

Dalis Pro

Models

200DHWI5 / 260DHWI5 / 200DHW5 / 260DHW5

EN

INSTRUCTIONS MANUAL

Information, operation & information



IMPORTANT: When using electrical appliances, precautions should be taken to reduce the risk of fire, electrical shock and injury to persons.

IMPORTANT: It is important the tundish is positioned away from any electrical components. It should terminate in a safe place where there is no risk to persons in the vicinity of the discharge. The discharge will consist of scalding water and steam. Asphalt, roofing felt and non-metallic rainwater goods may be damaged by such discharges.

IMPORTANT: To disconnect the product from the main power supply, remove the plug from the socket. Do not pull the cable.

WARNING: If the power cable is damaged, it must be replaced by ROINTE or its authorized personnel in order to avoid any damage.

WARNING: Do not switch on the electricity supply until instructed to do so in the commissioning procedure and once the product is full of water.

WARNING: Servicing and product repairs should only be undertaken by ROINTE or its authorized personnel using only exact manufacturer-approved spare parts.

WARNING: The product is IPX4 rated and must never be installed where itself or the switches/control panel is within the reach of persons in water. Never use the product with wet hands. Do not place any water containers (glasses, vases etc.) on or near the product.

WARNING: To avoid overheating do not cover the product. This includes furniture, curtains, clothes and any other items. Do not insert any kind of object in the product. Obstructions should not be placed in front, above or directly next to the product. Do not use insecticides, paints, chemicals or aerosols on or near the product. Do not sit on the product. Failure to comply with the above will render your guarantee invalid.

WARNING: This product can be used by children aged over 8 years and by persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge if they have been given supervision or instruction concerning use of the product in a safe way and understand the hazards involved. Children should not plug in, regulate, clean, play with or perform maintenance on this product. Children aged less than 3 years should be kept away from the product unless supervised.

WARNING: If the cylinder is not being installed immediately, it should remain in its original box with all pipe end protective caps in situ to prevent damage. We recommend that the cylinder be transported to its installation position with the outer box in place.

WARNING: This product must be installed using a Rointe Installation Kit (sold separately).

CONTENTS

1. Introduction	3
2. Disclaimer	4
3. Regulations	4
4. Principal function	5
5. Mandatory installation kits	6
6. Safety information and warnings	6
7. Technical information	8
8. Before installation	12
9. Installation	18
10. Controller adjustment/Parameters	27
11. External connectivity	30
12. Filling, start up and operation of the product	36
13. Functions	40
14. Troubleshooting	41
15. Maintenance and cleaning	44
16. Product disposal	46
17. Product guarantee	46
18. Commissioning record	50
19. Service record	51

1. INTRODUCTION

Thanks for choosing the Rointe Dalis heat pump, designed to produce sanitary domestic hot water, through the use of heat pump technology. A liquid / refrigerant gas flows inside this product.

This model consists of a compressor, evaporator, condenser and a throttle valve.

The product is manufactured from high quality components and meets all health and safety requirements. Before installing and / or using this product, carefully read this manual. This manual must be kept with the product at all times, even if the ownership of the product changes.

If you have any questions, please contact our Technical Support department by phoning **0203 321 5929** or send an email to **support@rointe.co.uk**.

IMPORTANT

This product has been manufactured for domestic hot water as part of a pressurised water heating system. Rointe will not take responsibility for safe operation of this product outside of the scope of intended use.

Please read this manual carefully, including all warnings and important information.

2. DISCLAIMER

This manual has been thoroughly verified, however in some instances non-compliance can occur. Therefore we (Rointe) accept no liability for complete conformity.

We reserve the right to carry out modifications to the product's construction, characteristics or its data at any time. Therefore, we do not accept any liability claims attributable to instructions, figures, drawings or descriptions, without prejudice to errors of any kind.

We will not be held responsible for damages attributable to incorrect installation, product misuse or improper use, or as a consequence of unauthorised repairs, modifications or replacement.

3. REGULATIONS

The equipment can only be installed and commissioned for use within domestic water closed heating systems, according to the BS EN 12828 standard. It adheres to the following directives:

- Directive 2011/65/UE on use of hazardous substances in electronic equipment (RoHS).
- Directive 2014/30/UE Electromagnetic compatibility (EMC).
- Directive 2014/35/EU Low Voltage Directive (LVD).
- Directive 2009/125/CE Ecodesign requirements.
- Directive 2010/30/UE Energy labelling.
- Directive 2012/19/UE on waste electrical and electronic equipment (WEEE).

