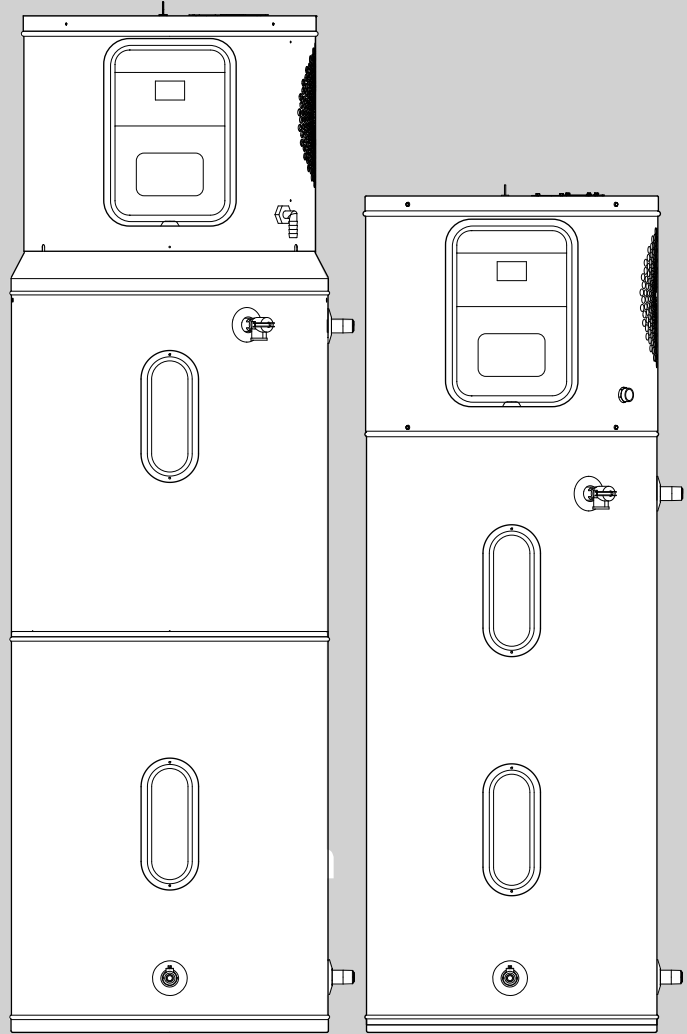


# HEAT PUMP WATER HEATER

## Installation Instructions and Use & Care Guide



### **⚠ DANGER**

This manual must only be used by a qualified installer / service technician. Read all instructions in this manual before installing. Perform steps in the given order. Failure to do so could result in substantial property damage, severe personal injury, or death.

### **⚠ WARNING**

Improper installation, adjustment, alteration, service, or maintenance could void product warranty and cause property damage, severe personal injury, or death.

California Proposition 65 Warning: This product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

### **NOTICE**

The manufacturer reserves the right to make product changes or updates without notice and will not be held liable for typographical errors in literature.

The surfaces of these products contacted by potable (consumable) water contain less than 0.25% lead by weight as required by the Safe Drinking Water Act, Section 1417.

**NOTE TO CONSUMER: PLEASE KEEP ALL INSTRUCTIONS FOR FUTURE REFERENCE.**

## SPECIAL ATTENTION BOXES

The following defined terms are used throughout this manual to bring attention to the presence of hazards of various risk levels or to important product information.

### DANGER

**DANGER** indicates an imminently hazardous situation which, if not avoided, will result in serious personal injury or death.

### WARNING

**WARNING** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

### CAUTION

**CAUTION** indicates a potentially hazardous situation which, if not avoided, may result in moderate or minor personal injury.

### CAUTION

**CAUTION** used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

### NOTICE

**NOTICE** is used to address practices not related to personal injury.

## FOREWORD

This manual is intended to be used in conjunction with other literature provided with the Heat Pump Water Heater. This includes all related control information. It is important that this manual, all other documents included with this system, and additional publications including the National Electrical Code, ANSI/NFPA 70, be reviewed in their entirety before beginning any work. Installation should be made in accordance with the regulations of the local code authorities and utility companies which pertain to this type of water heating equipment.

Authority Having Jurisdiction (AHJ) – The AHJ may be a federal, state, local government, or individual such as a fire chief, fire marshal, chief of a fire prevention bureau, labor department or health department, building official or electrical inspector, or others having statutory authority. In some circumstances, the property owner or his/her agent assumes the role, and at government installations, the commanding officer or departmental official may be the AHJ.

## FOR THE INSTALLER

### WARNING

This manual must only be used by a qualified HPWH installer/service technician. Read all instructions in this manual before installing. Perform steps in the order given. Failure to comply could result in substantial property damage, severe personal injury, or death.

This water heater must be installed by qualified and licensed personnel. The installer should be guided by the instructions furnished with the water heater, and with local codes and utility company requirements. In the absence of local codes, preference should be given to the National Electrical Code, ANSI/NFPA 70.

## For Your Records

### Write the Product Model and Serial Numbers:

Model # \_\_\_\_\_

Serial # \_\_\_\_\_

**These numbers are listed on the product ratings label. Keep this manual and information for future reference.**

## INSTALLATIONS MUST COMPLY WITH:

Local, state, provincial, and national codes, laws, regulations and ordinances.

The latest version of the National Electrical Code, ANSI/NFPA No. 70, available from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

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## PART 1 – GENERAL SAFETY INFORMATION

### WARNING

For your safety, the information in this manual must be followed to minimize the risk of fire, explosion, electric shock, and to prevent property damage, personal injury, or death.

**This product is intended for domestic use only.  
Not accessible to general public.**

### A. PRECAUTIONS

### WARNING

**INSTALLER** – Read all instructions in this manual before installing. Be sure to understand all instructions before installing or operating this water heater, as this may save time and cost. Perform steps in the order given. Should you have problems understanding the instructions in this manual, or any questions, STOP and get help from a qualified service technician or local electric utility.

**FAILURE TO ADHERE TO THE GUIDELINES ON THIS PAGE CAN RESULT IN SUBSTANTIAL PROPERTY DAMAGE, SEVERE PERSONAL INJURY, OR DEATH.**

### WARNING

NOTE: If the water heater is exposed to the following, do not operate until all corrective steps have been made by a qualified serviceman:

1. FIRE
2. DAMAGE
3. WATER

Any claims for damage or shortage in shipment must be filed immediately against the transportation company by the consignee.

DO NOT USE THIS WATER HEATER IF ANY PART HAS BEEN UNDERWATER. Immediately call a qualified service technician. Replace any part of the control unit that has been under water.

### CAUTION

High heat sources (sources generating heat 100°F / 37°C or greater, such as stove pipes, space heaters, etc.) may damage plastic components of the water heater as well as plastic vent pipe materials. Such damages ARE NOT covered by warranty. It is recommended to keep a minimum clearance of 8" from high heat sources. Observe heat source manufacturer instructions, as well as local, state, provincial, and national codes, laws, regulations and ordinances when installing this water heater and related components near high heat sources.

### WARNING

For California installation this water heater must be braced, anchored or strapped to avoid falling or moving during an earthquake. See instructions for correct installation procedures. Instructions may be obtained from California office of the state architect, 400 P Street, sacramento, CA 95814.

### B. WATER TEMPERATURE ADJUSTMENT

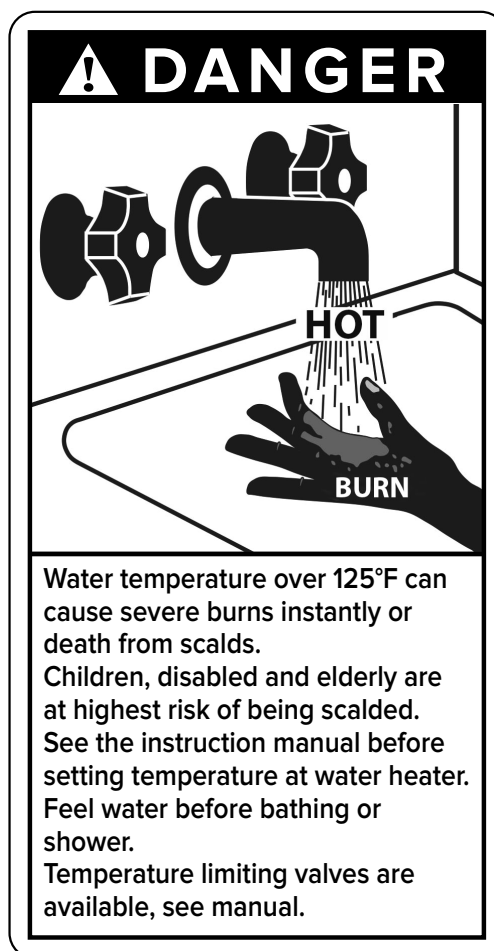
### DANGER

Water temperature over 125°F can instantly cause severe burns or death from scalds. Children, disabled, and the elderly are at the highest risk of being scalded. See instruction manual before setting temperature at the water heater. Feel water before bathing or showering! Temperature limiting valves are available.

Safety and energy conservation are factors to be considered when selecting the water temperature setting via the water heater user interface.

Water temperatures above 125°F can cause severe burns or death from scalding. Be sure to read and follow the warnings outlined on the label pictured. This label is also located on the water heater near the top of the tank.

**The temperature of the water in the heater is regulated by the water heater interface control. To comply with safety regulations the temperature was set at 125°F (52°C) before the water heater was shipped from the factory.**



Mixing valves for reducing point-of-use water temperature by mixing hot and cold water in branch water lines are available. Contact a licensed plumber or the local plumbing authority for further information.

**NOTE: Households with small children, disabled, or elderly persons may require a 120°F or lower thermostat setting to prevent contact with "HOT" water.**

APPROXIMATE TIME TEMPERATURE RELATIONSHIPS IN SCALDS	
120°F	More than 5 minutes
125°F	1 ½ to 2 minutes
130°F	About 30 seconds
135°F	About 10 seconds
140°F	Less than 5 seconds
145°F	Less than 3 seconds
150°F	About 1 ½ seconds
155°F	About 1 second

Table Courtesy of Shriners Burn Institute

### WARNING

When using anti-legionella function, the water heater will adjust to a set point of 140F. Use caution when using water fixtures while in this mode as this temperature can cause immediate scalding

### C. COMBUSTIBLE MATERIALS

#### WARNING

Gasoline, as well as other flammable materials and liquids (adhesives, solvents, etc.), and the vapors these items produce are extremely dangerous. DO NOT handle, use, or store gasoline or other flammable or combustible materials anywhere near or in the vicinity of the water heater. The arc drawn in the water heater controls can ignite these vapors. Failure to follow these instructions can result in property damage, serious personal injury, or death.

### D. INSTALLATIONS IN THE STATE OF California

California Law requires that residential water heaters must be braced, anchored, or strapped to resist falling or horizontal displacement due to earthquake motions.

For residential water heaters up to 52 gallon capacity, a brochure with generic earthquake bracing instructions can be obtained from: Office of the State Architect, 400 P Street, Sacramento, CA 95814, or you may call 916-324-5315, or ask your water heater dealer for more information.

Applicable local codes shall govern installation. For residential water heaters of a capacity greater than 52 gallons, consult the local building jurisdiction for acceptable bracing procedures.

### WARNING

**California Proposition 65 Warning:** This product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

### E. MAINTENANCE CONSIDERATIONS

- To avoid electric shock, disconnect electrical supply before performing maintenance.
- To avoid severe burns, allow water heater to cool before performing maintenance.

### F. HYDROGEN GAS

#### WARNING

Hydrogen gas can be produced in a hot water system that has not been used for a long period of time (generally two weeks or more).

HYDROGEN GAS IS EXTREMELY FLAMMABLE! To dissipate such gas and reduce the risk of injury, it is recommended that the kitchen sink hot water faucet be opened for several minutes before using any electrical water heater connected to the hot water system.

If hydrogen is present, there will be an unusual sound, such as air escaping through the pipe as water begins to flow. Do not smoke or use an open flame near the faucet while it is open. Failure to follow this warning could result in property damage, severe personal injury, or death.

### G. SAFETY CONSIDERATIONS

1. Turn off power to the water heater if it has been subjected to overheating, fire, flood, or physical damage.
2. **Do Not** turn on water heater unless it is filled with water.
3. **Do Not** turn on water heater if cold water supply shut-off valve is closed.
4. **Do Not** store or use gasoline or other flammable vapors or liquids, such as adhesives or paint thinner, in the vicinity of this or any other water heater. Open doors and windows for ventilation if such flammables must be stored near the water heater.

**NOTE: Flammable vapors may be drawn by air currents from surrounding areas to the water heater.**

4. If there is any difficulty in understanding or following the Control Instructions or the Maintenance and Cleaning Sections, it is recommended that a qualified person or serviceman perform the work.

