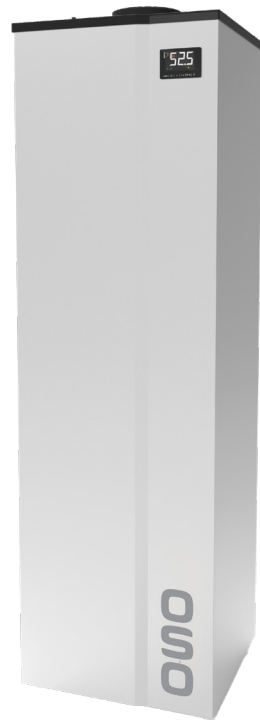


AquaSustain - DHP

200-260 l.

UK



SAFETY INFORMATION
O&M INFORMATION
INSTALLATION MANUAL
TDS - TECHNICAL DATA SHEET



OSO

HOT WATER

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1. General Information

1.1 Product Identification

Identification of your product can be found on the label attached to the product. The label contains information about the product according to EN 12897: 2016 and EN 60335-2-21, in addition to other useful data. See Declaration of Conformity at www.osohotwater.com for more information

OSO products are designed and manufactured according to:

- Tank standard BS EN 12897:2016
- Safety standard EN 60335-2-21
- Heat pump standard BS EN 16147:2017

OSO Hotwater is certified according to

- Quality ISO 9001
- Environment ISO 14001
- Working Environment ISO 45001

1.2 CE conformity

The CE mark shows that the product complies with the relevant standards. See Declaration of Conformity at www.osohotwater.co.uk for more information.

The product complies with the directives for:

- Low Voltage Directive LVD 2014/35/EU
- Electromagnetic Compatibility EMC 2014/30/EU
- Pressure Equipment Directive PED 2014/68/EU

1.3 Introduction

The OSO AquaSustain is a Domestic Hotwater Heatpump (DHP) and Exhaust Air Mechanical Extract Ventilation (MEV). The product contains a stainless steel hot water cylinder in the lower section with an airsource heatpump in the upper section. AquaSustain draws air from either outside or inside, extracts thermal energy from the air and concentrates it in a higher temperature to heat water for showers and baths etc. Cold air is then discharged outside the property as more warm air is drawn in to continue the process. The MEV will extract warm, moist and stale air from kitchens and bathrooms and recycle the heat into domestic hot water.

The hot water cylinder is fully insulated to retain the heat. The product is sized for the property to ensure sufficient supply of hot water for typical use. DHP products heat the water slowly over several hours to ensure that enough hot water is available. Do not switch the OSO AquaSustain off unless the property will be empty for more than 24 hours. Please note that the heating time for the hot water cylinder is up to 8 hours and the product is designed to trickle heat the product over an extended period. AquaSustain manages its temperature automatically and will switch off when fully heated. It requires no regular attention from the householder.

This product has been manufactured following the quality standards set by the European Union, incorporating top-quality materials, and its proper functioning has been tested. before leaving our facilities.

Through this installation and start-up manual, you will be guided for the correct setup of this product. It is essential to carefully read this manual before any handling to avoid issues arising from improper use of the product.

The company OSO Hotwater LTD reserves the right to modify the information included in this document at any time without prior notice.

2. General indications

The following instructions must be followed to avoid any accidents or equipment malfunctions. Please refer to them again if in doubt or contact technical support.

Do not alter any permanent instructions, labels, or warning plates attached to the equipment.

2.1 Safety notes

The incorrect or inappropriate use of this product could lead to hazardous situations, causing damage or injuries to the user, third parties or even to the product itself or material goods. Follow these instructions to avoid any risks.

- The product is heavy and requires careful handling. Follow the instructions in section 2.5
- The installation of the minimum safety devices indicated in this manual (electrical and hydraulic) is necessary for proper equipment operation. The absence of any device may cause burns or other injuries in the event of a failure.
- As a safety measure, earthing verification is also necessary. The earthing must comply with the applicable installation standards. Failure to implement this measure may result in accidents or death.
- It is the responsibility of the installer to inform the user about the function and location of the safety devices installed on the equipment.
- The water temperature at the equipment outlet may reach up to 70°C (depending on the model). Do not touch the pipes during operation to avoid the risk of burns.
- The equipment must not be operated by minors or individuals with reduced physical sensory, or mental capabilities, or lack of experience and knowledge, without supervision, unless they have been instructed on the safe use of the device and understand the associated risks.
- Only perform the operations referred to in these operating instructions.

2.2 Safety indications for refrigerant R290

The refrigerant R290 in the heat pump circuit does not cause a risk to the environment; however, the product evaporates quickly and should not be discharged into the atmosphere or water network. Care should be taken with its use, mainly for its high flammability.

- Do not bring flames or flammable sources near or inside the equipment.
- Smoking is forbidden in the proximity and inside the installation compartment
- Do not expose the equipment to environments that can reach extremely high temperatures to avoid the risk of explosion due to increased internal pressure.
- Do not store chemicals or flammable materials near the equipment
- Do not handle sprays near the equipment due to the risk of flammability
- Avoid the accumulation of electrostatic charge in the equipment enclosure.
- Do not damage the pipes of the refrigeration circuit.
- Do not consume polluted water with refrigerant.
- There is a risk of freezing upon contact with the refrigerant.
- Avoid all skin and eye contact with the refrigerant at all costs. Otherwise, seek medical attention.

The following health consequences due to improper use of the refrigerant might be.

- Burns and cryogenic injury
- Suffocation
- Unconsciousness
- Oxygen deprivation
- Death

The materials and components of this equipment comply with the relevant regulations against fire and explosion risks, regarding the temperature that can reach the surfaces of the equipment in contact with the refrigerant in case of leakage.

In the case of detecting a leak, you should be aware of its danger and consider the following indications:

- The refrigerant should not smell bad. It is completely odourless.
- Do not inhale vapours or gases emanating from refrigerant circuit leaks.
- The refrigerant vapours are heavier than air; therefore, there may be a decrease in the oxygen content in the enclosed space, leading to asphyxiation.
- Avoid the risk of injury from contact with refrigerant.
- Do not operate electrical switches, sockets, doorbells, telephones or intercoms.
- You must disconnect the equipment from the power source and ventilate the area, preferably mechanically, before handling the equipment. If possible, fully open doors and windows to ensure proper airflow.
- While ventilating the area, you must ensure that the refrigerant does not enter neighbouring buildings through ventilation holes, doors, windows, trapdoors, or similar openings.
- Do not bring any open flames near the area where the leak occurred, do not operate electrical appliances, and refrain from smoking.
- Leave the contaminated enclosure and prevent third parties from entering
- Contact after-sales service.

The appliance is supplied with 150 g of R290 refrigerant gas inside the equipment. The device is not provided with any charging or recharging valve because this operation must not be conducted in any case by the user. Refill can only be made at the manufacturer's establishment or by specially qualified professionals who are authorised by the manufacturer.

Syptom	Step
Inhalation	Remove the affected person from the area. Seek medical help.
Contact with skin	Rinse thoroughly with lukewarm water, Do not remove clothes which can stick to skin, If burns appear on the skin seek medical attention immediately
Contact with eyes	Rinse with plenty of water with the eyelids open for at least 15 minutes, seek medical attention immediately

In the event of a fire, the appropriate extinguishing means are:

- Water atomiser
- Dry powder (for example: fire extinguisher)
- Carbon dioxide, CO2 (for example: fire extinguisher)

Never attempt to extinguish the flames with a strong water jet. Cool exposed containers spraying water on them. Firefighting staff must wear self-contained breathing devices and full-body protection to act.

2.3 Installers' Qualifications

Maintenance should only be performed by specially qualified and authorized personnel with a valid refrigeration technician certification. All maintenance staff and other individuals working near the appliance must be instructed about the nature of the work to be carried out.

The installer must be G3 qualified and in position of a valid Unvented Hot Water Storage Systems certificate. The installer must inform the user about the product's applications, its use, handling, and provide all the documentation supplied with the equipment.

The personnel in charge of the equipment installation must have the necessary tools, including a refrigerant leak detector in the environment, with a sensitivity equal to or greater than 10-6 Pa·m³/s, and a fire extinguisher.