3.1. Protection degree

The product has a Protection Degree of IPX4.

3.2. Refrigerant/coolant used

The type of refrigerant used is: HFC-R134a. This device contains fluorinated greenhouse gases included in the Kyoto protocol. **Do not** discard these gases into the environment. Maintenance and disposal operations must be carried out by qualified personnel only.

4. PRINCIPAL FUNCTION

A heat pump is capable of transferring thermal energy from a low temperature source to another with a higher temperature and vice versa. It uses circuit consisting of a compressor, an evaporator, a condenser and a throttle valve. A liquid/gas coolant flows inside this circuit.

The compressor creates a difference in pressure inside the circuit that allows a thermodynamic cycle to be obtained. This sucks the coolant fluid in through an evaporator, where the fluid itself evaporates at a low pressure by absorbing heat; it is compressed and driven towards the condenser where the fluid condenses at a high pressure releasing the absorbed heat.

After the condenser, the fluid passes through the so-called “throttle valve” and by losing pressure and the temperature starts to vaporize, it re-enters the evaporator and the cycle starts all over again.

I-II: The coolant fluid sucked in by the compressor, flows inside the evaporator and while it evaporates, it absorbs the “ecological” heat given by the air. At the same time, the ambient air is sucked in by the equipment by a fan; the air loses its heat by passing over the finned-tube battery of the evaporator;

II-III: The coolant gas passes inside the compressor and it undergoes an increase in pressure that causes a rise in temperature; transforming this into superheated steam;

III-IV: Inside the condenser, the coolant gas releases its heat to the water inside the tank (boiler).

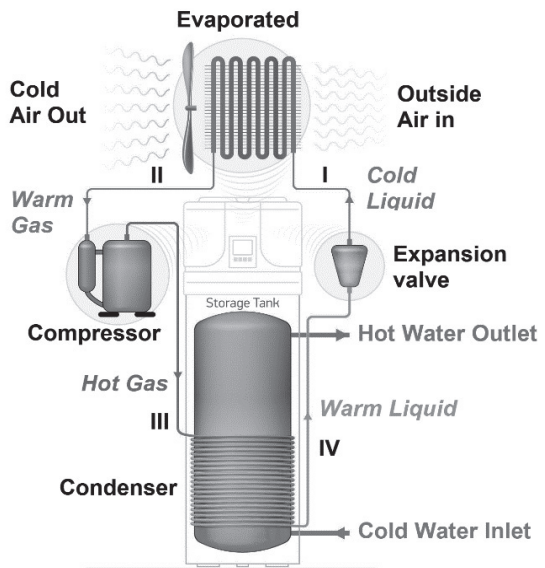


Fig 1 - Principal function of a heat pump

This exchange process makes it possible for the coolant to pass from superheated steam to a liquid state by condensing at a constant pressure and undergoing a reduction in temperature;




IV-I: The liquid coolant passes through the throttle valve. It undergoes a sudden drop in both pressure and temperature and it partially vaporizes bringing pressure and temperature back to the initial conditions. The thermodynamic cycle can begin.

5. MANDATORY INSTALLATION KITS

IMPORTANT




As this product is an unvented domestic hot water heater, it is mandatory that it be installed using a Rointe installation kit and by a professional with a valid Unvented Water Heater Installer certification. The installation kits are NOT supplied with this product. They must be purchased separately. They comply with Building Regulations Section G3.















Please contact us on 0203 321 5929 if you have not purchased an appropriate installation kit for this product BEFORE installation. The T/P valve is factory fitted with the product as standard.

Fittings supplied with installation kit (sold separately)	KITW03	
Expansion vessel		18 litres (0.1 Mpa)
Tundish		15 - 22 mm
Pressure reducing valve		0.35 Mpa
Safety relief valve		0.60 Mpa
EAN CODE	8436045914354	

6. SAFETY INFORMATION AND WARNINGS

Please read this information carefully. If you have any questions, please contact us.

	This symbol indicates a safety warning or a hazard of an electrical nature.
	This symbol indicates general warnings of actions that could result in damage to the product or injury to the installer/user/person.
	This symbol indicates information or advice for operation of the product.