### H. SAFETY CONTROLS

The water heater is equipped with two temperature-limiting controls (TCO and TOD) that are located above the heating element in contact with the tank surface. If for any reason the water temperature becomes excessively high, the temperature-limiting control (TCO or TOD) breaks the electrical circuit to the heating element. Once the control opens, it must be reset manually. Resetting the temperature limiting controls should only be done by a qualified service technician.

For the Heat Pump, the high temperature-limiting control is done by the electronic temperature sensors and the electronic controls.

### CAUTION

The cause of the high temperature condition must be investigated by a qualified service technician and corrective action must be taken before placing the water heater in service again.

**To reset the temperature-limiting control:**

1. Turn off the power to the water heater.
2. Remove the jacket access panel(s) and insulation.  
**DO NOT** remove the thermostat protective cover.
3. Press the red RESET button.
4. Replace the insulation and jacket access panel(s) before turning on power to the water heater.

## ⚠ WARNING

This water heater must be properly grounded before usage. Failure to comply could result in substantial property damage, severe personal injury, or death.

### I. PACKAGING AND SUPPLIED ACCESSORIES

The appliance is anchored to a wooden pallet and is protected with a polystyrene top cover, and external cardboard; all the materials are recyclable and eco-compatible.

The following accessories are included:

- Instruction manual and warranty document.

### K. IDENTIFICATION OF THE APPLIANCE

The main information for identifying the appliance on the adhesive data plate located on the water heater casing.

Serial No./N° de Série		Cap. XX Gallons / XXX Litres
Model No./N° de Modele		HEAT PUMP WATER HEATERS
MFD/FAB:	XXXXXX-XX	
Volts AC: 208-240	Hertz: 60 1 Phase	
Compressor/Compresseur (LRA)	11.5	
Fan Motor/Moteur de Ventilateur (FLA)	0.24, Hp 0.04	
Min. Supply Circuit Ampacity / Courant Minimum D'Alimentation	30A	
Max. Fuse or Ckt. Brk. Size / Cal. Max. De Fusible/Kis J	30A	
SCCR, kA (BCSC, A)	10 (30)	
Design Pressure High/Pression Nominale Haute	392 psi (2.7 MPa)	
Design Pressure Low/Pression Nominale Basse	145 psi (1 MPa)	
Refrigerant/Réfrigérant	R134a	
Factory Charge/Charge Usine	31.7 Oz / 950 g	
Volts AC	208 - 240V	
Compressor/Compresseur (RLA)	2.0	
Upper Element/Haute Élément	4.5 kW	
Lower Element/Basse Élément	4.5 kW	
Rated power	4500 W	
Max. Working Press. / Pression De Servic Max	150 psi (1.03 MPa)	
Calentadores de América S.A. de C.V. Bvd. Isidro Lopez Zertuche #1839 Col. Universidad CP 25260 Saltillo, Coahuila, México		



Contains FCC ID:  
2AC7Z-ESPWROOM32D



UL file number SA45840

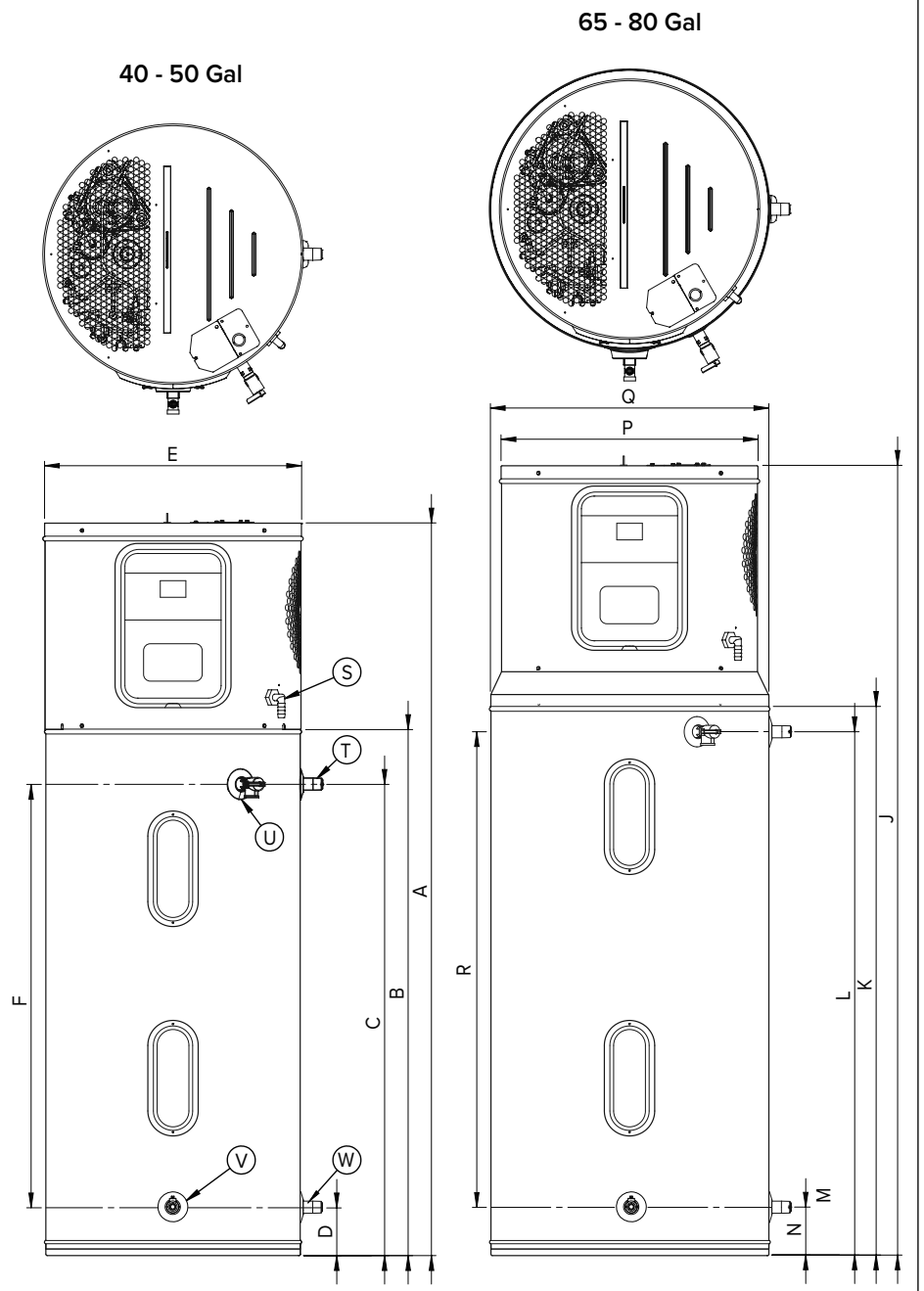
Assembled in Mexico  
Assemblé au Mexique

### J. DIMENSIONS

Item	Size inch (mm)	
	40 Gal	50 Gal
A	56,6 (1438)	64,2 (1632)
B	38,5 (978)	46,1 (1172)
C	33,7 (856)	41,3 (1050)
D	4,17 (106)	
E	22,5 (573)	
F	29,4 (749)	37,1 (943)

Item	Size inch (mm)	
	65 Gal	80 Gal
J	69,2 (1759)	78,2 (1987)
K	48,1 (1222)	57,0 (1450)
L	45,9 (1166)	54,3 (1380)
M	10,2 (260)	
N	4,17 (106)	
P	22,5 (573)	
Q	24,4 (620)	
R	41,7 (1060)	50,1 (1273)

Item	Description
S	Condensate Drain
T	Hot Water
U	T&P Valve
V	Drain Valve
W	Cold Water



## L. BATTERY

### ⚠ WARNING

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE, DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS

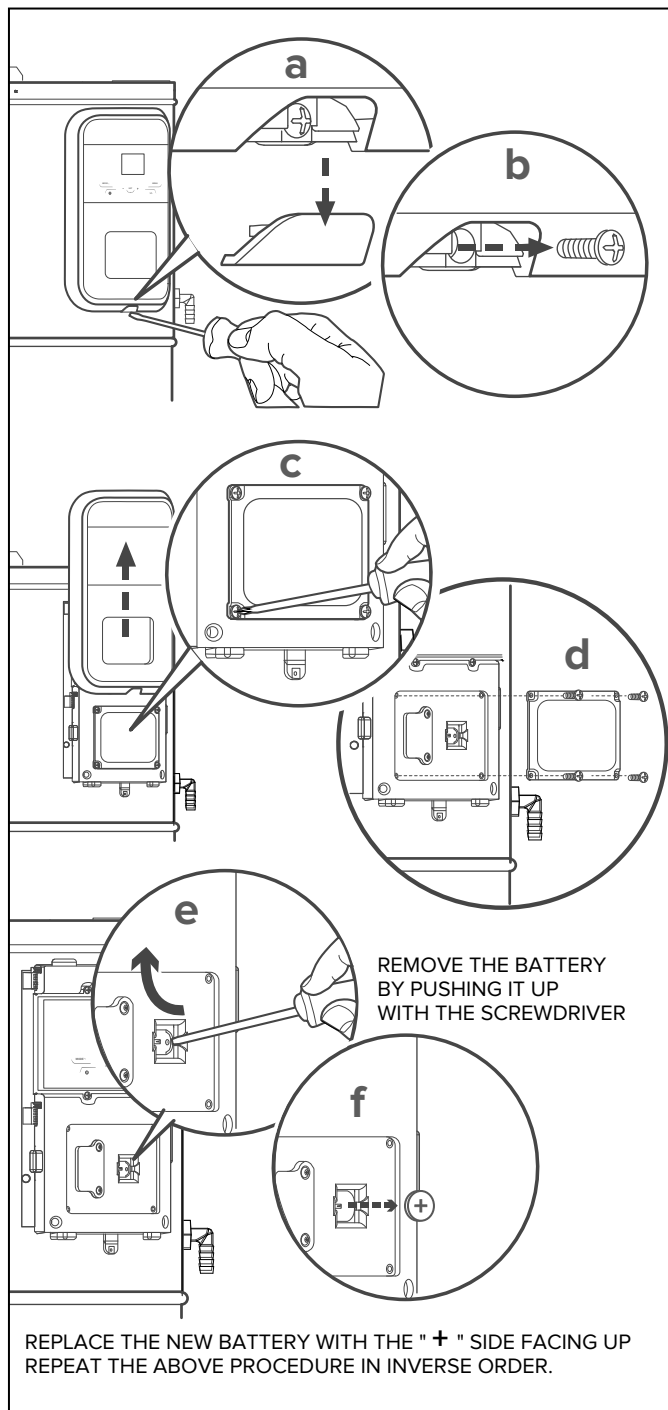
### BATTERY REMOVAL/REPLACE

#### CAUTION

The battery must be removed before it is scrapped. The control shall be disconnected from the supply mains before removing the battery. The battery is to be disposed of safely.

### ⚠ WARNING

USE ONLY **BR2032** OR **CR2032** BATTERY MODEL



### ⚠ WARNING

Do not dispose of the batteries with unsorted household waste. The batteries must be disposed of separately from normal waste in accordance with the local regulations, so that they can undergo special treatment.

### HOW TO DEAL WITH LEAKING BATTERY

#### In case of electrolyte leakage from the battery:

- Flush the eyes with plenty of clean water for at least 15 minutes immediately, without rubbing. Get immediate medical treatment. If appropriate procedures are not taken, this may cause eye injury.
- Wash the affected area under tepid running water using a mild soap. If appropriate procedures are not taken, this may cause sores on the skin. Get medical attention if irritation develops or persists.
- Remove to fresh air immediately. Get medical treatment immediately.

#### Accidental release measures

(In case of electrolyte leakage from the battery)

Take up with absorbent cloth, treat cloth as inflammable.

Move the battery away from the fire.

#### Exposure controls and personal protection

Acceptable concentration : Not specified about Lithium Battery.

Facilities : Nothing in particular.

Protective Equipment (in case of electrolyte leakage from the battery)

Respiratory Protection : For most condition no respiratory protection

Hand Protection : Safety gloves.

Eye Protection : Safety goggle

#### Stability and reactivity

Since batteries utilize a chemical reaction they are actually considered a chemical product.

As such, battery performance will deteriorate over time even if stored for a long period of time without being used. In addition, the various usage conditions such as discharge, ambient temperature, etc. Are not maintained within the specified ranges the life expectancy of the battery may be shortened or the device in which the battery is used may be damaged by electrolyte leakage.

## PART 2 – INSTALLATION INSTRUCTIONS

### WARNING

The installation of this water heater must be braced, anchored or strapped to avoid falling or moving. Using perforated steel plumbers tape, anchor one end of the tape to the wall with 1/4" diameter lag screw and flat washer, wrap the tape around the tank and pull tight to anchor stud on the opposite wall. In case there are two tapes on the box, install them overlapped

### WARNING

Any panel or cover in the outer enclosure require the use of tools to open as prescribed by the relevant standards and therefore are considered as not accessible to the end user.