2.4 Package contents

The Aquasustain system comprises the following components:

- AquaSustain unit
- Safety valve (6 bar)
- Anti vibration feet
- User manual

G3 kit

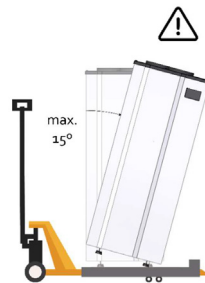
- T&P valve, ½"
- Inlet group reduction of 3 bar and safety of 6 bar
- Tundish Ø15mm x Ø22mm
- Expansion vessel

2.5 Instructions for transportation and unpacking

The unit is supplied packed onto a wooden pallet properly secured to prevent damage during transport.

Packing material is recyclable, dispose it in an appropriate container. Be careful when using knives or cutters to open the cardboard box so as not to damage the equipment.

Use a forklift or hand pallet truck to transport the unit to the installation site, always introducing the forks into the bottom of the pallet being careful not to damage or knock over the unit.



In case of manual transport, it is forbidden to carry equipment with an inclination greater than 15° to the vertical, and always performing the operation between several people (minimum 2) to avoid accident.

In case you identify any damage at the time of the reception of the unit, it is mandatory to register it in the reception note of the transport company, and then, submit the complaint. For this

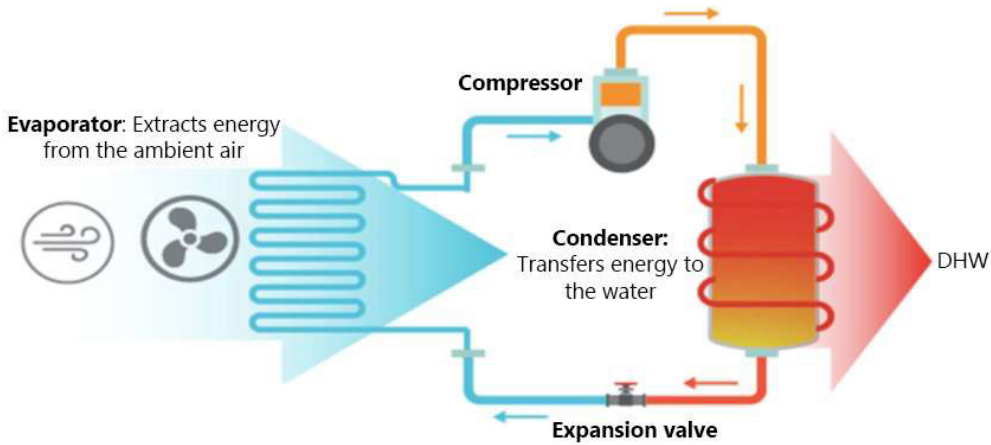
reason, it is recommended to make a thorough visual inspection of the goods before signing the reception note.

3. Technical information

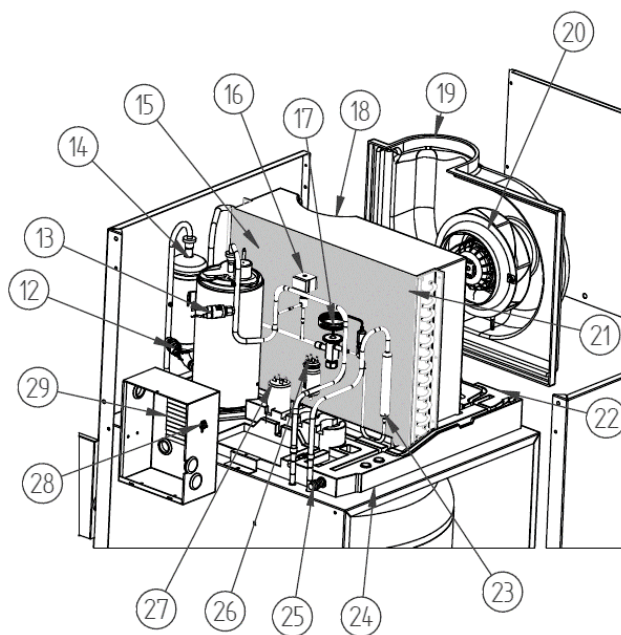
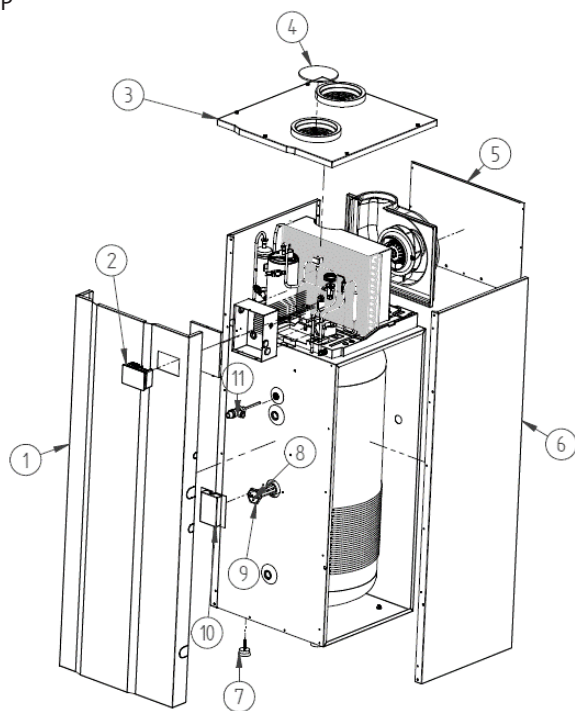
All relevant technical information about the equipment is provided in this manual. However, according to regulations, OSO is available to provide additional information about the equipment if required.

The DHP equipment has been designed and manufactured in compliance with all applicable current regulations.

3.1 Operating principle



3.2 Parts of the DHP



No	Description	Part Number
1	Front cover 200	R10341
1	Front cover 260	R10342
2	Touch controlller	R10264
3	Plastic top cover	R10274
4	Air filter	R10025
5	Back cover	R10256
6	Side covers 200	R10286
6	Side covers 260	R10287
7	Antivibration legs	R10042
8	Electric heater 1500 W titanium	R10026
9	DHW probe NTC1	R10041
10	PVC protective cover	R10266
11	T&P valve	R10309
12	Low pressure switch	R10291
13	High pressure switch	R10292
14	Compressor	R10293
15	Evaporator	R10278
16	Solenoid valve/coil	R10018/R10019
17	Expansion valve	R100289
18	Air box part 1	R10275
19	Air box part 2	R10276
20	Fan	R10277
21	Air temperature probe NTC2	R10041
22	Rear drain fitting (plugged)	R10280
23	Filter drier	R10037
24	Heat pump tray	R10282
25	Condensate drain fitting	R10279
26	Fan capacitor	R10281
27	Compressor capacitor	R10290
28	Safety thermostat	R10283
29	Connection panel	R10284

3.3 Dimension drawings

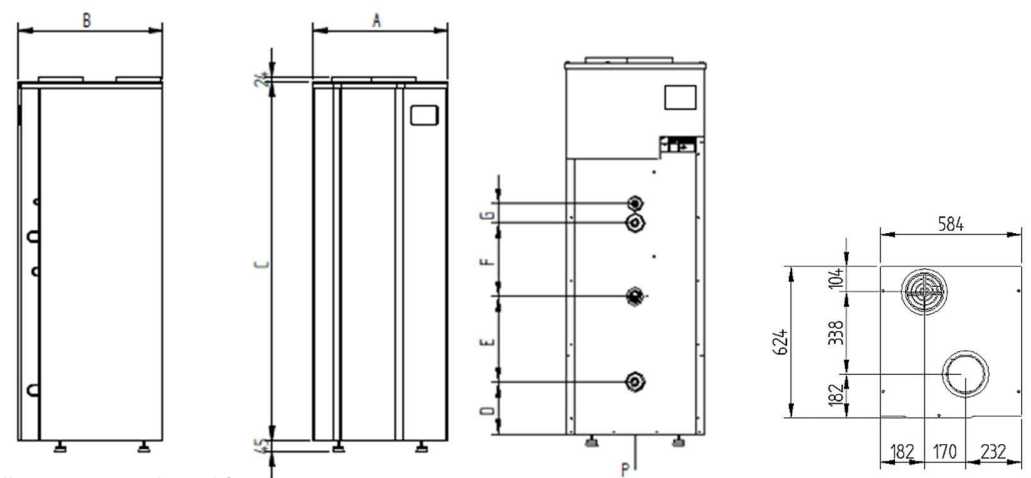
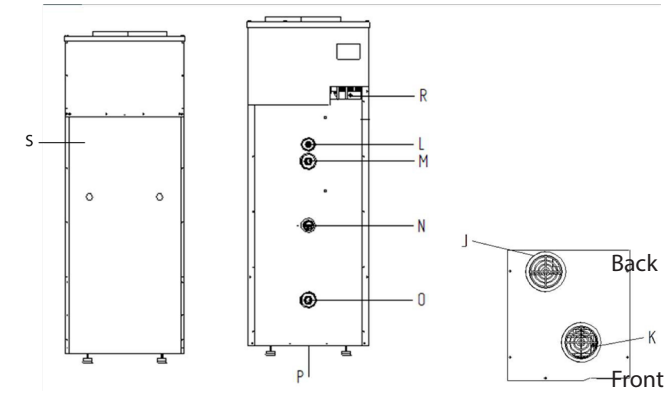