	Do not open or disassemble the product when it is connected to a power supply. Isolate all electrical supplies from the product before commencing work. Danger of electric shock.
	The maintenance of this appliance must be carried out by suitable qualified persons only. It is recommended to maintain the product on an annual basis. Isolate all power supplies from the product before commencing work. Danger of electric shock.
	It is important that the tundish is positioned away from any electrical components.
	Means for electrical disconnection must be incorporated in the fixed wiring in accordance with wiring rules.
	Before removing the cover from the product isolate the appliance using the isolating switch. Danger of electrical shock. Only use suitable electrically insulated equipment when working inside product housing.
	Do not touch the equipment when barefoot or with wet or damp body parts.
	This product must only be installed and operated by competent adults. Children must not play with the product. The product must not be cleaned, nor any maintenance made by children.
	No isolating device may be fitted between the inlet group and the cold water inlet on the cylinder, as by doing so important safety devices could be isolated.
	Do not sit on, rest anything on, move from an upright position or place anything inside the product.
	The cylinder must be filled with water before switching on. Failure to do so will damage the heating element and the guarantee will be invalid.
	The appliance should be installed in a place where it is not exposed to damp, frost or ice and is not at risk of being splashed with water. Do not spray or pour water into the product.
	This product has not been designed, nor is it intended for use within hazardous environments (due to the presence of potentially explosive atmospheres – according to ATEX standards or with a requested IP level exceeding that of the product) or in applications that require (fault-tolerant, fail-safe) safety characteristics such as in circuit-breaking systems and/or technologies or in any other context in which the malfunctioning of an application could cause death or injury to people or animals or serious damage could be caused to objects or the environment.
	If the product fails, it could cause damage to people or animals, or cause damage to objects or the environment. If necessary, please provide an independent monitoring system with alarm functions to avoid such damages.
	We (Rointe) are not responsible, under any circumstances, if the product is used for purposes other than those for which it is intended, or improper use of the product.

7. TECHNICAL INFORMATION

7.1. Available versions

Version	Description
DWI200DHW5 / DWI260DHW5	Air source heat pump for production of domestic hot water.
DWI200DHWI5 / DWI260DHWI5	Air source heat pump for production of domestic hot water suitable for use with a solar power system or additional heating unit.

7.2. Specification

Models with heat exchanger

Models without heat exchanger

Models	DWI200DHWI5	DWI260DHWI5	DWI200DHW5	DWI260DHW5
Volume (L)	200	260	200	260
Load Profile	L	XL	L	XL
Power supply (V [Hz])	1 / N / 230 (50)	1 / N / 230 (50)	1 / N / 230 (50)	1 / N / 230 (50)
Nominal power (W)	1,500	1,500	1,500	1,500
Maximum absorption (kW)	2,000	2,000	2,000	2,000
Average heat pump consumption (kW)	0.43	0.466	0.43	0.466
Thermal power yield; prated (kW)	1.1	1.2	1.1	1.2
Coefficient of Performance (COP)	2.8	3.0	2.8	3.0
Heating time (hrs:min)	08:59	10:15	08:59	10:15
Heating time Boost mode (hrs:min)	03:47	04:21	03:47	04:21
Maximum settable temperature	70°C	70°C	70°C	70°C
Established temperature	55°C	55°C	55°C	55°C
Annual electricity consumption (kWh)	867	1,355	867	1,355
Dimensions				
Diameter x height (mm)	630 x 1,720	630 x 2,010	630 x 1,720	630 x 2,010
Characteristics				
Empty weight (kg)	121	128	105	110
Weight when water filled (kg)	321	388	305	370
Heat exchanger for auxillary power source	Y	Y	N	N
Interal solar coil (m ²)	1	1.2	-	-
Finish	Grey	Grey	Grey	Grey