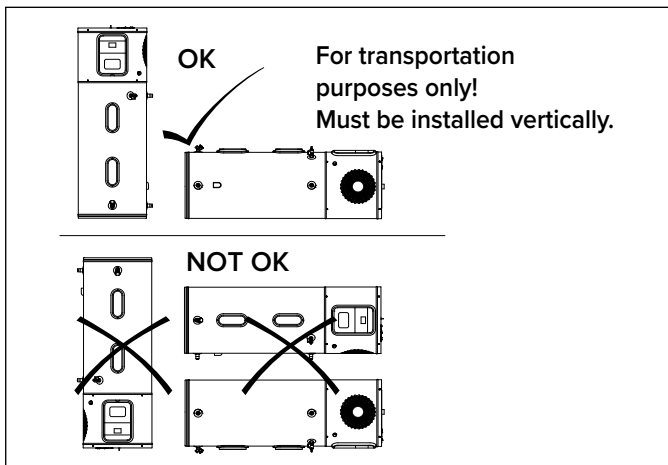
Any installation and maintenance operation must be performed by professionally qualified personnel as specified in the relative paragraphs using only original spare parts. Failure to observe the above instructions can compromise the safety of the appliance and relieves the manufacturer of any liability for the consequences.

### A. TRANSPORT AND HANDLING

Upon delivery of the product, check that it has not been damaged during transport and that no signs of damage appear on the packaging. In the event of damages, immediately notify any claims to the transportation company.

**WARNING! THE APPLIANCE SHOULD BE HANDLED AND STORED IN A VERTICAL POSITION.**

The product may be handled in a horizontal position only for short distances, while resting on the rear end indicated; in this case, wait at least 3 hours before starting the appliance once it has been correctly repositioned in a vertical position and/or installed; this is to ensure that the lubricating oil inside the refrigeration circuit is suitably distributed and to avoid damages to the compressor.



The packaged appliance may be handled either manually or with the aid of a forklift truck, while ensuring that the above indications are observed. It is advisable to keep the appliance in its original packaging until installing it in its chosen location, particularly when construction work is under way on-site.

When transporting or handling the appliance after the initial installation, observe the aforementioned indication concerning the allowed tilt angle and ensure that all water has been drained from the tank. Should the original packaging be missing, provide an adequate protection for the appliance to prevent any damages, for which the manufacturer shall not be held liable.

### LOCAL INSTALLATION REGULATIONS

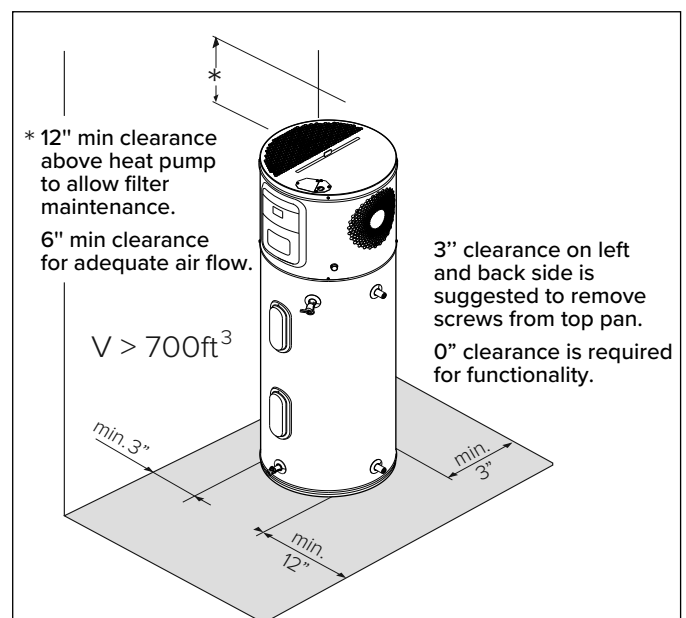
This water heater must be installed in accordance with these instructions, local codes, utility codes, and utility company re-

quirements or, in the absence of local codes, the latest edition of the National Electrical Code. It is available from some local libraries or can be purchased from the National Fire Prevention Association, Batterymarch Park, Quincy, MA 02169 as booklet ANSI/NFPA 70.

### B. DETERMINING WATER HEATER LOCATION

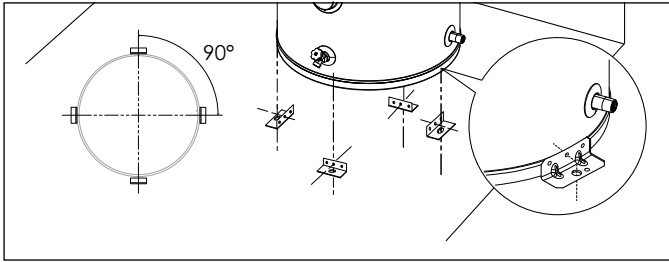
The location chosen for the water heater must take the following into consideration:

- In the event of water heaters without an air duct, the room of installation should have a volume of no less than 700 cubic feet and must be adequately ventilated. Avoid installing the appliance in rooms which may favor frost build-up. Do not install the product in a room containing an appliance that requires air to function (e.g. an open-chamber gas boiler, open-chamber gas water heater, etc.) unless otherwise indicated by local law. This water heater is certified for indoor use only. **DO NOT INSTALL OUTDOORS.** Outdoor installations ARE NOT covered by warranty. Failure to install the water heater indoors could result in property damage, severe personal injury, or death
- Ensure the installation site and the electrical and hydraulic systems to which the appliance must be connected fully comply with the regulations in force;
- The chosen installation site must have single-phase 208-240V ~ 60 Hz power supply;
- The chosen site must be suitable to house a condensate drainage outlet connected to the side of the appliance with a suitable siphon;
- The chosen site must ensure that appropriate safety distances are observed;
- Ensure that installation of the ducts allows maintenance operations on the evaporator filter;
- Ensure that the plan allows a perfectly vertical operating position;
- The chosen site must conform to the appliance's IP protection rating (protection against the penetration of liquids) as specified by the regulations in force;
- The appliance must not be exposed to direct sunlight, even when windows are present;
- The appliance must not be exposed to particularly aggressive substances such as acidic vapours, dust or gas-filled environments;
- The appliance must not be directly installed on telephone lines that are unprotected against overvoltage;
- The appliance must be installed as close as possible to points of use to limit heat loss along the piping;
- Site air must be free of dust, acidic vapours and solvents. Leave adequate space around the appliance in order to ensure easy access and facilitate maintenance (see graphic below)



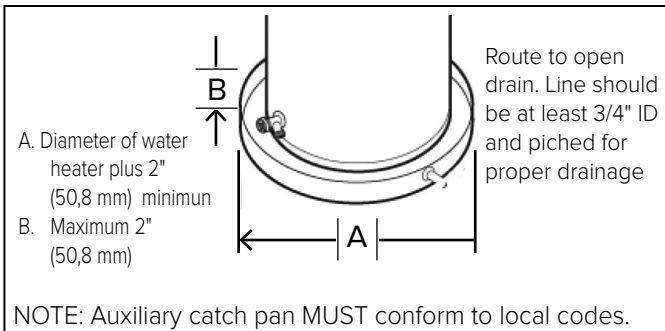
### Positioning on the ground

- 1) Once the suitable installation position has been located, remove the packaging from the product pallet.
- 2) Remove the product from the pallet.
- 3) Fix the feet on the ground (through the appropriate holes) using suitable screws and rawlplugs.  
Set the product vertically in the installation location.



### CAUTION

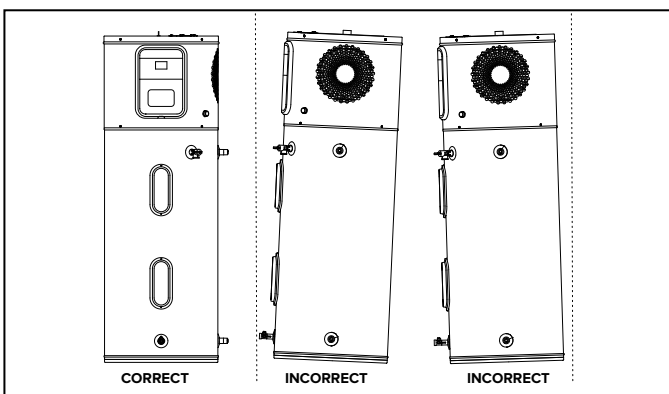
The water heater should not be located in an area where leakage of the tank or connections will result in damage to the area adjacent to it or to lower floors of the structure. Where such areas cannot be avoided, it is recommended that a suitable, adequately drained catch pan be installed under the water heater.



### ⚠ DANGER

This water heater **SHOULD NOT** be installed in a space where liquids which give off flammable vapors are used or stored. Such liquids include gasoline, LP gas (butane and propane), paint or adhesives and thinners, solvents, or removers. Because of natural air movement in a room or other enclosed space, flammable vapors can be carried from where flammable liquids are being used or stored. The operation of the control system within the water heater can ignite these vapors, causing an explosion or fire which may result in property damage, as well as potentially severe burns or death to those in range.

To facilitate condensate drainage and proper operation, ensure the water heater is installed level.



### C. THERMAL EXPANSION

Determine if a check valve exists in the inlet water line. It may have been installed in the cold water line as a separate backflow preventer, or may be part of a pressure-reducing valve, water meter, or water softener. A check valve located in the cold water inlet line can cause what is referred to as a "closed water system". A cold water inlet line with no check valve or backflow prevention device is referred to as an "open water system".

As water is heated, it expands in volume and creates an increase in the pressure within the water system. This action is referred to as "thermal expansion". In an open water system, expanding water which exceeds the capacity of the water heater flows back into the city main, where pressure is easily dissipated.

A closed water system prevents the expanding water from flowing back into the main supply line, and the resulting thermal expansion can create a rapid and dangerous pressure increase in the water heater and system piping. This pressure increase can quickly reach the safety limit of the relief valve, causing it to operate during each heating cycle. Thermal expansion, and the resulting rapid and repeated expansion and contraction of components in the water heater and piping system, can cause premature failure of the relief valve and possibly the water heater itself. Replacing the relief valve will not correct this problem.

The suggested method of controlling thermal expansion is to install an expansion tank in the cold water line between the water heater and the check valve (refer to the illustration in the schema installation). The expansion tank is designed with an air cushion built in that compresses as the system pressure increases, thereby relieving the thermal expansion and eliminating the repeated operation of the relief valve.

Other methods of controlling thermal expansion are available. Contact your installing contractor, water supplier, or plumbing inspector for additional information regarding this subject

### D. WATER SUPPLY CONNECTIONS

Before using the product, we recommend filling its tank with water and draining it completely to remove any residual impurities.

Connect the water heater inlet and outlet to pipes or pipe fittings that can withstand the operating pressure and temperature of the hot water, which may reach 167°F (75°C). Do not use materials that cannot withstand such temperatures.

**We recommend using a dielectric-type union (available at your local plumbing supplier). Dielectric unions can help prevent corrosion caused by tiny electric currents common in copper water pipes and can help extend the life of the water heater.**

The appliance must not operate with water hardness levels below 120 ppm. If water hardness levels are above 250 ppm, it is advised to use a suitable calibrated and monitored water softener to lessen the effects of particularly hard water. Do not soften water below 150 ppm.

If installing in a closed system (isolated from the city main water line), install an expansion tank in the cold water line.

See drawing on the following page.

**Do not install any shut-off device (valve, cock, etc.) between the safety unit and the water heater.**



## E. CONDENSATE DRAIN

The water heater has a condensate drain: therefore a drain must be available in close proximity to the unit. The drain must be no higher than 36" above the floor (laundry drain is acceptable). If no drain is available, a common condensate pump with a capacity no less than 1 gallon/day must be used.

This high efficiency product creates condensate (water) as part of the heating process and has a built-in condensation tray to collect condensate from the evaporator coil. The condensate drains out of the unit.

Screw the included "T" fitting (identified by cold water line) onto the appliance condensate drain outlet. Then pipe the no less than 3/4" condensate line with materials defined by local codes to the appropriate condensate drain or condensate pump. Ensure the pipe is protected from damage due to freezing conditions.

Direct the condensate pipe to a drain no higher than 3' above the floor (a laundry drain is acceptable). If such a drain is unavailable, install a common condensate drain pump with a capacity of no less than 1 gallon/day (not provided) and route condensate to an appropriate drain.