Illustration 4: Side and front views. Dimmensions (mm)

	A	B	C	D	E	F	G
200 DHP	584	624	1540	216	355	305	80
260 DHP	584	624	1907	216	355	672	80



S	Power supply, 230 V / 1 PH / 50 Hz (Rear of unit)
R	Condensate drain, Ø 20 mm
N	Electrical heater 1500W / temp sensor
J	Exhaust air connection Ø 150/160/200 mm
K	Intake air connection, Ø 150/160/200 mm
M	Hot water outlet, ¾" F
O	Cold water inlet, ¾" F
L	T&P valve, ½" F

3.4 Technical Data and Product Fiche

Model	200 DHP	260 DHP
Cylinder		
Capacity (L)	200	260
Heat loss (kWh/24h)	1.6	1.75
Heat loss (W)	67	73
Heat up time ECO Mode (heatpump only) (Min)	372	517
Maximum operating pressure (bar)	6	
Product weight (Kg)	80	92
Weight full (Kg)	280	352
Package weight (Kg)	87.5	100
Heat exchanger (m²)	0.39	
Heat pump		
Load profile	L	XL
Heating power range (W)	1005-1750	
Annual electricity consumption (cold climate) kWh	1094	1576
Annual electricity consumption (average climate) kWh	830	1255.3
Annual electricity consumption (warm climate) kWh	772	1143
Power input range (W)	405-500	
Water heating energy efficiency, cold climate(%)	94	106
Water heating energy efficiency, average climate(%)	133	142
Water heating energy efficiency, warm climate(%)	133	147
COP (average climate)	2.95	3.24
COP (warm climate)	3.16	3.55
Efficiency class	A+	
Ambient temperature range (°C)	-10/40	
DHW temperature range(°C)	35/60	
Default DHW temperature with HP(°C) ECO/AUTO	55/60	
Refrigerant/Charge (g)	R290/150	
Sound power (dB(A))	53	
Sound pressure at 2m (dB(A)) High speed	45.9	
Sound pressure at 2m (dB(A)) Low speed		
Auxiliary electric heater		
Power (W)	1500	
Maximum power consumption with electric heater (W)	2000	
Maximum temperature with electric heater (°C)	70	

Air data

Minimum air flow (m ³ /h) (External air supply)	215
Minimum air flow (m ³ /h) (Internal air supply)	190
Maximum flow rate (m ³ /h) - speed 1	264
Maximum flow rate (m ³ /h) - speed 2	370
Maximum flow rate (m ³ /h) - speed 3	438
Static Pressure drop(Pa) - speed internal/external	34.5/30
Static Pressure drop(Pa) - speed internal/external	115/100
Static Pressure drop(Pa) - speed internal/external	246/220
Minimum air flow (m ³ /h)	210-220
Diameter of connection (mm)	150-160-200

Connections

Power supply v/ph/Hz	230/1/50
Inlet/outlet/recirculation water connections (inch)	3/4
Hydraulic connection safety valve / T&P (inch)	1/2

NCM (SAP) Identifier

NCM (SAP) Identifier 200	108965
NCM (SAP) Identifier 260	108964

Aquasustain can be found on the Product Characteristics Database as a Heat Pump by searching in any of the following categories

Heat Pump Category	- Exhaust Air MEV
Service Provision	- Water heating only
Brand name	- OSO Hotwater

3.5 Nameplate

The nameplate contains product details and important information:

- Type of product
- Date of production
- Serial number (also available in this manual)
- Power supply
- Operating pressure
- Electrical supply
- IP class
- Type of refrigerant

The nameplate must always be accessible and remain legible throughout the equipment's entire lifespan. If it becomes damaged or illegible, replace it immediately. Never remove or cover the nameplate or labels affixed to the heat pump equipment.

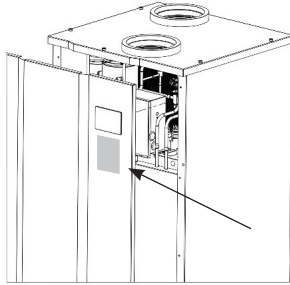


Illustration 6:
Nameplate's location

4. Installation steps

Before starting the installation, the installer must perform safety checks to minimise the risks entailed working with flammable refrigerants. Also, the availability of all the necessary components and tools must be checked:

- Drill
- Screwdriver
- Hydraulic installation components
- Electric installation components
- Fire extinguishing equipment (dust or CO₂)

Once all the necessary components and tools are available, the installer should follow the next steps:

1. Placing the DHP
2. Hydraulic installation
3. Air connections
4. Electric installation
5. Commissioning

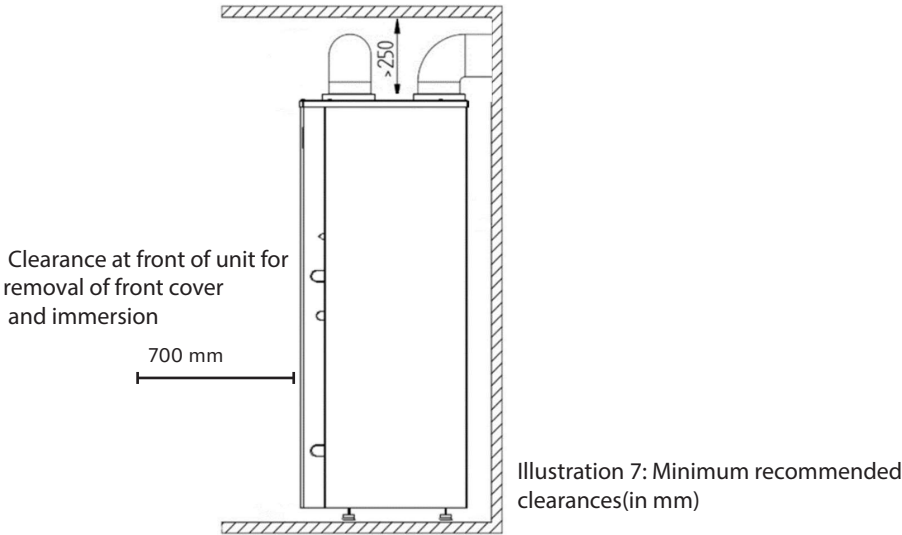
Before and during the work, the site should be checked with a refrigerant detector to monitor the presence of toxic or flammable gases or vapours.

The original design allows easy removal of the casing, the front cover, to make easier access during installation, inspection and maintenance tasks.

If the electrical supply to the dwelling and the product is interrupted during an extended absence, request a specialized installer to protect it from frost to prevent fatal damage to the product.

4.1 Placing AquaSustain

The installation area must allow easy access for maintenance work on plumbing connections and valves and must allow replacement of the immersion heater at the front of the cylinder.