7.3. Characteristics

1	Heat pump	22	Condensates drain (G 3/4")
2	Control panel	23	Solar coil (G 1")
3	External PVC jacket	24	Cold water inlet connection (G1/2")
4	Enameled storage tank	25	50 mm polyurethane insulation
5	Upper storage tank probe. "T3"	26	High pressure switch – automatic reset
6	Lower storage tank probe. "T2"	27	Safety thermostat, manual reset
7	Refrigerant recharge needles	28	Controller box
8	Ambient air recirculation fan	29	Probe for solar coil thermosensor
9	Electronically regulated expansion valve	30	Low pressure switch – automatic reset
10	High-efficiency finned evaporator	31	4-way defrosting valve
11	Air inlet (Ø160 mm)	32	Upper decorative panel
12	Air outlet (Ø160 mm)	33	Back decorative panel
13	Hermetically-sealed rotary compressor	34	Front decorative panel
14	Compressor's accumulator	35	Lower decorative panel (condense trap)
15	(1.5 kW – 230 W) heating element	36	Condenser
16	Condenser outlet line - liquid	37	Protective fan grid
17	Condenser inlet line – hot gas	38	Return gas temperature "T5"
18	Replaceable magnesium anode	39	Coil temperature "T4"
19	Hot water outlet connection (G 1/2")	40	Bolts M6x60
20	Recirculation fitting (G 3/4")	41	Ambient temperature "T1"
21	Evaporator's distributor		

Fig 2 - Heat pump characteristics

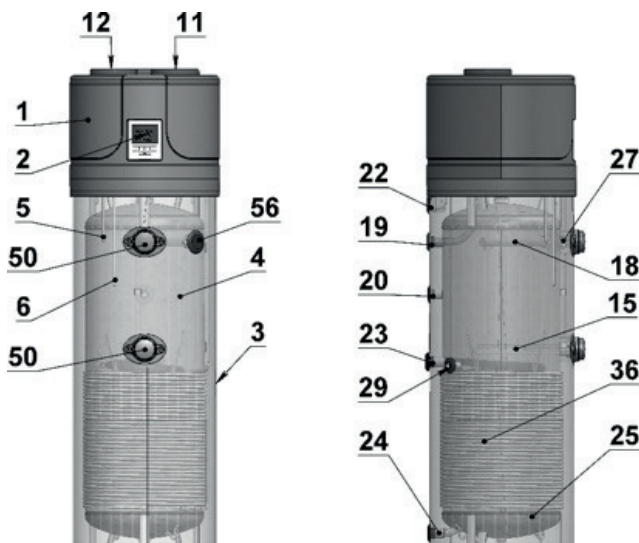
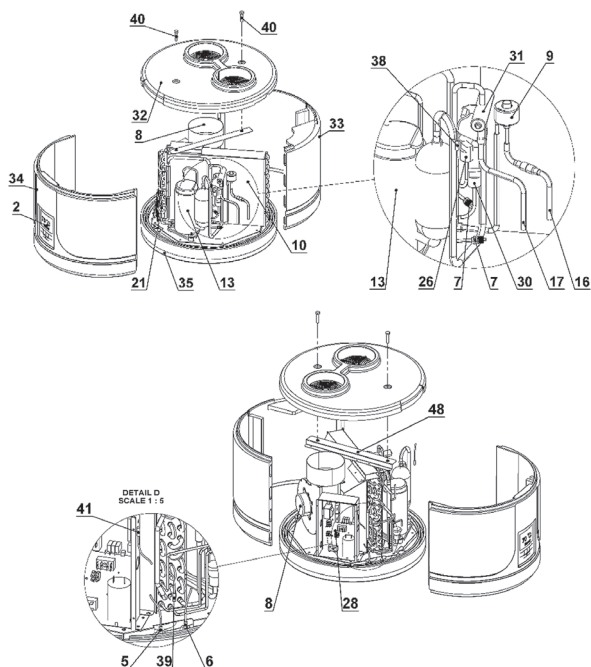


Fig 2 - Heat pump characteristics



Description	-	Dalis 200DHW5	Dalis 200DHW15	Dalis 260DHW5	Dalis 260DHW15
Heating time (1) • EN 16147:2017 - A7/W55)	h:m	08:59		10:15	
Heating time in BOOST mode (1) • (A7/W10-55)	h:m	03:47		04:21	
Average heat pump power consumption at initial heat up Weh-HP / t_h • (EN 16147:2017 - A7/W55)	kW	0.426		0.420	
Power consumption, standby period; P_{es} • (EN 16147:2017 - A7)	kW	0.42		0.51	
Daily electrical energy consumption; Q_{elec} • (EN 16147:2017 - A7)	kWh	4.184		6.499	
COPDHW; • (EN 16147:2017 - A7/W55)	-	2.8		3.0	
Water heating energy efficiency; η_{WH} / ErP class • (EN 16147:2017 - A7/W55)	%	118 / A+		124 / A+	
Annual electrical energy consumption; AEC • (EN 16147:2017 - A7/W55)	kWh/a	867		1354	
Maximum volume of mixed water at 40°C • (EN 16147:2017 - A7/W55)	l	272	262	338.1	350.8
Reference hot water temperature; $0'_{WH}$	°C	53.6		53.7	