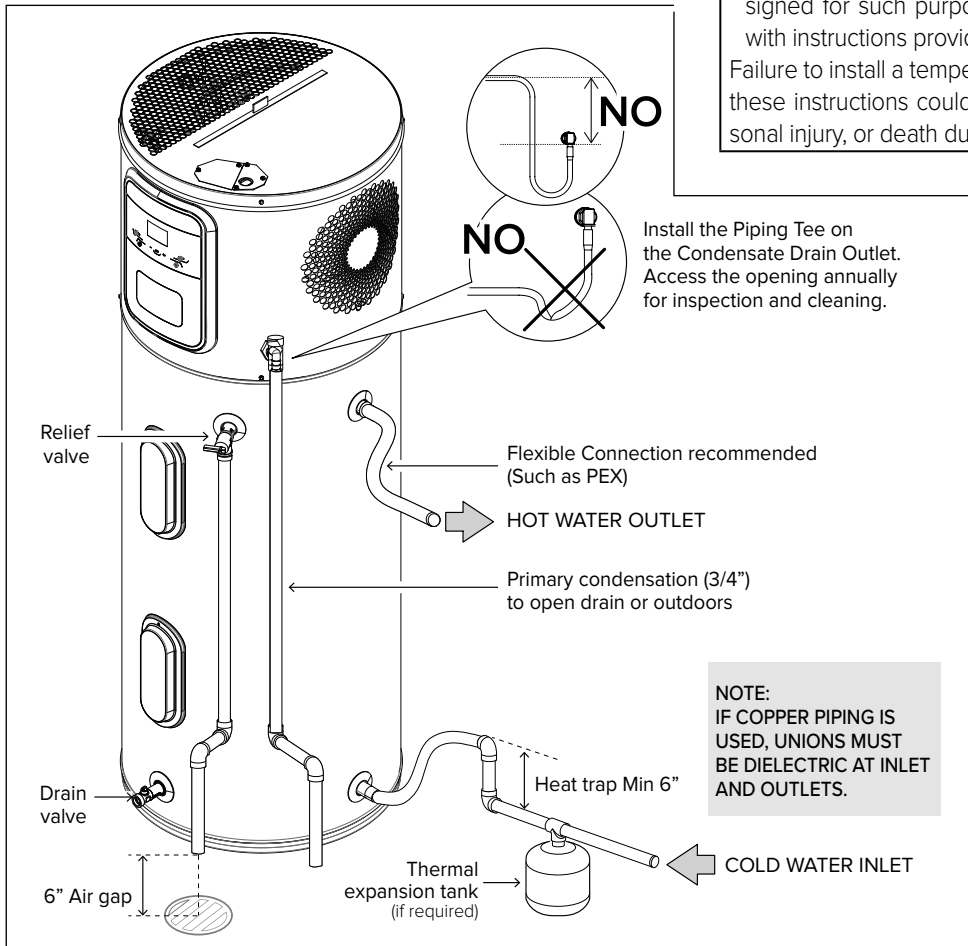
NOTE: Ensure condensate piping is protected from damage due to freezing conditions, and is not kinked or blocked in any way.

A blocked condensate drain pipe may cause overflow to occur.

### ⚠ CAUTION

The condensate line must remain unobstructed. If condensate is allowed to freeze in the line or obstructed in any other manner, condensate can exit from the water appliance tee, resulting in potential water damage to property.

When installing a condensate pump, select one approved for use with condensing appliances. The condensate pump should have an overflow switch to prevent property damage from spillage.



### CAUTION

Do not manifold drainage pipes. Doing so will lead to improper operation and property damage. Such damage IS NOT covered by warranty.

### CAUTION

Do not attach the same hose to both condensate ports. Doing so will lead to improper operation, condensate leakage, and property damage. Such damage IS NOT covered by warranty.

## ANTIBACTERIA (ANTI-LEGIONELLA) FUNCTION

Legionella are small rod shaped bacteria which occur naturally in fresh water. Legionnaires disease is a serious pneumonia infection caused by inhaling the bacteria Legionella pneumophila or other Legionella species. This bacterium is frequently found in domestic, hotel and other water systems and in water used for air conditioning or air cooling systems. Hence the main intervention against the condition is prevention, through control of the organism in water systems. This storage water heater is supplied with the thermal disinfection cycle (Antibacterial Function) deactivated by default. It is recommended to run the Antibacterial function once every 30 days, raising the temperature of the water heater to 140F (60°C).

### ⚠ WARNING

An ASSE 1017 or ASSE 1070 temperature limiting or mixing valve is recommended in installations servicing disabled or elderly persons, or children. Mixing valves can reduce but do not eliminate the risk of scalding.

To avoid scalding:

- Set the water heater set point temperature as low as possible.
- Feel water before bathing or showering.
- If thermostatic valves are required, use devices specifically designed for such purpose. Install these devices in accordance with instructions provided by the manufacturer.

Failure to install a temperature limiting or mixing valve and follow these instructions could result in property damage, severe personal injury, or death due to scalds.

## F. RELIEF VALVE

A combination temperature and pressure relief valve, complying with the Standard for Relief Valves and Automatic Gas Shut-Off Devices for Hot Water Supply Systems, ANSI Z21.22, is supplied and must remain installed in the opening provided and marked for the purpose on the water heater. No valve of any type should be installed between the relief valve and the tank. Local codes shall govern the installation of relief valves.

### **⚠ WARNING**

The pressure rating of the relief valve must not exceed 150 PSI, the maximum working pressure of the water heater as marked on the rating plate. Failure to follow this warning could result in explosion, property damage, personal injury, or death.

The BTU/h rating of the relief valve must not be less than the input rating of the water heater as indicated on the rating label located on the front of the water heater (1 watt = 3.412 BTU/h). Connect the outlet of the relief valve to a suitable open drain so that the discharge water cannot contact live electrical parts or persons and to eliminate potential water damage.

Piping should be of a type approved for hot water distribution. The discharge line must be no smaller than the outlet of the valve and must pitch downward from the valve to allow complete drainage (by gravity) of the relief valve and discharge line. The end of the discharge line should not be threaded or concealed and should be protected from freezing. No valve of any type, restriction or reducer coupling should be installed in the discharge line.

### **⚠ WARNING**

To reduce the risk of excessive pressures and temperatures in this water heater, install temperature and pressure protective equipment required by local codes and no less than a combination temperature and pressure relief valve certified by a nationally recognized testing laboratory that maintains periodic inspection of production of listed equipment or materials, as meeting the requirements for Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems, ANSI Z21.22. This valve must be marked with a maximum set pressure not to exceed the marked maximum working pressure of the water heater, and orient it or provide tubing so that any discharge from the valve exits only within 6 inches above, or at any distance below, the structural floor, and does not contact any live electrical part. The discharge opening must not be blocked or reduced in size under any circumstances.

Failure to follow the instructions in this warning could result in explosion, property damage, personal injury, or death.

## G. TO FILL THE WATER HEATER

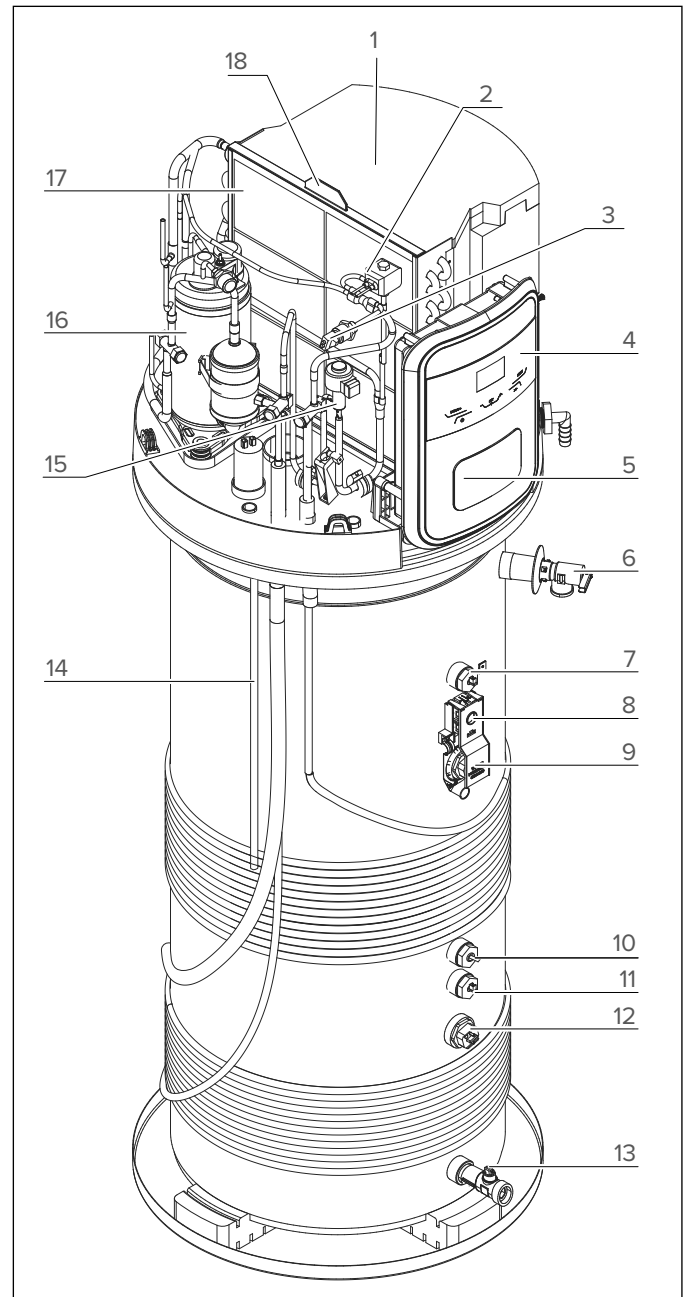
### **CAUTION**

The tank must be full of water before water heater is turned on. The water heater warranty does not cover damage or failure resulting from operation with an empty or partially empty tank.

1. Make certain that the drain valve is completely closed.
2. Open the shut-off valve in the cold water supply line.
3. Open each hot water faucet slowly to allow the air to vent from the water heater and piping.

A steady flow of water from the hot water faucet(s) indicates a full water heater.

## H. MAIN COMPONENTS



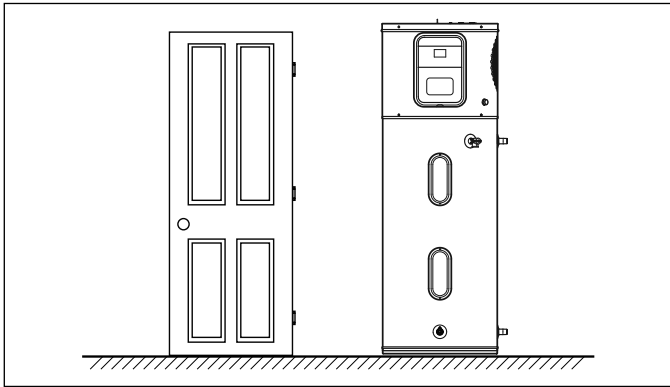
1	Fan
2	Hot gas valve
3	Safety pressure switch
4	Electronic box
5	ECOPORT
6	Relief valve
7	Top NTC temperature sensor (hot water)
8	Thermostat
9	Upper element
10	Powered Anode
11	Bottom NTC temperature sensor (heating element zone)
12	Bottom element
13	Drain valve
14	Magnesium Anode
15	Electronic expansion valve
16	Compressor
17	Evaporator
18	Filter

## I. AIR SUPPLY CONNECTIONS

### LOCATIONS THAT PROVIDE OPTIMAL EFFICIENCY

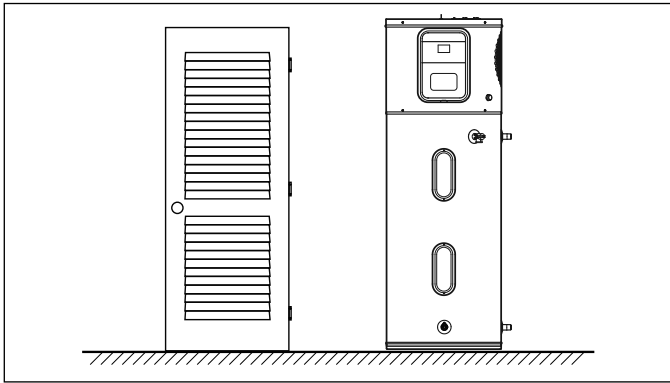
#### Heater: Not Ducted

Room size: Larger than 700 ft<sup>3</sup> (e.g. 7' x 10' x 10').  
Requirements: No additional ventilation needed.



#### Heater: Not Ducted

Room size: Smaller than 700 ft<sup>3</sup> (e.g. 7' x 10' x 10').  
Requirements: Full louvered door OR two louvers top and bottom. See below.