The equipment has been designed for indoor installation. The enclosure must be equipped with the following minimum requirements:

- Minimum temperature 5 °C
- Adequate water and electricity supplies.
- Drainpipes to discharge water in case of emptying the tank, using the safety valve or breaking the hydraulic circuit; in addition, for the condensation water outlet connection.
- For potential major water leaks, a containment system or procedure.
- Sufficient illumination.
- Dry and protected from frost

The air outlet temperature of the device is approximately 5-10°C below the inlet temperature. So, in case that the exhaust air would not be ducted, the room temperature will be considerably reduced. Besides these factors, it

is important to consider the following guidelines regarding the location:

- The surface where the unit will be installed must be capable of supporting its weight full of water(see table page 11). Moreover, it should be flat or have a maximum inclination of 2°.
- Since the equipment may cause vibrations or noise, it is recommended to install it away from resting areas.
- Installer must install the supplied Silent blocks to avoid the transmission of vibration.

4.2 Hydraulic connection

For the hydraulic connection, it is essential to be aware of local regulations. Respect the minimum and maximum water pressure and temperature to ensure the proper functioning of the appliance. Fill the unit with mains water that meets the characteristics indicated in the Warranty section located at the end of this manual. To ensure better performance and durability, the installation of a water

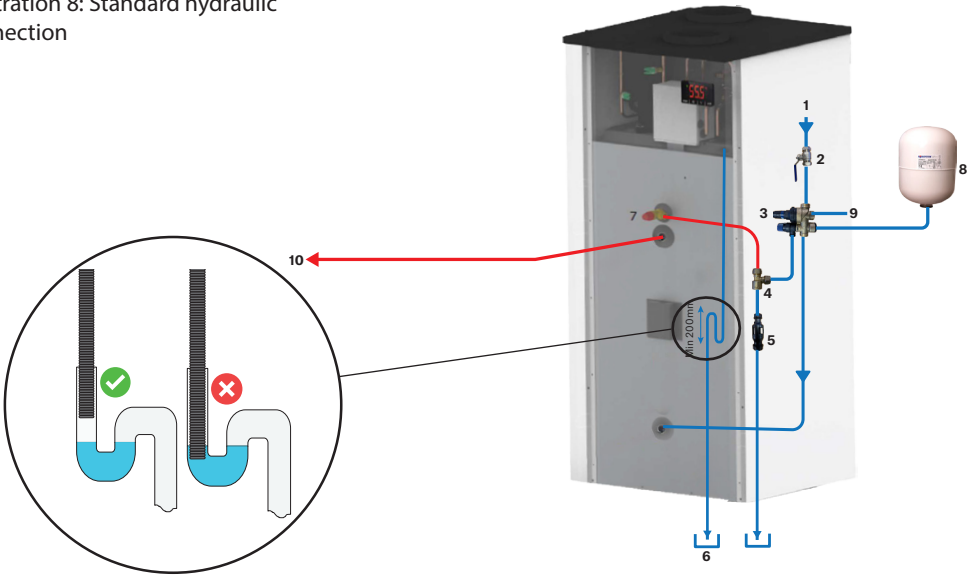
softener treatment system is also recommended.
 The hydraulic connections are shown in the following scheme. The installer must place the indicated components as shown.

Setting electrolytic hoses in the water connections should be considered to prevent galvanic corrosion in the pipes.

Once the hydraulic connections are made, open the water supply to remove air inside the installation.

1	Cold water inlet	6	Condensate drain
2	Ball valve	7	T&P valve
3	Multibloc valve	8	Expansion vessel
4	T - Piece	9	Balanced cold
5	Tundish	10	DHW outlet

Illustration 8: Standard hydraulic connection

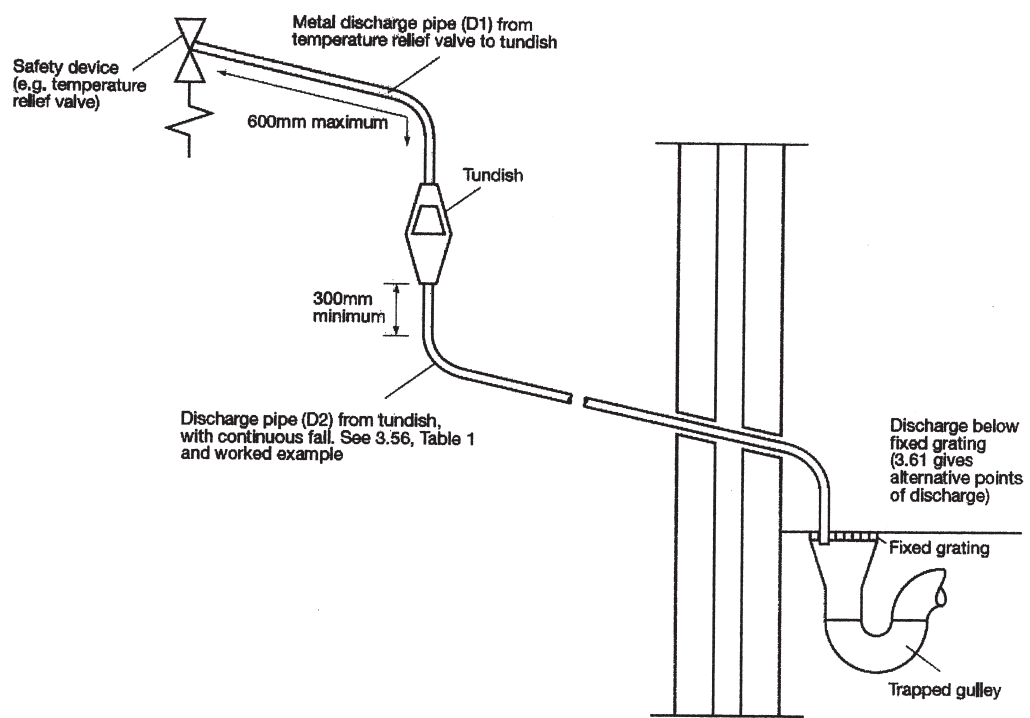


4.3 Condensate drain

The condensation in the evaporator could produce a constant water flow that has to be drained properly .The condensate drain is in front of the system. (Illustration page 15) Connect the condensate drain to the wastewater network making a siphon through a flexible tube with inner diameter 20 mm. Ensure that water can flow freely to a drain.

4.4 Discharge

Discharge pipes must be metal, change to discharge pipes should be suitably temperature rated as defined by G3 building Regulations. The pipe must have a continuous fall and should terminate in a safe and visible place. Downward discharges at low level, i.e. up to 100 mm above external surfaces such as car parks, hard standings, grassed areas etc. are acceptable providing that where children may play or otherwise come into contact with discharges, a wire cage or similar guard is positioned to prevent contact, whilst maintaining visibility. Discharge at high level, i.e. into a metal hopper and metal down pipe with the end of the discharge pipe clearly visible (tundish visible or not) or onto a roof capable of withstanding high temperature discharges of water and 3 m from any plastics guttering system that would collect such discharges (tundish visible). Where a single pipe serves a number of discharges, such as in blocks of flats, the number served should be limited to not more than 6 systems so that any installation discharging can be traced reasonably easily. The single common discharge pipe should be at least one pipe size larger than the largest individual discharge pipe to be connected.



Valve Outlet size	Minimum size of discharge pipe D1	Minimum size of discharge pipe D2 from tundish	Maximum resistance allowed expressed as a length of straight pipe (i.e. no elbow or bends)	Resistance created by each elbow or bend
G 1/2	15 mm	22 mm 28 mm 35 mm	up to 9 m up to 18 m up to 27 m	0.8 m 1.0 m 1.4 m
G 3/4	22 mm	28 mm 35 mm 42 mm	up to 9 m up to 18 m up to 27 m	1.0 m 1.4 m 1.7 m
G 1	28 mm	35 mm 42 mm 54 mm	up to 9 m up to 18 m up to 27 m	1.4 m 1.7 m 2.3 m

4.5 Air Connection

The DHP unit has two air connections located on the top cover of the equipment. There are different connection possibilities, as shown below; however, the cold air outlet must always be ducted to the outside of the enclosure, except when it is in technical room.



There is the possibility of ducting the cold air to a specific area for cooling. Through a diverter (not supplied), it can be redirected outside when cooling that area is not necessary.