Description		Dalis 200DHW5	Dalis 200DHWi5	Dalis 260DHW5	Dalis 260DHWi5
Rated heat output; Prated • (EN 16147:2017 - A7/W55)	kW	1.05		1.20	
Maximal heat output (Summer condition)	kW	2.305		2.305	
Dimensions (diameter x height x depth)	mm	630 x 1,720 x 600		630 x 2,010 x 600	
Electrical data					
Power supply	V	1/N/230			
Frequency	Hz	50			
Degree of protection	-	IPX4			
Max. absorption	kW	0.50			
Average power absorption	kW	0.37			
Heating element + max. absorption	kW	2			
Power	kW	1.5			
Max. current	A	2.3			
Overload protection	A	16A T fuse / 16A automatic switch, characteristic C (to be expected during installation on power supply systems)			
Internal protection	-	Single safety thermostat with manual reset			
Functions					
Min. ÷ max temperature heat pump air intake (90% R.H.)	°C	-10 ÷ 43			
Min. ÷ max temperature installation site	°C	4 ÷ 40			
Working temperature					
Max. programmable temperature - ECO	°C	56			
Max. programmable temperature - AUTO	°C	70			
Compressor (rotary) & fan (centrifugal)					
Compressor protection	-	Thermal circuit breaker with automatic reset			
Ejection outlet diameter	mm	160			
Available external pressure of heat pump fan	Pa	77			
Nominal air capacity	m³/h	315 (98 Pa)			
Max. pressure head available	Pa	100			
Motor protection	-	Internal thermal circuit breaker with automatic reset			
Condenser	Aluminium, wrapped externally, not in contact with water				
Refrigerant R134a (charge)	g	880			
Water storage					
Capacity	litres	200		260	
Actual water storage capacity Vm	litres	202	194	251	260
Max. volume hot water Vmax (3)	litres	276		342	
Connection coil solar thermal power system	m2	n/a	1 m²	n/a	1.2 m²
Cathodic protection	mm	2 x Mg anode Ø33 x 250; G1 1/4"			
Insulation	-	50mm rigid PU			
Defrosting	-	Active with "4-way valve"			
Sound power indoors Lw(A) (4)	dB (A)	53			
Automatic anti-legionella cycle (5)	-	YES			
Maximum working pressure	bar	7			

(1) temperature of incoming air supply 20°C (max. 15°C), temperature of water heater storage environment 20°C, water heated from 10°C to 55°C, (according to EN 16147-2011). (2) measurements carried out according to EN 12897-2006. (3) measurements carried out according to EN 16147-2011. (4) measurements carried out according to EN 12102-2013. (5) Automatic activation - 30 day cycle.

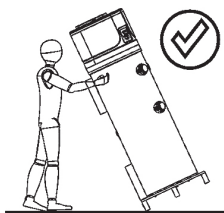
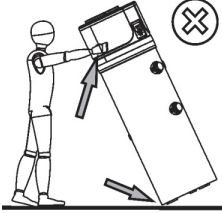
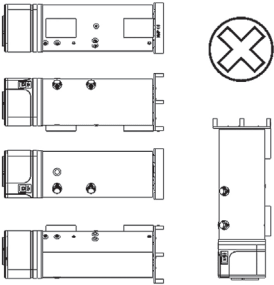
8. BEFORE INSTALLATION

IMPORTANT

Failure to observe these instructions will invalidate the guarantee. Installation of this product is subject to the H&S At Work act. This product must be installed by qualified professionals, certified for Unvented Water Heaters. Do not attempt to install this product if you are not qualified.