#### Heater: Not Ducted

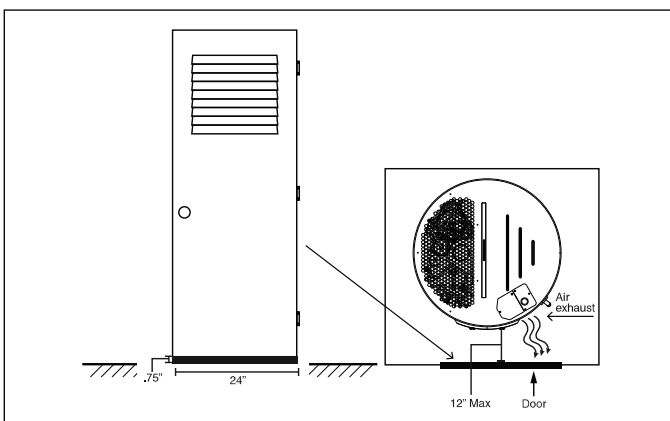
Room: Small Closet

Requirements:

- \* Air gap under door equal to 18 in<sup>2</sup> (0.75" clearance).
- \* Louver must be located the same height on door as the air exhaust on heater.
- \* Heater air exhaust must be positioned towards louver within one foot of door.

**NOTICE:** If air temperature delta ( $\Delta$ ) in installed location drops more than 15°F during heating, air circulation is insufficient for efficient operation.

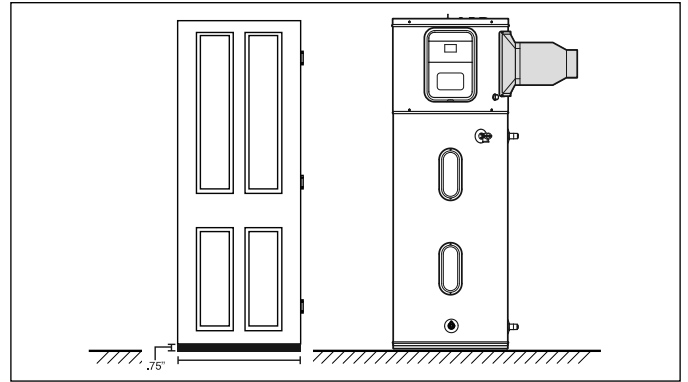
Utilize ducting to direct cold exhaust air to another location.



#### Heater: Ducted with inlet OR outlet duct

Room size: Any size room

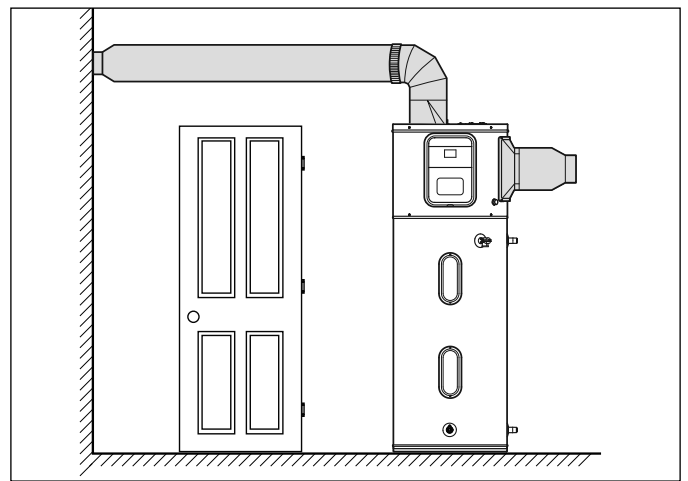
Requirements: Air gap under door equal to 18 in<sup>2</sup> (0.75" clearance)



#### Heater: Ducted with inlet AND outlet duct

Room size: Any size room

Requirements: No additional ventilation needed.



### MAXIMUM DUCT LENGTH

Duct Type	8"	7"	6"	5"
<b>RIGID</b>	340'	160'	65'	17'
<b>FLEXIBLE</b>	125'	65'	25'	--

### EQUIVALENT FEET FOR DUCT ACCESSORIES

Description	8"	7"	6"	5"
Elbows/Flexible Bends (Each) [Maximum 11 Allowed]	5' [8]	5' [8]	5' [8]	5' [8]
8 inch UL Certified Termination for ducting outside (Each)	5'	5'	5'	5'
Reduced diameter UL Certified Termination for ducting outside (Each)	N/A	10'	15'	20'
8 inch Register for ducting inside (Each)	5'	5'	5'	5'
Reduced diameter Register for ducting inside (Each)	N/A	10'	15'	20'
Rodem Screen (must be greater than 83% open area) (Each)	1'	1'	1'	1'
Approved 8" diameter Duct Damper	25'	20'	10'	5'

*NOTE: Lists equivalent reel for duct accessories and reduced diameter terminations.*

## J. ELECTRICAL CONNECTIONS

### CAUTION

Tank must be full of water before the power is turned on. Heating elements will be damaged if energized for even a short time while tank is dry. Failures due to "dry-firing" ARE NOT covered by warranty.

The water heater must be wired to a separate 30 amp, 240V circuit with copper conductors, surge protective device, and suitable disconnecting means provided by a qualified electrician. All wiring must conform to local codes or the latest edition of the National Electrical Code ANSI/NFPA 70.

The water heater is completely wired to the junction box at the top of the water heater. An opening for a 1/2" or 3/4" electrical fitting is provided for field wiring connections.

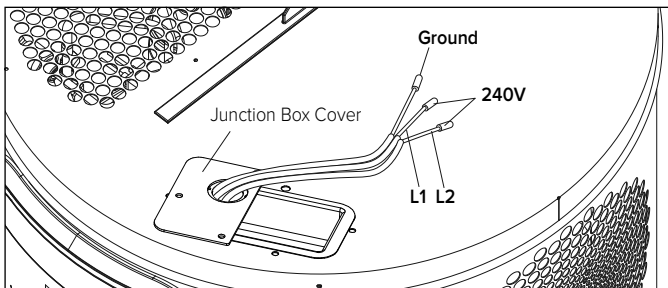
The voltage requirements and wattage load for the water heater are specified on the rating label on the front of the water heater.

#### The branch circuit wiring should include either:

1. Metallic conduit or metallic sheathed cable approved for use as a grounding conductor and installed with fittings approved for the purpose.
2. Non metallic sheathed cable, metallic conduit, or metallic sheathed cable not approved for use as a ground conductor shall include a separate conductor for grounding. It should be attached to the ground terminals of the water heater and the electrical distribution box.

### CAUTION

Do not mis-wire electrical connections. 240V AC must be applied to the L1 and L2 wires shown in shown below. Failure to properly wire the water heater may damage the compressor or other electrical components. Such failure will VOID the warranty.



### ⚠ WARNING

Proper ground connection is essential. The presence of water in the piping and water heater does not provide sufficient conduction for a ground. Non metallic piping, dielectric unions, flexible connectors, etc., can cause the water heater to be electrically isolated. Improper grounding could result in severe personal injury or death due to electric shock.

The water heater warranty does not cover any damage or defect caused by installation, attachment, or use of any type of energy-saving or other unapproved devices (other than those authorized by the manufacturer) into, onto, or in conjunction with the water heater. The use of unauthorized energy-saving devices may shorten the life of the water heater and may endanger life and property.

**The manufacturer disclaims any responsibility for such loss or injury resulting from the use of such unauthorized devices.**

If local codes require external application of insulation blanket kits, the manufacturer's instructions included with the kit must be carefully followed.

## K. REGULATORY COMPLIANCE

### FCC

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Warning: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. (Part. 15.21). This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### IC

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to RSS-210 of the IC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

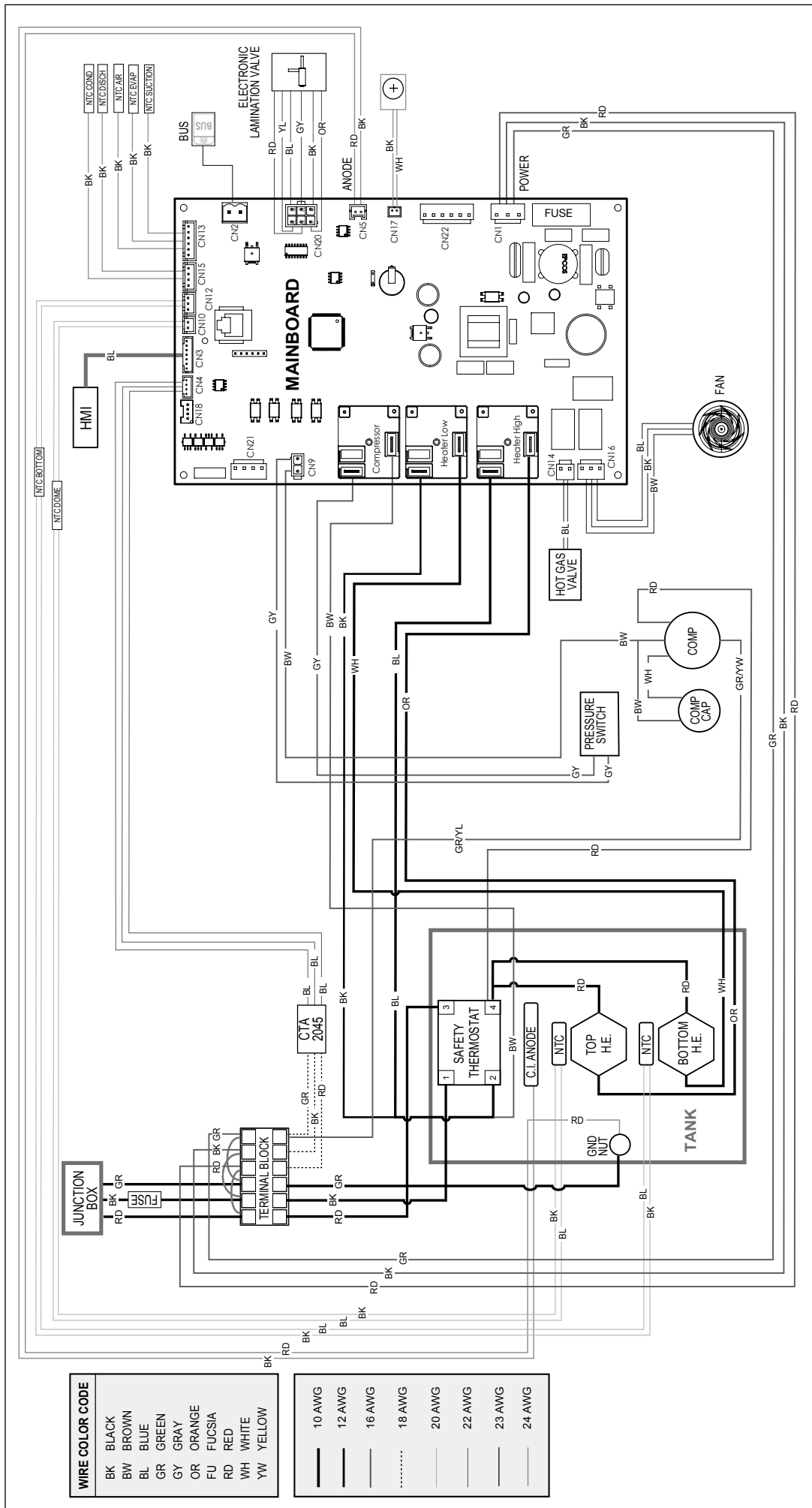
Warning: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. (RSS-210). This device complies with RSS-210 of the IC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including any interference that may cause undesired operation.

### Radiation Exposure Statement

To comply with FCC and Industry Canada RF exposure limits for general population / uncontrolled exposure, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 0,78 in (20 mm) from all persons and operating in conjunction with any other antenna or transmitter, except in accordance with FCC multi-transmitter product procedures.

	CABLE	FUSE
Permanent power supply (cable supplied with the appliance)	AWG 10 $\phi$ min. 5.26 mm <sup>2</sup>	30A

# INTERNAL WIRING DETAILS



WIRE COLOR CODE	
BK	BLACK
BW	BROWN
BL	BLUE
GR	GREEN
GY	GRAY
OR	ORANGE
FU	FUCSIA
RD	RED
WH	WHITE
YW	YELLOW

—	10 AWG
—	12 AWG
—	16 AWG
—	18 AWG
—	20 AWG
—	22 AWG
—	23 AWG
—	24 AWG

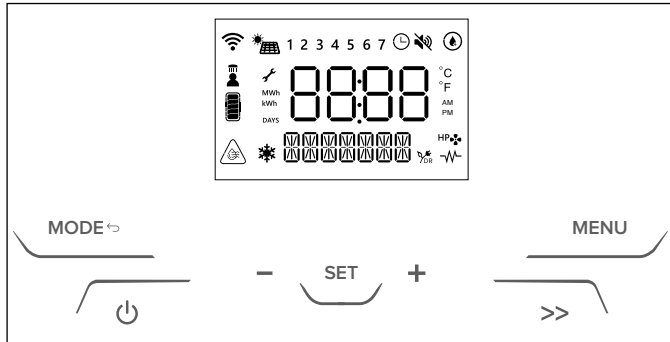
## PART 3 – CONTROLS

### **⚠ WARNING!**

The installation and initial start-up of the appliance must be performed by qualified personnel in compliance with the national regulations in force regarding installation.