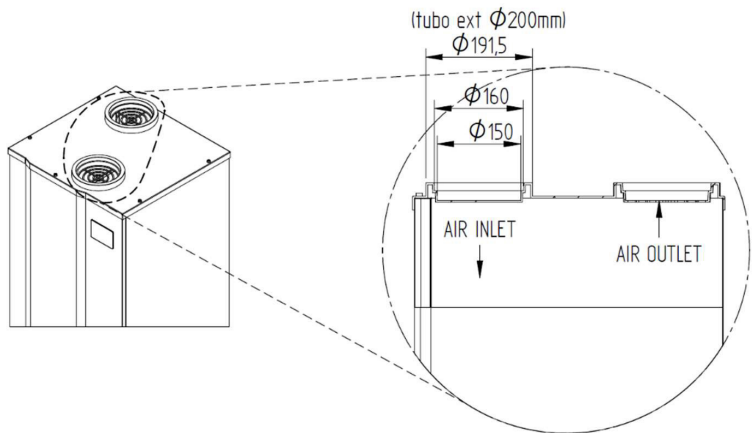
The AquaSustain design provides the option to choose between 3 different pipe diameters for air ducting. The selection of the pipe size to be used is at the discretion of the installer/technician responsible for the design and calculation of the installation. 160mm round ducting is recommended for connection to the aquasustain.

When ducting air connection, the tube which will be used for must be rigid PVC or a material with similar stability.

For the accessories, the following table is provided with the equivalent distance of pressure drop

Regulations state that flexible duct can only be used for terminal connections, a short length of thermal flexible duct should be used from the 160mm adaptor supplied to the rigid ductwork, this facilitates removal of the cover so that service and maintenance can be carried out. Flexi duct must not be used for the remaining supply and extract.

Pressure drop for the total supply and extract ductwork must be calculated. OSO recommends Verplas Thermal Ductwork or similar, if non-insulated duct is used then it must be wrapped or insulated to avoid condensation - the minimum requirement being 0.625m2k/w to be compliant.



Pressure drop values for total length of suction and air discharge ducts must be calculated. Ensure all components are used in the calculation including flexible duct connecting to the heat pump and Anti-insect grids on the end of air inlet and outlet tubes

To prevent condensation, it is recommended to insulate the air evacuation pipes and air duct connections with a vapor-tight thermal coating.

When designing a duct for Aquasustain, the pressure drop of the duct at the required airflow of 215m3/hr (60 litres/sec) must be calculated.

Duct product manufacturers give pressure drops in Pascals (Pa) at varying airflows. Add up the pressure drop for each duct component on intake and exhaust to reach the pressure drop for the entire duct.

If pressure drop less than 100Pa, use low speed.

If pressure drop less than 220Pa, use high speed.

If pressure drop higher than 220Pa, contact OSO

In The below example low speed would be selected

Verplas 160mm Pre-insulated Duct			
Titan Fire Safe Transition and Double Air Brick			
60 litres second - 216m3hr / max pressure drop 100pa			
Part	QTY	PA	TOTAL
2m duct	22	2	2
90 bend	6	5.7	34.2
45 bend	2	1.6	3.2
Supply Air Brick	1	15	15
Extract Air Brick	1	3	3
TOTAL PRESSURE DROP			95.4
90 litres second - 324m3hr / max pressure drop 220pa			
PART	QTY	PA	TOTAL
2m duct	22	4.3	94.6
90 bend	6	12.7	76.2
45 bend	2	3.6	7.2
Supply Air Brick	1	30	30
Extract Air Brick	1	7	7
TOTAL PRESSURE DROP			215

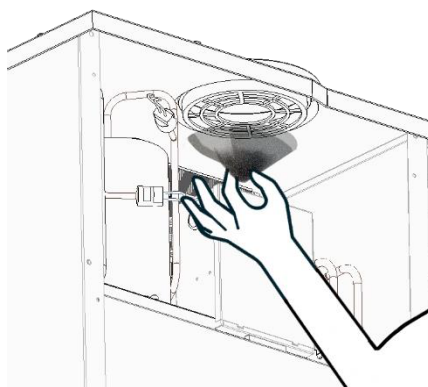
4.6 Suction Filter

The system includes in the air inlet a filter for the protection of all the elements of the refrigeration circuit.

If you notice that the system does not heat up, check the condition of the filter. A clogged filter affects the life-cycle performance and hot water production of the system. The filter can be removed and cleaned as indicated in the Maintenance section.

The process of removing and placement of the air filter should be performed as:

1. Remove the front cover of the equipment, as explained in the section Installation steps.
2. To remove the filter, pinch the filter and pull it out, taking care not to collide with the components of the refrigeration circuit.
3. To place the filter, fold the filter into a conical shape and insert it through the hole in the air inlet grille. Adjust its placement until the filter is fully unfold.



Filter extraction /replacement

4.7 Electrical connection

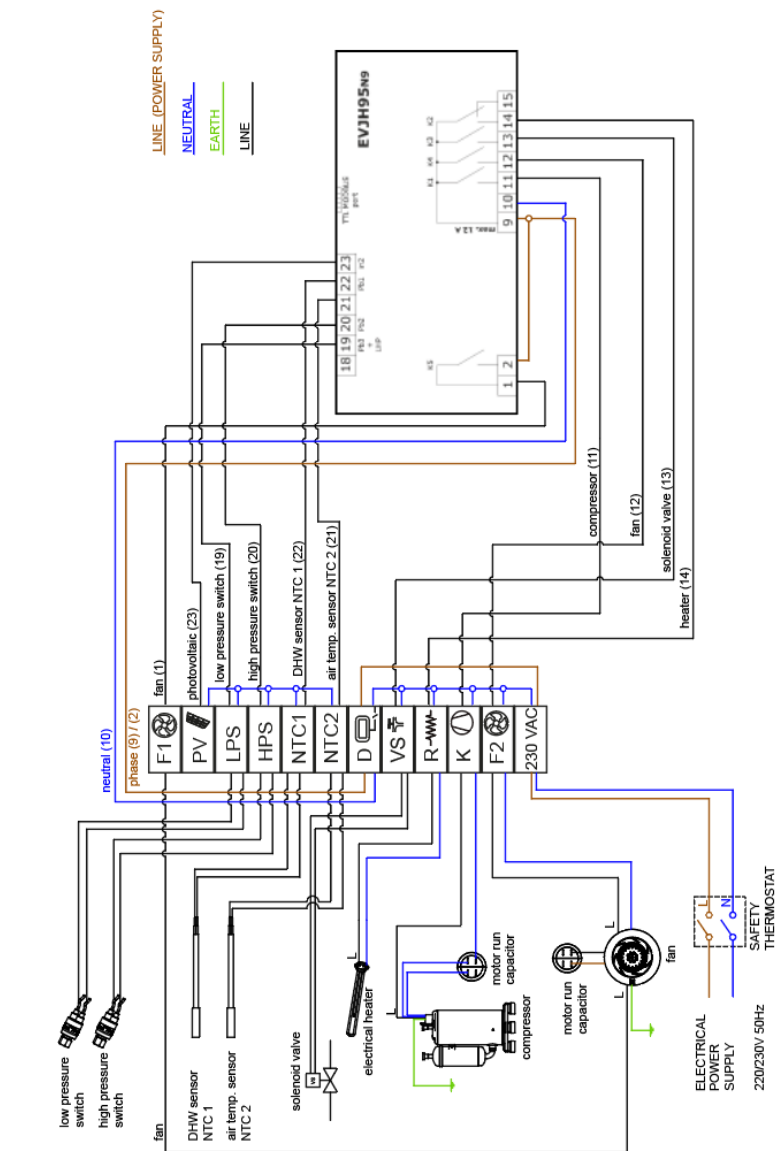
The power supply of the system is 230 V /1 PH /50 Hz. The product must have a constant electricity power supply. Follow the wiring instructions connecting the live neutral and earth as indicated. A dedicated permanent supply complying with current IEE regulations should be used, and each circuit must be protected by a minimum 16 amp miniature circuit breaker and double pole isolating switch with a contact separation of at least 3 mm in both poles. All electrical wiring should be carried out by a competent electrician and be in accordance with the latest Edition of IET (formerly IEE) Wiring Regulations.