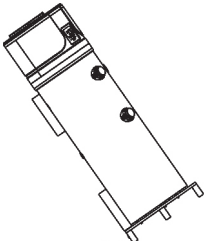
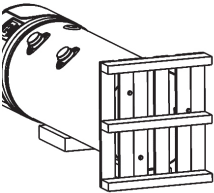
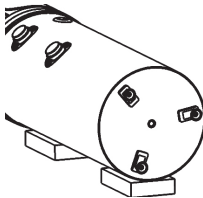
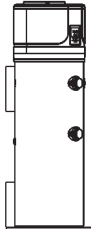
8.1. Handling and transport

- Do not put any pressure on the upper part as it is not structural in nature. The product must be transported and handled in the upright position only. The screen should be facing the upper side. If tipped, the centre of gravity will shift. Handle with care.
- For transport over short distances (provided it is done with care), an inclination angle up to 30 degrees is permitted. It is advised that the maximum permissible inclination angle of 45 degree is not exceeded. If transport in an inclined position cannot be avoided, the unit should be left in its final, upright position for at least 1 hour before it is installed or switched on.

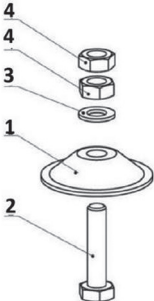
<i>Positions allowed</i>	<i>Positions not allowed</i>
	 

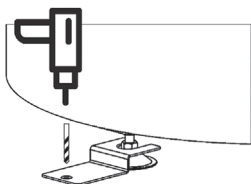
8.2. Packaging

- If the product is not installed immediately, it should remain in its protective packaging with all pipe/end caps in place to prevent damage or dirt deposits.
- Use a forklift or pallet truck to unload the equipment: these should have a load capacity of at least 400 kg. Do not drop or lower the product suddenly.
- Unpacking the product must be carried out with care so the product does not become damaged. Ensure all the supplied fittings have been removed from the packaging.
- Keep packaging out of reach of children. Make sure that the appliance is intact and not damaged. If in doubt, do not use or install the product and contact us.
- The equipment is supplied in a cardboard box, fixed to a pallet with screws. Please follow the described steps below in order to mount three supports. You will need 2 people in order to do this safely:

			
<p>1. Incline the appliance.</p>	<p>2. Unscrew the 3 bolts which hold the heat pump to the water heater.</p>	<p>3. Mount the adjustable feet to the heat pump.</p>	<p>4. Move the heat pump to its final vertical position and adjust the level using the feet.</p>

If the adjustment feet are delivered in separate parts, assemble them as follows:

	<ol style="list-style-type: none"> 1. Put part 1 on bolt 2 (which is removed from the pallet). 2. Put washer 3 over part 1 (which is removed from the pallet). 3. Screw nuts 4 over washer 3 (which are delivered with the heat pump).
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The heat pump must be (in compliance with Article 20 of Standard EN 60335-1) fixed to the ground using the bracket provided.

8.3. Location

Please adhere to the following conditions when choosing a location to install the product:

- Must be installed in a dry, frost-free environment, with containment systems in case of serious water leaks.
- Not measure less than 20 m³.
- Must have structural integrity that is sufficiently robust to support the product weight when full of water, plus a flat and level surface on which to install the product.
- Must allow access to water mains supply, hot and cold water pipework and a suitable electrical supply.
- Be readily available for connection to condensation discharge pipe.
- Be sufficiently ventilated and illuminated (if necessary) and in a space of at least 20m³.
- Care must be taken when installing the product in a garage or outbuilding. All exposed pipework must be sufficiently insulated to avoid frost or ice damage.
- When installing the product, ensure that all labels are visible and pipework does not restrict any work that needs to be carried out on the various components
- It's important to allow the necessary working space by referring to the dimensions show in Fig 3 below.

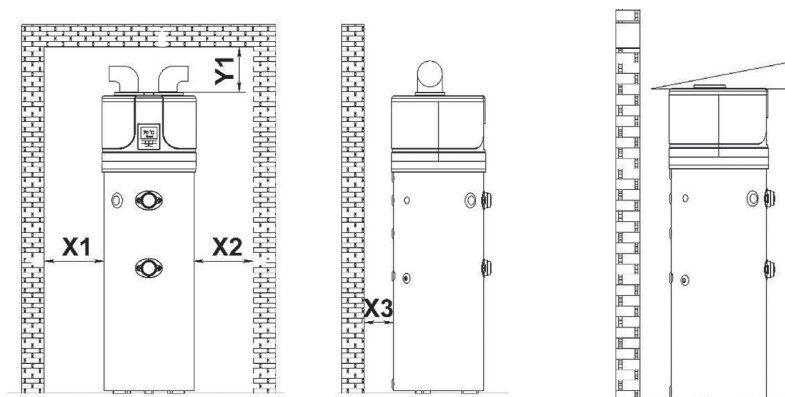


Fig 3 - Location conditions

X1	X2	X3	Y1
650 mm	650 mm	200 mm	300 m

The product **MUST NOT** be installed in locations where:

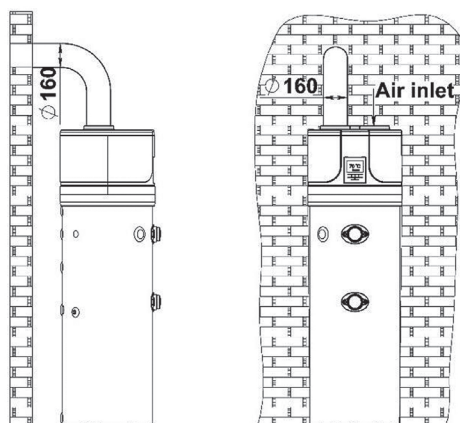
- The air intake contains solvents, explosive matter, grease, dirt or dust / aerosol particles.
- It is outdoors/in rooms exposed to frost, ice or damp, or in rooms where there is a lot of steam/vapour (e.g. a bathroom).
- It is sat on floor slabs containing wooden beams e.g. attics, to avoid vibrations.
- It is prohibited to connect vented exhaust hoods to ventilation systems.

8.4. Ventilation

When carrying out the installation of each air duct take care that:

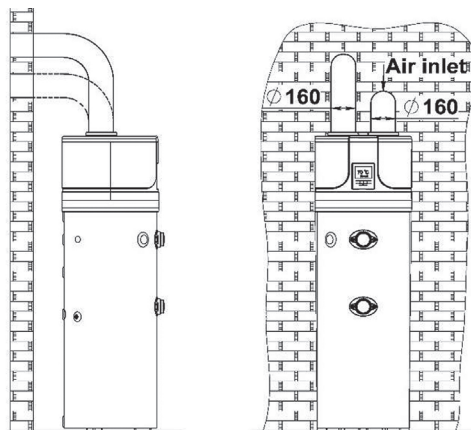
- The weight of the ducts does not adversely affect the equipment itself.
- Maintenance operations can be carried out.
- They are adequately protected to prevent the intrusion of material inside the equipment.
- The maximum allowable total pressure drop for all components, including through holes for external wall mounting, within the piping system must not exceed 77 Pa.

Fig 4a - Example of an air outlet duct



An alternative solution is indicated in Fig 4b. This consists of a second duct that draws air in from outside instead of directly from inside the premises.

Fig 4b - Example of a dual duct connection



- During operation, the heat pump tends to lower the room temperature if the exhaust air is not ducted externally.
- An appropriate protection filter must be installed at the external air outlet to the outside, in order to prevent foreign bodies from entering the equipment. In order to guarantee maximum device performance, the grid chosen must ensure low pressure loss.
- To prevent condensation, it is advisable to insulate the air discharge pipes and the air duct cover connections with an airtight thermal lining of a suitable thickness.
- If deemed necessary to prevent flow noise, silencers can be fitted. It is advisable to equip pipes, walls and connections to the heat pump with vibration damping systems.

WARNING

The simultaneous operation of an open flue firebox (e.g. an open flue fireplace) or combustion chamber together with the product will cause a dangerous drop in ambient pressure. This could cause backflow of exhaust gas into the environment. Do not use the product with an open flue firebox or combustion chamber. Use only sealed (approved) chamber fireboxes or combustion chambers with a separate duct for combustion air. Keep room doors closed and hermetically sealed if they don't have a supply of combustion air in common with inhabited areas.

To avoid mixing of air at different temperatures between the inlet and outlet, always use two elbows mounted in opposite directions when ductless installation is carried out.

WARNING

All technical parameters stated above are guaranteed for an air flow rate of 315 m³/h at a pressure of 98 Pa. For this purpose, please follow the recommendations below:

1. Use a pipe system with a diameter of Ø 160mm.
2. The maximum length of the straight inlet and outlet pipes must not exceed 12 m.
3. Each 90° elbow is equivalent to 2 m of straight pipe.
4. Each 45° elbow is equivalent to 1.5 m of straight pipe.