### A. CONTROL OVERVIEW

The user interface has an LCD display and 7 touch buttons. There are 2 blue LEDs: POWER (when power supplied to the product) and BOOST (when BOOST has been activated).



List of the icons shown on the display:

	Error has occurred
	Wi-Fi enabled
	Schedule programming enabled
1...7	Day of the week (1 = Sunday)
	Heat pump active
	Heating element active
	Antibacterial (Antilegionella) function is enabled
<b>DR</b>	Demand Response enabled
	ANTIFREEZE function is enabled
	Scald Warning - Tset > 125F
	Hot water shower available
	Estimated available hot water (based on the set temperature)

Once the water heater is connected to the water and electric systems, it must be filled with water. To fill the water heater, open the cold water main supply valve and the nearest hot water tap. Ensure that all air is purged from the system. Visually inspect for possible water leaks from the flange and pipe fittings and gently tighten them, if necessary. The heat pump requires 5 minutes to become fully operational when starting for the first time.

Upon installation, if the inlet and tank water temperature are below 49°F, the heating elements will be used to heat the water. Once both the temperatures sensors reach 49°F, the heat pump will begin to operate.

**WARNING! Hot water temperatures above 120°F (50°C) may immediately cause serious burns. Children, the disabled and the elderly run a greater risk in this regard. Therefore, it is advisable to install a thermostatic mixing valve in the water heating system.**

### **WARNING!**

If the water temperature is set above 125°F, the display shows this icon indicating risk of scald.

## B. INSTRUCTIONS FOR USE

Press the "⏻" button to turn the water heater on.

The display shows the set temperature and operation mode, while the "HP" symbol and/or "⚡" symbol indicate the operation of the heat pump and/or heating element respectively.

Press the "⏻" button for 1 second to switch off the water heater.

The water heater ensures that water temperature inside the tank does not fall below 41°F (5°C).

### SETTING THE TEMPERATURE

Press the "+" and "-" buttons to set the desired hot water temperature (The display will temporarily flash "T SET POINT").

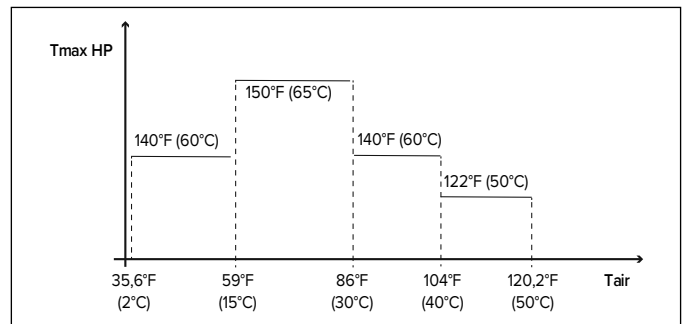
Press "SET" button to display the temperature of the water in the tank; it will be shown for 3 seconds.

In heat pump mode the min/max temperatures are 104°F/150°F (40°C/65°C), by default settings.

The maximum achievable temperature with the heating element is 150°F (65°C). This value can be changed in the installer menu.

### HEAT PUMP TEMPERATURE

The maximum achievable temperature while the heat pump is in operation is a function of the air temperature. The table below shows possible heat pump operation temperatures based on air inlet temperatures.



### SHOWERS AVAILABLE "🚿"

When the display shows the icon above, at least one shower is available. The available showers depend on the availability of hot water. One shower is calculated as: 10 gal at 104°F (37.8l at 40°C). Need to adjust functionality - 18 gallon minimum @105F (8 gallons @ 2.2GPM)

### MODE OF OPERATION

With the "MODE" button you can modify the operating mode used by the water heater to reach the set temperature. The selected mode will be displayed on the line below the temperature.

- GREEN**  
 Heat pump only, and priority is given to energy saving. The heating element will only turn on for back-up or safety functions (errors, air temperature out of operating range, defrosting in progress, antibacterial).
- COMFORT (Hybrid – default operating mode)**  
 the water heater reaches set temperature with the rational use of the heat pump and, only if necessary, of the heating element. The priority is given to comfort. Performance tests have to be done under Comfort operating mode.
- FAST**  
 The water heater uses both the heat pump and heating element to reach set temperature. Priority is given to heating time.
- ELECTRIC**  
 The water heater uses non-simultaneous heating element operation only. The heat pump is disabled in this mode.
- BOOST (One time operation per activation)**  
 Both the heat pump and heating element are used to reach the set temperature in the shortest possible time. Once set temperature is reached the previous working mode reactivates. Press the BOOST button on the interface (">>") to activate BOOST mode.

• **I-MEMORY**

This mode uses a proprietary algorithm to reduce energy consumption and maximize comfort by monitoring the hot water needs of the user to optimize the use of the heat pump/heating element.

The control meets daily need by averaging use profiles over the previous four (4) weeks.

In the first week of acquisition, the set point temperature entered by the user remains constant. From the second week on the control automatically adjusts the set point temperature to meet daily needs. To reset the I-Memory profile use U9. (I-Memory mode is visible when U1: PROGRAM is "OFF").

• **HOLIDAY**

Use this mode when hot water will not be needed for an extended time (such as a vacation). After the chosen time period Vacation mode will deactivate and the product will operate at its previous setting. Vacation mode is set in the User Menu. In this mode, no heating is performed; antifreeze protection and antibacterial cycle are guaranteed.

After revision of the controls: "The display will read "AWAY""

**C. USER MENU**

To access the user menu, press " MENU ".

The word INFO will appear on the display. Press the " + " and " - " buttons to scroll the parameters U1, U2, U3 ... U10. Parameter descriptions are shown below. Once you have chosen the parameter press the " SET " button to select it. To return to the parameter selection, press the " MODE↵ " button.

PARAMETER	NAME	PARAMETER DESCRIPTION
U1	PROGRAM	TURN ON TO USE TIME BASED OPERATION COMPATIBLE MODES: GREEN, COMFORT, FAST, ELECTRIC I-MEMORY IS NOT COMPATIBLE WITH PROGRAM FUNCTION.
U2	PRGTIME	User can select the desired time slots for PROGRAM function (See TIME SCHEDULING).
U3	PRG SET	User can customize the time programming (See PROGRAM SETTINGS).
U4	HOLIDAY/ AWAY	Activate/Deactivate HOLIDAY/AWAY mode When On is confirmed the user has to enter the number of away days as "Vacation Days". [1, 99]
U5	ANTBACT	Not available.
U6	DATE	Sets the date (Year, Month, Day) and time (hours and minutes). User can enable/disable the auto switch among daylight saving time/... hour.
U7	REPORTS	Displays total energy consumption.
U8	SILENT	not available
U9	I-MRESET	This function deletes saved I-MEMORY data and restarts control learning. To reset delivery profiles select On and press the SET button.
U10	WIFI RS	WHERE AVAILABLE To reset the Wi-Fi data, select On and press the SET button.
U11	UN-TYPE	SI/USA unit type format . Default value USA.
U12	HR TYPE	24h/12h time format. Default value 12h
U13	OV-RIDE/ DR-BREAK	This parameter is used to enter/exit demande response override.
U14	TOU CON	It opens the access point to upload the TOU tariffs offline.

• **TIME SCHEDULING**

U2 PRGTIME parameter.

The user can set 4 different time slots for each day of the week in the operating modes GREEN, COMFORT, FAST and ELECTRIC.

Use [START] and [STOP] define the beginning and the end of a time slot. After the fourth time slot, to reset the time slot selected and the ones after, press " + " " - " until "OFF" is displayed and then press "SET". If a time slot is not set it remains as not defined.

Example: the water heating system is active from 8 am to 12 pm and from 4 pm to 8 pm.

[START1] = 8:00; [STOP1] = 12:00;

[START2] = 16:00; [STOP2] = 20:00;

[START3] = 00:00; [STOP3] = 00:00;

[START4] = 00:00; [STOP4] = 00:00;

If ALL\_DAYS is selected the same time slots are assigned from Monday to Sunday. Then each day of the week can be customized one by one, selecting the corresponding parameter.

Therefore, each day of the week can be customised one by one by selecting the corresponding parameter.

**Warning:** if the selected time period is too short, the desired temperature may not be reached.

PARAMETER	NAME	PARAMETER DESCRIPTION
U2.1		SAME SCHEDULE FOR ALL DAYS
U2.2	SUNADY	
U2.8	SATURDAY	Individual daily scheduling.

Download the Comfort Link APP to manage time scheduling on your smart device.

• **PROGRAM SETTINGS**

**U3 PRG SET parameter.** Allows the user to customize different working modes when U1 is On.


PARAMETER	NAME	PARAMETER DESCRIPTION
U3.1	T MIN	Minimum water temperature is guaranteed regardless of the time program.
U3.2	PREHEAT	The heat pump pre-heats the water. Set temperature is met at the beginning of the selected time program.

## D. INSTALLER MENU



### CAUTION!

THE FOLLOWING PARAMETERS MUST ONLY BE ADJUSTED BY QUALIFIED PERSONNEL

The main product settings can be modified via the installer menu. The changeable parameters are shown on the display together with the wrench symbol .

To enter the installer menu press the "MENU" button for 3 seconds, press the "+" and "-" buttons and enter the access code 234.

PARAMETER	NAME	PARAMETER DESCRIPTION
P0	CODE	Entering the code to access the installer menu. The display will show the number 222, press the "+" and "-" and enter the code 234, press the "SET" button to confirm. It will then be possible to access the installer menu.
P1	NOT AVAILABLE	
P2	ANTIBACT	To disable/enable the antibacterial (antilegionella) function ON (function enabled) - OFF (function disabled)
P3	T ANTB	Gives the temperature to be achieved 140°F/ 149°F [60/65°C] with the antibacterial cycle and to be maintained for 1 hour at least.
P4	T MAX	Adjustment of the maximum obtainable temperature 140°F/ 149°F [65/65°C]. A higher temperature value allows for using a greater amount of hot water.
P5	T MIN	Adjustment of the minimum obtainable temperature 104°F/ 122°F [40/50°C]. A lower temperature setting allows for more energy-efficient operation in the event of limited hot water consumption.
P6	I-M TMIN	Minimum temperature to be guaranteed in I-Memory mode when no withdrawals have been detected by the algorithm.
P7	TMAX HP	Not available.
P8	TMINAIR	Minimum air temperature that ensures the heat pump working; if air temperature goes below this value the compressor is inhibited. It can be set by the installer in the 35,6°F / 50°F [2, 10°C] range.
P9	HYST	Hysteresis (offset) value that allows the heat pump to restart after having achieved the target temperature. It can be set by the installer in the 3/12°C range.
P10	TANKVOL	Displays tank capacity. Useful for spare part ordering. ex. 50 = 50 gallon.
P11	NOT AVAILABLE	
P12	NOT AVAILABLE	
P13	NOT AVAILABLE	
P14	NOT AVAILABLE	
P15	NOT AVAILABLE	
P16	SILENT	Not available.
P17	GAS CHARGE	Gas refill operation.
P18	FACT RS	Restoring the factory settings. All the user settings will be reset to default values with the only exception of energy statistics, tank volume and Wi-Fi.
P19	MB SW	HP-TOP-MB software version as MM.mm.bb.
P20	HMI SW	HP-MED-HMI software version as MM.mm.bb.
P21	T LOW	Gives the water temperature read by the NTC placed at low position in the water tank. If the NTC is in error "-" is shown.
P22	NOT AVAILABLE	
P23	T DOME	Gives the water temperature read by the NTC placed at dome position in the water tank. If the NTC is in error "-" is shown.
P24	T AIR	Gives the air temperature read by the NTC placed on the outside unit. If the NTC is in error "-" is shown.
P25	T EVAP	Gives the gas temperature in °C/°F read by the NTC placed before the evaporator on the outside unit. If the NTC is in error "-" is shown.
P26	T SUCT	Gives the gas temperature in °C/°F read by the NTC placed before the compressor on the outside unit. If the NTC is in error "-" is shown.

PARAMETER	NAME	PARAMETER DESCRIPTION
P27	T COND	Gives the gas temperature in °C/°F read by the NTC placed after the condenser on the outside unit. If the NTC is in error "-" is shown.
P28	T DISC	Gives the gas temperature in °C/°F read by the NTC placed after the compressor on the outside unit. If the NTC is in error "-" is shown.
P29	T SH	Gives the superheating temperature in °C/°F. If the NTC evap or suction are in error "-" is shown.
P30	ERRORS	Allows navigation among last 10 errors that occurred
P31	WI-FISET	The Wi-Fi function (if available) can be set to: ON (function enabled) OFF (function disabled)
P32	F ANTB	Frequency of Antibacterial cycle if active. Can be set between 1 and 30 days.
P33	NOT AVAILABLE	
P34	NOT AVAILABLE	
P35	UN-TYPE	SI/USA unit type format . Default value USA.
P36	HR TYPE	24h/12h time format. Default value 12h.
P37	DR ENABLE	Enable/disable demand response.
P38	MIX VALVE	Mixing valve present/not present.
P39	SHUT OFF VALVE	NOT AVAILABLE
P40	LEAKAGE	NOT AVAILABLE
P42	ELE_FAST	Maximum operating limit of 72h for FAST, ELECTRIC and BOOST modes: ON (default) OFF (no hourly limit is applied)
P43	TOU SET	It activates the TOU tariffs.