The connections are lodged in a sealed electrical box according to regulations for isolated containment of the electrical components of the refrigerant.

Before performing any wiring work on the electrical circuit, disconnect the power supply and ensure that there is no residual energy in it.

An incomplete earthing connection can cause malfunction or electrical shock. The electrical connections must always be made without voltage, only by authorized installers and in accordance with the latest Edition of IET (formerly IEE) Wiring Regulations.

If the power cord supplied with the appliance is damaged, it must be replaced by the manufacturer, their authorized service agent or a person with equivalent experience to avoid any potential hazards.

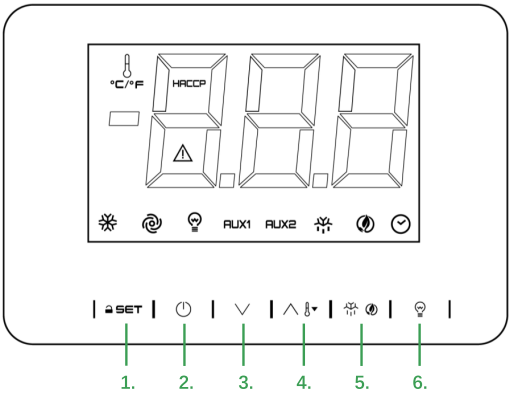


PV	Photovoltaic connection	VS	Solenoid valve
LPS	Low pressure switch	R	Electrical heater
HPS	High pressure switch	K	Compressor
NTC1	Water temperature probe	F	Fan
NTC2	Air temperature probe	230 VAC	Power supply
D	Display		

4.8 Commissioning controller

Before starting the DHP, the tank must be filled with water prior to turning on the equipment. The electric heating element may be damaged if the equipment operates without water.

When the equipment is connected to a power supply, the screen will only display the inscription “oFF”.

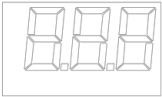


1.	Confirm / key lock	4.	Up
2.	ON / Stand-by / Escape	5.	Defrost / Mode change
3.	Down	6.	Anti-legionella

LED	On	Off	Flickering
	Temperated isplay (°C or °F)	-	-
	Alarm saved	No alarm saved	-
	☒Active alarm ☒Compressor running hours exceeded	-	-
	Compressor on	Compressor off	☒Compressor protection in progress ☒Current setpoint setting
	Fan operating in high speed (V2)	Fan off	Fan operating in low speed (V1)
	Anti-legionella mode on	Anti-legionella mode off	-
	Electrical heater on	Electrical heater off	-
	Other active support components	Other supporting components off	-
	Defrost on	-	-
	Green mode configured	-	-
	Time scheduling activated	Time scheduling off	-

Use

Switching on/off



2 secs



To turn on the equipment, press and hold the  key for 2 seconds. Then the water temperature will be displayed



P2.1



P2.2

To switch off the equipment,do the same procedure: press and hold down the  key for 2 seconds



2 s

Unlocking the keypad

After 30 seconds of inactivity, the screen locks for safety. Showing "Loc" on the screen.



2 secs

To Unlock, press and hold any key for 2 seconds until the display reads "UnL "

Displaying the operating mode

At first power on the unit is set to ECO mode by default.

By touching  once, the current operation mode will be shown on the screen



1 touch



ECO Mode: Heating only by heat pump technology. Default setting 55°C



Auto Mode: Heating by heat pump and electric immersion heater, only if the water temperature falls drastically. Default setting 60°C



Overboost Mode: Simultaneously heating by heat pump and electric immersion heater to achieve the temperature setpoint as quickly as possible

The screen can show the following:



Defrost: The equipment is performing automatic defrosting



Photovoltaics/Timer: Forced operation of the equipment due to the existence of electrical energy, excess of the photovoltaic network or by reduced tariff schedule.



Anti-legionella: Automatic disinfection by thermal shock in progress

Changing operating mode



1 click



P6.2



P6.4



To change the operating mode, press.  Once.

The display will flicker the selectable modes. Choose the mode with  and  keys.

To confirm your choice, press ; or press  to cancel this operation.

Upon completion, the display will show the DHW tank temperature again.

Setting fan speed

Aquasustain is designed to operate with the minimum of programming.

The fan has options of 3 fan speeds. AquaSustain programming enables switching between 2 fan speeds, low and high. Factory default default speeds are:

Low = Speed 2

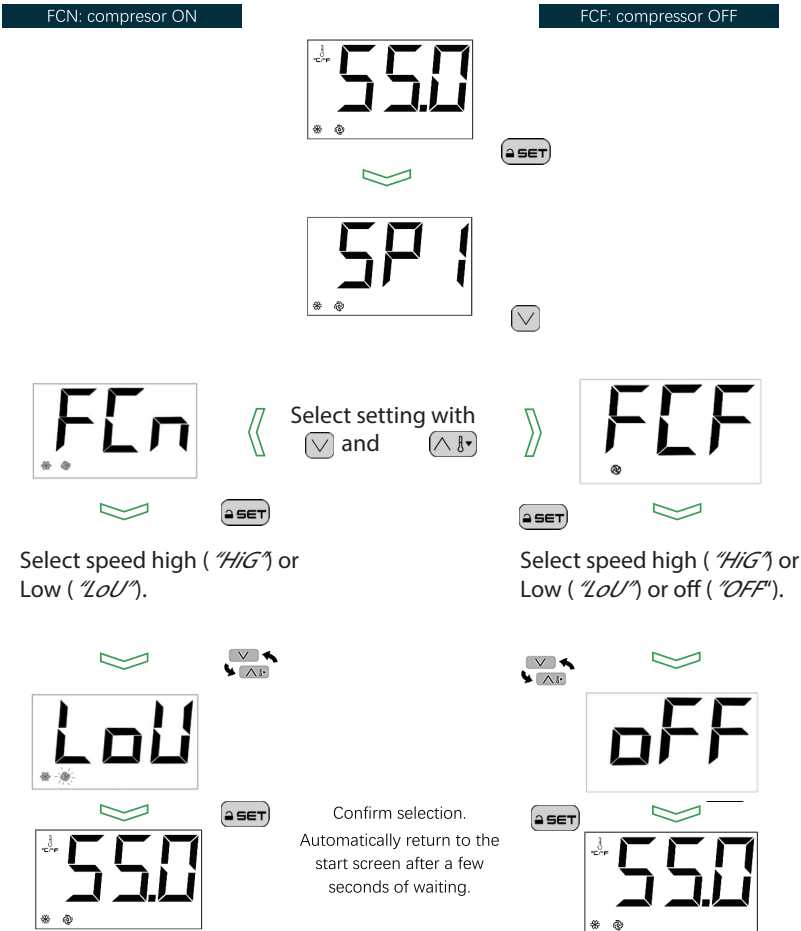
High = Speed 3

Speed 1 can be accessed by small alteration on connector board wiring. Speed 1 must be used with minimal or no ducting attached. Please contact OSO. for more information.

On first installation, set the fan speed in accordance with the pressure drop parameters for the installation. Refer to air data in section 3.4. and advice in section 4.5.

Follow instructions below. Choose fan speed in "FCn" display.

Aquasustain is supplied with a Ventilation mode from the "FCF" display. If Ventilation is achieved by a separate Mechanical Ventilation and Heat Recovery system (MVHR), OSO recommend that the FCF display remains in the default setting "OFF". If MVHR is not present and ventilation is required from the AquaSustain, FCF mode should be set to LoU



Change operating mode setpoint

ECO mode

Eco stands for economic, so maximum savings. The system heats water only by heat pump technology. This is the default mode.

The water temperature setpoint in ECO mode can be changed with the “SP1” parameter. Default temperature is 55°C



1 touch



Press once and select “SP1” with and keys.

Press to confirm

Set the temperature with and 5.

Press to confirm the process or to cancel it.

Automatically return to the start screen after a few seconds of waiting

Auto mode

Water heated by the heat pump primarily. The electrical heater is only used if the temperature falls drastically. Default setting is 60°C

The water temperature setpoint in Auto mode can be changed with the “SP2” parameter.



1 touch

Press once and select “SP2” with and keys.



Press to confirm



Set the temperature with and Keys.



