 2 Poles	C51110007			
14	Thermostat Holder	C63910092			
	Safety Cover For Thermostat	C63910098			
	Thermostat WKQ-66T-L85C Manual Reset	C957100074			
	Thermostat WKQ-60T01-L78-10C Automatic Reset	C957100075			
	Gasket For Probe Holder	C63810057			
19	Gasket For Heater	C63810058			
	Solar Connection Cover	C63910149			
	Solar Probe Cover	C63910150			
	Duct Ring	12125300001201			
	Inlet Air Filter	201190590315			
	Front Cover, Up	12125300001210			
	Top Cover	12125300001203			
	Fan Motor	11002012003645			
	Display Panel	12125390590318			
	Display Board Assembly	17125300002321			
	Fan Impeller	12100103000136			
	Display Cover	12125300000222			
	Lens Hood	201190590324			
	Fixed Speed Rotary Compressor	11103010000228			
	Discharge Temperature Sensor	11201007002462			
	Room Temperature Sensor	112010070002402	+		
	Suction Pipe Temperature Sensor	1120100700003			
	Coil Pipe Temperature Sensor	11201007000328			
	Evaporator Assembly	201590590043			
	Rear Cover Up	12125300001220			
	Dry Filter	2016009000702	+		
	Expansion Valve Assembly	2016009000702			
	Four-Way Valve	201690590884	+		
	Wire Net	201290590261	+		
	Wire Net	201290590261			
	Outdoor Main Control Board Assembly		-		
	·	17125300002323			
	Linear Transformer	202300930280	-		
	Dual Relay	202300830544			
	Relay	11203401000039			
	Capacitor	202401100964			
	Wire Joint	202301400220			
51	Capacitor	202401000888			





No		Description	Part code	Note	Qty	Price code
		MODEL: SWH-300IRE	S WATER HEATER			
	1	Frontal Cover Black	C63910095			
	2	Inlet Water Cover 3/4"	C36910129			
	3	Outlet Water Cover 3/4"	C63910130			
	4	Black Cover For Anode	C63810064			
	5	ANODE 1"	CRIC10400			
	6	White Cover For Heater And Thermostats	C63910111			
		Gasket For Heater And Thermostats Cover	C63910099			
		PE Enclosure	C63910094			
	9	Cable Gland PG7	C95110067			
	10	NTC Probe 3 Poles	C51110008			
		Electrical Heater 1.5 kW	C87310017			
		Probe Holder	C75410119			
	13	NTC Probe 2 Poles	C51110007			
		Thermostat Holder	C63910092			
		Safety Cover For Thermostat	C63910098			
		Thermostat WKQ-66T-L85C Manual Reset	C957100074			
		Thermostat WKQ-60T01-L78-10C Automatic Reset	C957100074			
		Gasket For Probe Holder	C63810057			
		Gasket For Heater	C63810057			
	_	Solar Connection Cover	C63910149			
	_	Solar Probe Cover	C63910150			
		Duct Ring	12125300000182			
		Inlet Air Filter	12125300000197			
		Front Cover, Up	12125300000137			
		Top Cover	12125300000214			
		Fan Motor	11002012001785			
		Display Panel	12125300000227			
		Display Board Assembly	17125300000227			
		Fan Impeller	12100103000158			_
		Display Cover				
		' '	12125300000221			
		Expansion Valve Assembly	15425300002020			
		Fixed Speed Rotary Compressor	11103010001963			
		Discharge Temperature Sensor	11201007002463			
		Room Temperature Sensor	11201007000063			
		Suction Pipe Temperature Sensor	11201007000164			
		Coil Pipe Temperature Sensor	11201007001784			
		Evaporator Assembly	15825300000820			
		Rear Cover Up	1212530000058			
		Dry Filter	15500504000090			
		Pressure Switch	17400516000065			
		Four-Way Valve Kit	15500216001121			
		Compressor Capacitor	17400103000153			
		Outdoor Main Control Board Assembly	17125300002325			
		Linear Transformer	11203103000150			
		Fan Motor Capacitor	17400101000024			
		Terminal Block, 2P	17400401000012			
	50	Relay	11203401000039			



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