### DEMAND RESPONSE (DR)

If the CTA 2045 module (or EcoPort module) is connected to the product through the EcoPort and the parameter P37 is enabled, the product will be ready to receive commands from the utility.

Several commands can be received, such as:

- SHED
- LOAD UP

When the command is received from the grid, the product should stop normal operation and follow the action of the command.

The display will show the text "SHED" or "LOAD UP" instead of the working mode. If necessary, the user can override the command by choosing a different operating mode or by parameter U13 for maximum 72 hours ICON DR:

off: DR disabled

on: DR enabled

blinking: DR enabled and override is in progress

In case product is connected to Demand Response and may receive Advanced Load Up commands, installation must include an ASSE1017 mixing valve and installer parameter P38 must be set to ON.

### TIME OF USE (TOU)

If the product is set on a TOU schedule (see dedicated Quick Start Guide), product will run in TOU mode. Similar to DEMAND RESPONSE, the display will show "SHED" or "LOAD UP", instead of the working mode, depending on the tariff. TOU can only be disabled by parameter P43 in installer menu

### WARNING

**It is suggested not to use time scheduling when demand response is active in order to avoid discomfort**

### ANTI-FREEZE FUNCTION

If the temperature of the water in the tank falls below 41°F (5°C) while the appliance is powered, the heating element (4500 W) will automatically activate to heat the water up to 60.8°F (16°C).

### DEFROST " ❄ "

The defrost function is activated when the heat pump has been working for at least 20 minutes, the detected air temperature is below 59°F (15°C) and the evaporator temperature is decreasing rapidly. When the defrost cycle is running, the icon to the side is displayed.



## DEFAULT SETTINGS

The appliance is manufactured with a series of default modes, functions or values, as indicated in the table below:

PARAMETER	FACTORY DEFAULT SETTING
WORKING MODE	COMFORT
DEFAULT SET TEMPERATURE	125°F (52°C)
MAX. TEMPERATURE SETTABLE WITH THE HEATING ELEMENT	150°F (65,5°C)
MINIMUM SETTABLE TEMPERATURE	104 °F (40°C)
MAX. TEMPERATURE SETTABLE WITH THE HEAT PUMP	150°F (65,5°C) (for details check the diagram above)
ANTIBACTERIAL PROTECTION	DEACTIVATED
VACATION MODE	DEACTIVATED
DEFROST (active defrost activation)	ACTIVATED
HYSTERESIS (OFFSET)	9 °F (5°C)

## FAULTS

If a fault occurs, the appliance will enter fault mode. The display will flash symbols along with the error code. If the fault involves the heat pump, the symbol "HP" will flash on the screen. If the fault involves the heating element, the element symbol will flash. If both components are affected, both symbols will flash.

If the fault affects only one of two the heating sources (HP or Heating Element), the water heater will continue supplying hot water by activating the other heat source.

## PART 4 – MAINTENANCE, VACATION, AND CLEANING

### A. ROUTINE PREVENTIVE MAINTENANCE

If properly maintained, your water heater will provide years of dependable, trouble-free service. It is suggested that a routine preventive maintenance program be established and followed by the user.

#### PERIODIC INSPECTION

It is further recommended that a periodic inspection of the operating controls, heating elements, and wiring should be conducted by service personnel qualified in electric water heater repair.

Most electrical water heaters, even when new, make some sound when in operation. If the sound level increases excessively, the electric heating element may have scale buildup and require cleaning or replacement. Contact a qualified installer or plumber for inspection.

#### TEMPERATURE AND PRESSURE RELIEF VALVE

At least once a year, lift and release the lever handle on the temperature and pressure relief valve, located on the front side of the water heater, to make sure the valve operates freely. Allow several gallons of water to flush through the discharge line to an open drain.

### ⚠ WARNING

Before manually operating the relief valve, make certain no one will be exposed to the hot water released by the valve. The water may be hot enough to create a scald hazard.

The water should be released into a suitable drain to prevent property damage, severe personal injury, or death from scalds.

**NOTE:** If the temperature and pressure relief valve on the hot water heater discharges periodically, this may be due to thermal expansion in a closed water system. Contact the water supplier or your plumbing contractor on how to correct this. Do not plug the relief valve outlet.

### Flushing the Tank

The water heater tank can act as a settling basin for solids suspended in water. It is therefore not uncommon for hard water deposits to accumulate in the bottom of the tank. To clean the tank of these deposits, open the drain valve (located under the large decorative cover near the bottom of the unit) and drain a few quarts of water from the water heater every month.

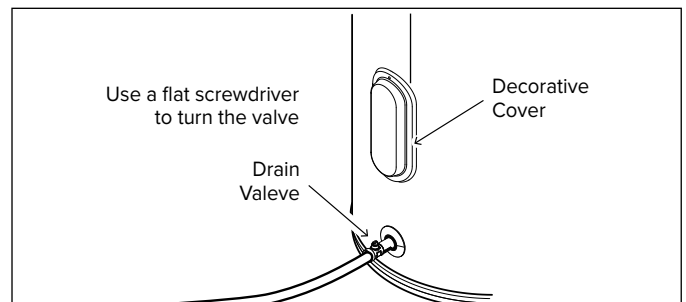
### B. DRAINING THE WATER HEATER

#### ⚠ WARNING

Shut off power to the water heater before draining water. Failure to do so could lead to property damage, serious personal injury, or death.

Attach a garden hose to the drain valve located at the bottom of the unit and direct the hose to a drain. The decorative front cover must be removed to access this valve.

In order to completely drain the water heater, turn off the main cold water supply valve. Open a hot water faucet or lift the handle on the relief valve to admit air into the tank.



Open the drain valve. When done draining, close the drain valve, reopen the cold water supply, and refill the tank. Open a hot water faucet to vent the system of air.

### C. ANODE ROD

In each water heater there is installed at least one anode rod (see Parts section) for protection of the tank. Certain water conditions will cause a reaction between this rod and the water. Conditions are defined as smelly water and removal of the rod will void any warranties stated or implied. The parts list includes a special anode rod that can be ordered if odor and/or discoloration occur. However; this rod is only good to a certain point, after which we can only suggest that a water conditioning company be contacted to supply filtration equipment.

#### **WARNING**

CONVERSION OR REWIRING BY UNAUTHORIZED PERSONS WILL VOID THE WARRANTY, CAN NULLIFY THE UNDERWRITER'S LABORATORIES (UL) CERTIFICATION OF THE WATER HEATER AND COULD RESULT IN PROPERTY DAMAGE OR PERSONAL INJURY FOR WHICH THE MANUFACTURER CANNOT BE RESPONSIBLE.

### C. VACATION AND EXTENDED SHUTDOWN

If the water heater is to remain idle for an extended period of time, the unit should be put into Vacation (holiday/away) mode to conserve energy and prevent a buildup of dangerous hydrogen gas.

After a long shutdown period, the water heater operation and controls should be checked by qualified service personnel. Make certain the water heater is completely refilled before placing it in operation.

#### **WARNING**

Hydrogen gas can be produced in a hot water system that has not been used for a long period of time (generally two weeks or more).

**HYDROGEN GAS IS EXTREMELY FLAMMABLE!** To dissipate such gas and reduce the risk of injury or death, it is recommended that the kitchen sink hot water faucet be opened for several minutes before using any electrical water heater connected to the hot water system. If hydrogen is present, there will be an unusual sound, such as air escaping through the pipe as water begins to flow. Do not smoke or use an open flame near the faucet while it is open.

### D. CLEANING THE FILTER

Partial obstruction of the evaporator filter causes a reduction in product performance. We therefore recommend cleaning the filter to remove any dust or obstructions at least once a year. The filter can be extracted using the appropriate clip above the casings. Clean the filter with water and mild soap. Verify that the external terminal of the air exhaust duct, and the duct itself, are not obstructed or deteriorated. Ensure the condensate water runs to a suitable drain and that the discharge is not blocked. Check and clean drain pipes, louvers and grills.

### E. CLEARING THE CONDENSATION DRAIN TUBES

If the condensate drain hose clogs, water will spill down the outside of the unit.

Periodically inspect the drain lines and clear any debris that may have collected in the lines.

## PART 5 – INSTALLATION CHECKLIST

- 1. Tank Location:
  - Is room size less than 10' x 10' x 7' (700 cu. Ft.)? If yes, louvered door or similar ventilation is needed.
  - Is the front of unit clear of any obstructions?
  - Is the water heater level? If not, add shims under the base of the unit.
  - Is a catch pan installed to prevent damage to surrounding area in case water heater leaks?
- 2. Plumbing connections:
  - Do plumbing connections allow air filter removal?
  - Are the tank and all related plumbing connections leak free?
- 3. Condensate lines are in place:
  - Connect the condensate drain outlet to a condensate pump or directly into a floor drain
- 4. Temperature and pressure relief valve is working and drain lines completed per local codes.
- 5. Electrical connections allow air filter removal.
- 6. Verify control displays 120°F in Comfort Mode.
- 7. Front cover is in place.

## PART 6 – STARTUP: WHAT TO EXPECT

After the water heater has been installed with all electrical and water connections secure and checked, fill the unit with water. While filling, vent the tank by opening a hot water faucet somewhere in the home (preferably at the kitchen sink). When water flows freely, the tank is full.

Once the tank is full, energize the water heater. Press the POWER button on the user interface to turn the water heater on. Once powered, the control will display a reminder to ensure the water heater is full. Press POWER again to acknowledge that the water heater is full.

0 min to 6,5 min prevention only fan ON.

*NOTE: The heat pump ambient operating range is 35°F to 120°F. If the ambient temperature is outside this range, the heat pump will not be able to run and the backup electric elements will operate until the ambient temperature returns to operating range.*

## PART 7 – MAINTENANCE CHECKLIST AND ERROR CODES



Before intervening by following the recommendations below, check for the correct electrical connection of the components to the mainboard and the correct positions of the NTC sensors in their seats.

Error code	Cause	Heating element operation	Heat pump operation	What to do
007	NTC Condenser: Open or Short Circuit	ON	OFF	Verify NTC Condenser proper functioning.
008	NTC Discharge (Compressor Outlet): Open or Short Circuit	ON	OFF	Verify NTC Discharge proper functioning.
009	NTC Air: Open or Short Circuit	ON	OFF	Verify NTC Air proper functioning.
010	NTC Evap: Open or Short Circuit	ON	OFF	Verify NTC Evap proper functioning.
012	NTC Suction (Compressor Inlet): Open or Short Circuit	ON	OFF	Verify NTC Suction proper functioning.
013	Drain pipe sensor not connected	ON	OFF	No menu parameter only with dfls by plant.
021	Gas Leak	ON	OFF	Verify compressor inlet sensor proper functioning. If the error persists, recover residual gas; find the leak in the cooling circuit; repair it; make vacuum and recharge circuit with 950g of refrigerant gas.
032	Compressor Issue	ON	OFF	Check power voltage on compressor connector.
042	Evaporator Obstructed	ON	OFF	Turn off the appliance. Check that the evaporator, the enclosure grill and/or the air filter are not obstructed.
044	Fan Issue	ON	OFF	Check power voltage on fan connector. Control the proper functioning of sensor at compressor inlet.
048	High Pressure	ON	OFF	Check pressure switch wiring. Verify gas quantity.
049	Water detected on drain pipe	ON	OFF	No menu parameter only with dfls by plant.
051	Pressure switch	ON	OFF	Check pressure switch wiring. Verify gas quantity.
218	Dome NTC sensor (hot water): Open or Short Circuit	ON	OFF	Verify NTC sensor (hot water) proper functioning.
230	Water Temperature Sensor (Heating Element Zone): Open or Short Circuit	OFF	OFF	Check the correct assembly of sensor wiring on related mainboard connector. Verify sensor proper functioning.
231	Water Temperature sensor (Heating Element Zone): safety intervention (1st level).	OFF	OFF	Verify sensor proper functioning.
232	Water Temperature sensor (Heating Element Zone): safety intervention (2nd level).	OFF	OFF	Verify sensor proper functioning.
233	Relay blocked	OFF	OFF	Reset the appliance by pressing the ON/OFF button twice. If the error persists, replace the motherboard.
241	Impressed Current Anode: Open Circuit	OFF	OFF	Check the presence of water inside the product. If the error persists, verify the anode proper functioning. Check the correct assembly of anode wiring on related mainboard connector. If the error persists, replace mainboard.
321	Corrupted data	OFF	OFF	Reset the product by pressing the ON / OFF button twice. If the error persists, replace the motherboard.
331 332	Missing communication between Main Board and HMI	OFF	OFF	Reset the product by pushing the ON/OFF button twice. If the error persists, replace the mainboard-display communication wiring.
333	Mainboard – WiFi board missing communication	ON	ON	If WiFi present: - Check cables between motherboard and HMI. - If the error persists, replace the HMI module. If WiFi not present: - Enter to the Installer Menu and set P31 OFF. - If the error occurs again, replace the Main Board.
336	Touch screen not working	ON	ON	Reset the product by pressing the ON / OFF button twice. If the error persists, replace the HMI.
338	No comuncation with CTA2045 module	ON	ON	menu parameter (DR enable).