Press to confirm the process or to cancel it.



Automatically return to the start screen after a few seconds of waiting

Overboost mode

This mode achieves a fast heating by using heat pump and electric heater simultaneously.
 This mode works to get hot water quicker than using other operating modes. Once setpoint temperature has been reached, initial mode will get back:

- If Overboost is activated while ECO mode is operating: The equipment heats up to the temperature "SP1", and then returns to ECO mode.
- If Overboost is activated while Auto mode is operating: The equipment heats up to temperature "SP2" and then returns to Auto mode.

When the overboost mode is active, the display alternately shows the tank temperature and "Obs"



Cancel the Overboost mode

The Overboost mode can be cancelled manually by following the following steps



Press  once



The screen starts flickering

Press 



The screen starts flickering faster

Choose the operating mode with  and  keys.



Automatically returns to the start screen after a few seconds of waiting

Parameter “SP3” is used to select the minimum temperature at which the Overboost mode can operate



P12.1



Press once and select “SP3” with And keys



P12.2



Press to confirm



P12.3



Set the temperature with and keys.



P12.4



Press to confirm the operation or to cancel it.



P12.5

Automatically returns to the start screen after a few seconds of waiting



P12.6

Displaying/deleting compressor functioning hours



If the equipment turns off again, it is necessary to check the status of the high temperature safety thermostat or consult with a technician

4.9 Photovoltaic input

Working on this mode, the system automatically heats the water due to electric energy surplus or by off-peak rate.

The parameters of this mode can only be configured from the installer menu. Contact the technician if you want to make any modifications.



Illustration 11: Terminals of photovoltaic mode

The system can be combined with a photovoltaic inverter to use the surplus energy generated by the panels, by forcing the system working and storing this energy in useful hot water.

The system has in the electric board two terminals to connect a zero-voltage contact.

- When the contact is closed, the photovoltaic function ("SP6") and the heat pump are automatically activated, and the heating element operates together until the photovoltaic setpoint temperature is reached
- Once the contact is open, the equipment returns to its previous operating mode

These terminals can also be used to take advantage of reduced tariffs. Connect a time switch with a voltage-free contact to the terminals.

4.10 Anti-legionella mode

The anti-legionella feature reduces the risk of development of bacteria in the tank.

The system performs a thermal shock disinfection to avoid any risk conditions that might cause the development of bacteria. The disinfection is performed automatically, reaching a temperature of 70°C for 2 minutes.

Anti-legionella can be disabled or enabled in the installer menu, and is factory enabled

1. Press  button and "Ant" will turn on the screen
2. Press  button to start

The anti-legionella mode cannot be canceled once it is activated.

If the equipment is disconnected from the power supply, the anti-legionella timer will reset, and the equipment will perform disinfection before the set time again.

4.11 Manual reset

In case of an electrical failure in the automatic reset of the DHP thermostat, it is possible to perform this task manually following the instructions below:

1. Remove the front cover.
2. Press once the button on the side of the electrical box.

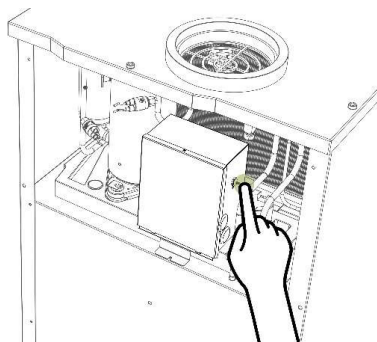


Illustration 12: Indication for manual thermostat reset

4.12 Alarms and solutions

Alarms	Meaning	Possible cause	Solution
Pr1	Abnormal behaviour of water tank sensor	Damaged sensor Sensor moved	Check the temperature probe integrity and position. Change sensor
Pr2	Abnormal behaviour of evaporator temperature sensor	Damaged sensor Sensor moved	Check the temperature probe integrity and position. Change sensor
AL	Safety cut-out due to low temperature	Low temperature in tank	Check the temperature probes and the cables to the compressor and electrical heater.
AH	Safety cut-out due to high temperature	High temperature in tank	Check the temperature probes and the cables to the compressor and electrical heater.
FiL	Compressor maintenance alarm	Hours of maintenance exceded	By touching any key, the compressor functioning hours will be deleted.
UtL	Evaporator failure	damaged	Switch the device off and on.
LHP	Low pressure switch cut-out	Damaged expansion valve Non-condensable gases Gas leakage Damaged low pressure switch Damaged fan	Connect the manifold gauge to the access valves of low-pressure side. Switch the device off and on.
HP	High pressure switch cut-out	Damaged high pressure switch Empty tank Refrigerant leakage	Connect the manifold gauge to the access valves of high-pressure side. Switch the device off and on.

5. Common failures and possible solutions

Failure	Reason	Solution
The controller does not turn on by pressing  .	The unit is disconnected.	Check if the product is connected to the power supply.
	The power supply has been interrupted.	Check that there has been no power outage and that the product is correctly connected to the electrical supply. The unit will start automatically when the power supply is restored. If the error persists, contact an authorized professional.
The heat pump has stopped working.	The water temperature setpoint in the current operating mode has been reached.	Check the hot water temperature and the setpoint temperature.
	The inlet air temperature is off the limits established in the technical data table.	Check that the additional energy source (electric heater, "Aux1") is activated. When the inlet air temperature returns to its operating range, the heat pump will start operating again.
Lack of hot water.	A larger amount of hot water is being consumed than the tank's capacity.	Wait until the tank has enough hot water again.
	The setpoint temperature is too low.	Increase temperature. ("SP1", "SP2")
	Suction filter is dirty.	Clean the filter as indicated.
	Heat loss in the hydraulic system.	A technician should check the entire hydraulic installation and possible leaks.
There's water around the equipment.	The condensate evacuation hose is partially or completely blocked.	Check the condensate evacuation hose.
	The condensate discharge hose is bent and forms a depression.	
	The condensate discharge hose is not installed.	Contact authorized installation personnel who did the installation.
	Activation of the safety valve due to excess pressure in the water inlet and improper or poorly installed piping.	Contact authorized installation personnel who did the installation.
Other failures		Contact authorized installation personnel.

6. Maintenance



Follow the safety notes before starting any maintenance operation.

To perform maintenance and cleaning tasks on the equipment, it is recommended to turn it off.



The manipulation of the equipment to separate any part of it and its access to the interior by the end user or personnel other than the authorized (installer or authorized technical personnel) is prohibited.

Once a year, it is recommended to perform a technical inspection to verify the proper functioning of all parts of the equipment. Please consider the following instructions regarding maintenance for the correct operation of the ECOHEAT:

- ☒ Maintenance or equipment handling should not be performed by children.
- ☒ Do not use any means to accelerate the defrosting process. The equipment handles this procedure automatically.
- ☒ Check the stability of the equipment on the support surface periodically.

For cleaning the equipment's covers, use a damp cloth with a little soap. Do not use aerosols, abrasive products, polishers, or cleaning products containing solvents or chlorine.



If you need to move and reinstall the equipment, contact qualified personnel to avoid incorrect installation that may lead to significant risks such as leaks, fires, or electrical shocks.



Illustration 16: Maintenance cleaning of the ECOHEAT

Unit's part	Maintenance duty
Air system	☒ Maintain a ventilated environment.
Hydraulic system	☒ Verify the proper functioning of the safety valve by manually activating it. This also provides forewarning of any excess pressure that may damage the DHW tank. ☒ Check the proper drainage of the drain tube: Look for blockages in the equipment's drain openings and in the pipes leading to the drain. If there is an obstruction, remove it by inserting a rod or blowing intensely through the pipeline.
Electric system	☒ Clean the dust and accumulated dirt on the supply cord with a dry cloth. Previously disconnect the equipment from the electrical supply. ☒ Verify if any error message is shown on the controller display.

7. Warranty

The tank is guaranteed for a period of five years, starting from the date of purchase. The appliance must be registered with OSO and can be done so quickly online by visiting www.osohotwater.co.uk. In the absence of registration documentation, the date of manufacture will be used to determine the start date.

The other parts are guaranteed for a two year period starting from the date the appliance was activated. The appliance is guaranteed against all manufacturing defects, provided that it was installed by a qualified professional using our instruction manuals. A defective part does not warrant the whole appliance being replaced.