In order to reset the errors, switch OFF and ON the product within 10 sec, using ON/OFF button.

## TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	WHAT TO DO
<b>The water delivered is cold or insufficiently hot</b>	Temperature setting is low	Raise the water temperature setting.
	Machine malfunctioning	Check for errors on the display and follow the instructions on the "Errors" table.
	No electrical connection, wires disconnected or damaged	Check the voltage on the power terminals, check the condition of the wires and connections.
	Malfunctioning of the timer for the two-tier configuration (if the product is installed in this configuration)	Check the operation of the day/night meter and that the set time is sufficient to heat the water.
	Insufficient air flow to the evaporator	Clean the grilles and ducts regularly.
	Product is switched OFF	Check the mains power supply. Switch the product ON.
	Use of a significant amount of hot water when the product is in heating phase	
	Sensor error	Check for NTC errors, even occasional ones.
<b>The water is boiling (with possible steam on the taps)</b>	High level of limescale build-up in the water heater and components	Unplug the power supply, empty the appliance, remove the heating element sheath and clean the limescale from the inside of the water heater, taking care not to damage the enamel on the water heater and the heating element sheath. Reassemble the product in its original configuration. We recommend replacing the flange gasket.
	Sensor error	Check for NTC errors, even occasional ones.
<b>Reduced operation of the heat pump, electrical heating element is in almost continuous operation</b>	Installation performed with non-compliant electrical power supply (voltage too low)	Power the product with the correct voltage.
	Evaporator obstructed or frozen	Make sure that the evaporator is clean.
	Problems with the heat pump circuit	Check the display for error messages.
	8 days have not passed yet since: <ul style="list-style-type: none"> <li>- Initial start-up</li> <li>- Time W parameter change.</li> <li>- Power failure.</li> </ul>	Wait 8 days.
<b>Insufficient hot water flow</b>	Leaks or obstructions in the hydraulic circuit	Check the circuit for leaks, check the condition of the deflector on the inlet cold water pipe and the integrity of the delivery hot water pipe.
<b>Water leaking from the pressure safety device</b>	It is normal for some water to drip from the device during the heating phase	To prevent water from dripping, an expansion vessel must be installed on the delivery system. If the leak continues even after the heating phase, check the calibration of the device and the mains water pressure. Warning: Never obstruct the device's discharge outlet!
<b>Increased noise level</b>	Presence of an internal obstruction	Check the moving components of the unit, clean the fan and other moving parts which could cause noise.
	Some components are vibrating	Check the components connected using mobile clamps, ensuring the screws are well tightened.
	High Temperature Setting	Compressor noise may gradually increase for temperature settings above 125°F. Lower set temperature in case noise level is considered not acceptable.
<b>Problems with viewing the display or the display turning off</b>	Failure or electrical connection problems between the motherboard and the interface PCB	Check the connection status and the correct operation of the PCBs.
	Power failure	Check the power supply.
<b>A bad odor is coming from the product</b>	No siphon or siphon is empty	Install a siphon. Ensure it contains the necessary amount of water.
<b>Abnormal or excessive consumption than expected</b>	Leaks or partial obstruction in the refrigerant gas circuit	Switch the product ON in heat pump mode, use a leak detector for the specific type of gas to ensure there are no leaks.
	Unfavourable environmental or installation conditions	
	Evaporator is partially obstructed	Check the condition of the evaporator, grille and conduits to ensure they are clean.
	Non-compliant installation	
<b>Other</b>		Contact technical assistance.

## PART 8 – Wi-Fi FUNCTION (enabled only if present)

### ACCOUNT CREATION

- First download and install the Comfort Link App on your mobile phone (App name can be found in the quick start guide).
- Open the APP and click on SIGN UP; Fill proceed to fill out the indicated fields to register. .
- Open the registration reply message received in your mailbox and click on the link to activate the user account

### CASE A:

#### WI-FI CONFIGURATION FROM SET-UP PROMPT

- If the product has never been connected to Wi-Fi, the display will ask to configure showing the blinking sign "On" on the main string and "Wi-Fi" on the secondary string.
- Press [SET] to confirm. The HMI will display the letters "AP" indicating the HPWH is in discovery mode..
- Log in to the App and follow the wizard to connect and register your product.
- Open the APP on your mobile device.

### CASE B:

#### FURTHER WI-FI CONFIGURATION OR RECONFIGURATION

- Press Simultaneously [ + ] and [ - ] to switch on the Wi-Fi (Wi-Fi icon slow blinking).
- Press and hold the [+] and [-] buttons simultaneously for 5 seconds to open the access point (AP sign appears on display and Wi-Fi icon fast blinking).
- Log in to the App and follow the wizard to connect and register your product.
- Open the APP on your mobile device.

### PROCEDURE COMPLETED

The connection is successful when:


- The Wi-Fi icon is steady on.
- The app shows the successful registration message.

If the connection fails, carefully check and repeat the above steps.

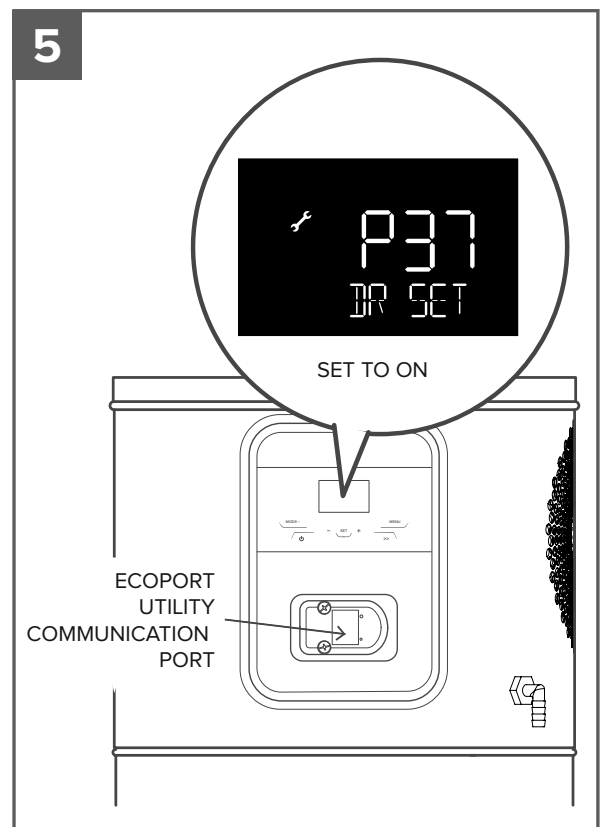
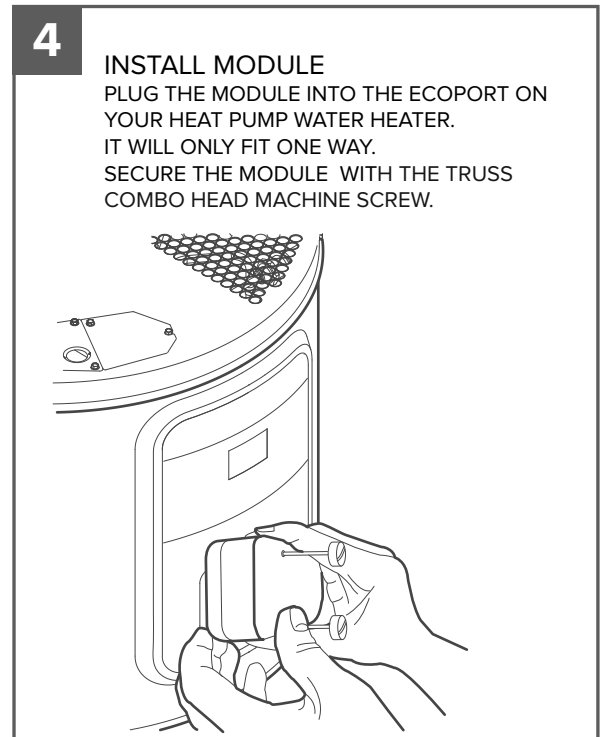
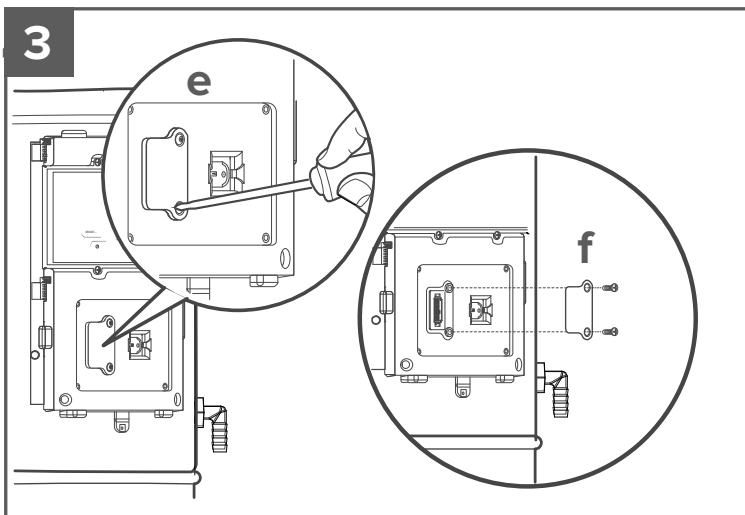
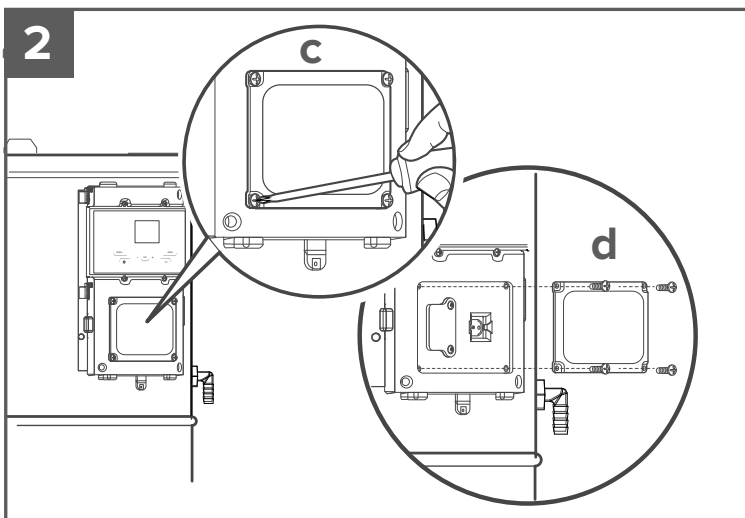
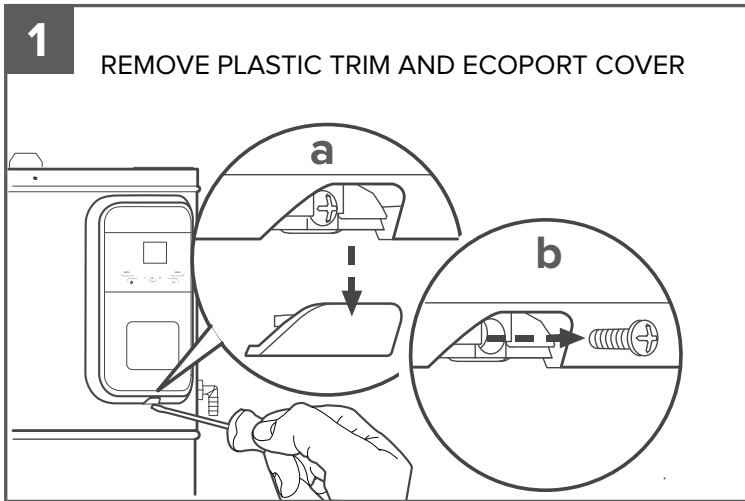
Note: the password cannot be Chinese characters.

If there are any Chinese characters, please modify it.

### CONNECTION STATUS DESCRIPTION

	Blinking slow	The Wi-Fi module is on
	Blinking Fast	The Wi-Fi module is on Access Point mode
	Double flash	The Wi-Fi module is connecting to the home network
	Steady on	The Wi-Fi module is ON and Connected to the home network
	Off	The Wi-Fi module is OFF

## PART 9 – INSTALLATION ECOPORT MODULE (enabled only if present)





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