The warranty only extends to parts which we identify as having been defective at manufacture. If necessary, the part or

product should be returned to the manufacturer but only with prior agreement from our technical department. Labour, transport and packaging costs are the responsibility of the user. Repairs on a device will not result in compensation. The parts warranty ends at the same time as the appliance warranty. The warranty only applies to the appliance and its components and excludes any part or installation external to the appliance.

Regular maintenance of the appliance by a trained professional is essential for ensuring sustained use and durability. In the absence of regular maintenance, the warranty will not apply.

If an appliance is presumed to have been the cause of any damage, the appliance and the damage must be left as they are and not tampered with.

7.1 Warranty Limits

Cases where warranty(unlimited) is void:

-Water supply being other than cold domestic water,(such as excessive water hardness), or which has particularly hostile or abnormal properties which do not comply with the national rules and current standards. The Product has only been connected to a domestic mains water supply in compliance with the European Drinking Water Directive EN 98/83 EC, or latest version. The water should not be aggressive, i.e. the water chemistry shall comply with the following:

- Chloride	< 250 mg / L
- Electric Conductivity (EC) @25°C	< 750 uS / cm
-Saturation Index (LSI) @80°C	> - 1,0 / < 0,8
- pH level	> 6,0 / < 9,5

-The immersion heater has not been exposed to hardness levels exceeding 10°dH (180 ppm CaCO₃). A water softener is recommended in such cases.Any disinfection has been carried out without affecting the Product in any way whatsoever.

-The Product shall be isolated from any system chlorination.

-The appliance being switched on before it is filled.

-Any damage sustained by impacts or falls during handling after delivery from the factory.

-Deterioration in the condition of the appliance

after handling where the instructions in the manual have not been followed.

-Damage occurring in the appliance when it has been switched on less than an hour after it has been leaning to the side or laid flat.

-Placing the appliance where it can be subject to ice or other bad weather conditions.

-Non-compliance with the instructions in the manual when installing the appliance.

-Installing the appliance on a surface which cannot bear its weight when it contains water.

-Installing the appliance in a room with surface area of less than 20m² where there is no piping for air intake and rejection.

-Installing the appliance at a tilted angle which does not allow condensates to flow out correctly.

-Costs incurred by access difficulties are not the manufacturer's responsibility as (unlimited) where the warranty is void:

-Faulty electrical connection which does not comply with the current national installation standards.

-Not following the connection diagrams in the instruction manual.

-Power supply being significantly under or over the required voltage.

-This appliance is for domestic use only. The warranty does not cover its use in commercial applications

-Failure to comply with supply cable sections.

-Absence of, or insufficient, electrical protection throughout the appliance (fuse,circuit breaker etc)

-Inverting the hot/cold water connections.

-Water pressure being higher than 6 bar.

-Absence of, incorrect fitting of, or obstruction of pressure relief valve.

-Not fitting the pressure relief valve directly onto the cold water inlet on the appliance.

-Fitting a pressure relief valve which does not comply with the current national standards.

-Installing a previously-used pressure-relief valve.

ampering with the pressure-relief valve.

Abnormal levels of corrosion caused by an incorrect hydraulic connection (direct contact between iron and copper) without a sleeve (cast iron, steel or insulator).

-External corrosion caused by the piping not being correctly sealed or condensates not draining off properly.

-Improper connection of the condensates recovery system.

No claim for compensation may be made for damage which has occurred as a result of not fitting thermostatic mixing valves.

-fitting accessories which do not comply with our recommendations,

-using accessories which were not provided by us.

**IT IS THE RESPONSIBILITY OF THE INSTALLER TO COMPLETE THIS
LOG BOOK AND PASS IT ON TO THE CUSTOMER. FAILURE TO DO
SO MAY INVALIDATE THE CYLINDER WARRANTY**

OSO

HOT WATER

*The code of practice for the installation,
commissioning & servicing of mains pressure hot water storage*

Installation, Commissioning and Service Record Log Book

CUSTOMER DETAILS

NAME _____

ADDRESS _____

TEL No. _____

IMPORTANT

1. Please, keep the Log Book in a safe place for future reference.
2. This Log Book is to be completed in full by the competent person(s) who commissioned the equipment and then handed to the customer. When this is done, the Log Book is a commissioning certificate that can be accepted as evidence of compliance with the appropriate Building Regulations.
3. Failure to install and commission this appliance to the manufacturer's instructions may invalidate the warranty.

The above does not affect your statutory rights.



© HEATING AND HOTWATER INFORMATION COUNCIL

HWA charter members agree to:

- To supply fit for purpose products clearly and honestly described
- To supply products that meet, or exceed appropriate standards and building and water regulations
- To provide pre and post sales technical support
- To provide clear and concise warranty details to customers

For full details on the HWA charter please visit <http://www.hotwater.org.uk/>

INSTALLER & COMMISSIONING ENGINEER DETAILS

INSTALLER DETAILS

COMPANY NAME

DATE

ADDRESS

INSTALLER NAME

TEL No.

REGISTRATION DETAILS

REGISTERED OPERATIVE ID CARD No.
(IF APPLICABLE)

COMMISSIONING ENGINEER (IF DIFFERENT)

NAME

DATE

ADDRESS

TEL No.

REGISTRATION DETAILS

REGISTERED OPERATIVE ID CARD No.
(IF APPLICABLE)

APPLIANCE & TIME CONTROL DETAILS

MANUFACTURER OSO HOTWATER (UK)

MODEL

CAPACITY

litres

SERIAL No.

TYPE

UNVENTED

TIME CONTROL

PROGRAMMER

☐

or

TIME SWITCH

☐

DUCTING

Has ducting been installed in accordance with CIBSE
guide good practice

YES

NO

IT IS THE RESPONSIBILITY OF THE INSTALLER TO COMPLETE THIS LOGBOOK AND PASS IT
ON TO THE CUSTOMER. FAILURE TO DO SO MAY INVALIDATE THE CYLINDER Warranty

COMMISSIONING PROCEDURE INFORMATION

ALL MAINS PRESSURISED SYSTEMS

WHAT IS INCOMING STATIC COLD WATER PRESSURE AT THE INLET TO THE PRESSURE REDUCING VALVE? bar

HAS STRAINER (IF FITTED) BEEN CLEANED OF INSTALLATION DEBRIS? YES ☐ NO ☐

HAS A WATER SCALE REDUCER BEEN FITTED? YES ☐ NO ☐

WHAT TYPE OF SCALE REDUCER HAS BEEN FITTED?

UNVENTED SYSTEMS

ARE COMBINED TEMPERATURE AND PRESSURE RELIEF VALVE AND EXPANSION VALVE FITTED AND DISCHARGE TESTED? YES ☐ NO ☐

WHAT IS THE PRESSURE REDUCING VALVE SETTING (IF FITTED)? bar

IS A OPERATING PRESSURE REDUCING VALVE SITUATED? YES ☐ NO ☐

HAS THE EXPANSION VESSEL OR INTERNAL AIR SPACE BEEN CHECKED? YES ☐ NO ☐

WHAT IS THE HOT WATER TEMPERATURE AT THE NEAREST OUTLET? °C

ALL PRODUCTS

DOES THE HOT WATER SYSTEM COMPLY WITH THE APPROPRIATE BUILDING REGULATIONS? YES ☐

HAS THE SYSTEM BEEN INSTALLED AND COMMISSIONED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS? YES ☐

HAVE YOU DEMONSTRATED THE OPERATION OF THE SYSTEM CONTROLS TO THE CUSTOMER? YES ☐

HAVE YOU LEFT ALL THE MANUFACTURER'S LITERATURE WITH THE CUSTOMER? YES ☐

COMPETENT PERSON'S SIGNATURE	CUSTOMER'S SIGNATURE

(To confirm demonstrations of equipment and receipt of appliance instructions)

PLEASE FOLLOW THE INSTALLATION AND COMMISSIONING INSTRUCTIONS IN THE INSTALLATION MANUAL SUPPLIED WITH THE EQUIPMENT (this document)

After-sales service sheet

[illegible]

Notes

[illegible]



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