Suitable examples:

Four 90° elbows + 4m of straight pipe, or two 90° elbows + 8m of straight pipe, four 45° elbows + 6m of straight pipe.

8.5. Special installation conditions

One of the unique features of heat pump heating systems is that they create a considerable drop in air temperature usually expelled outdoors. The expelled air, in addition to being colder than the air in the environment, is also fully dehumidified. This means that the flow of air can be fed back inside the building again to cool rooms or spaces during warmer months, such as the summer. The discharge pipe should be split to which 2 valves should be installed, so that the expelled air flow can be directed either indoors or outdoors.

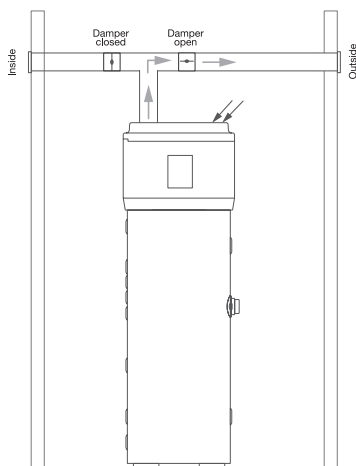


Fig 5a - Installation in winter

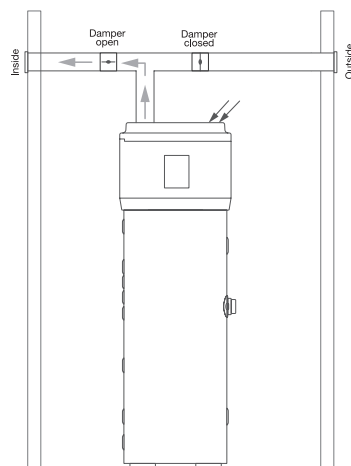


Fig 5b - Installation in summer

9. INSTALLATION

9.1. Installation diagram

INSTALLATION ITEMS	
1	Mains cold water supply
2	Stop cock (not supplied)
3	Pressure reducing valve (in mandatory installation kit sold separately)
4-5	Check valve & expansion relief valve (in mandatory installation kit sold separately)
6	Discharge pipe 22 mm
7	Drain valve (not supplied)
8	Tundish (in mandatory installation kit sold separately)
9	Expansion vessel (in mandatory installation kit sold separately)
10	T/P relief valve (included)
11	Electrolytic fittings (included)

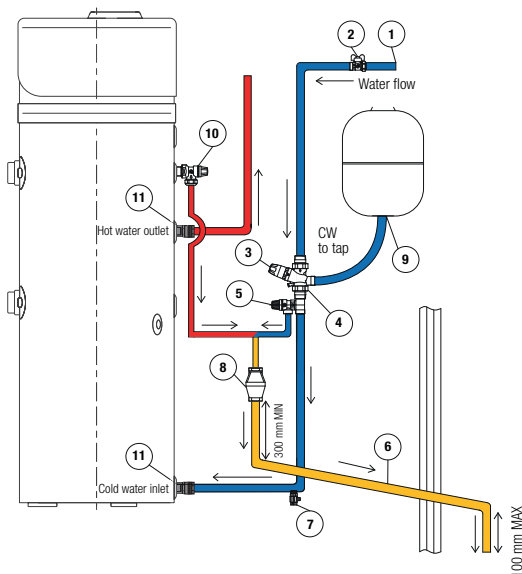


Fig 6 - Installation diagram

When carrying out the installation you must take care, so that:

- Extra pressure is not applied to the product e.g. by leaning on it.
- Foreign bodies and materials cannot enter inside the product.
- The selected pressure protection grid ensures low pressure loss.
- The air discharge pipes and roof connections are isolated with steam-tight thermal coating to avoid condensation.

9.2. Cold water supply

For safe performance of the product, the tank should be directly fed by an uninterrupted supply pipe that connects to the pressure reducing valve with a maximum supply pressure of 0.9 MPa. The product should not be used with a supply pressure below 0.15 MPa and a flow rate of less than 20 litres per minute. The following criteria must also be met:

- Cold water supply must come directly from the cold water mains after the mains stop valve to the property.
- The inside diameter of the cold water pipework must be at least 19mm.
- Pipework should meet the water supply regulations for wholesome water.

9.3. Connections

9.3.1. Overall dimensions

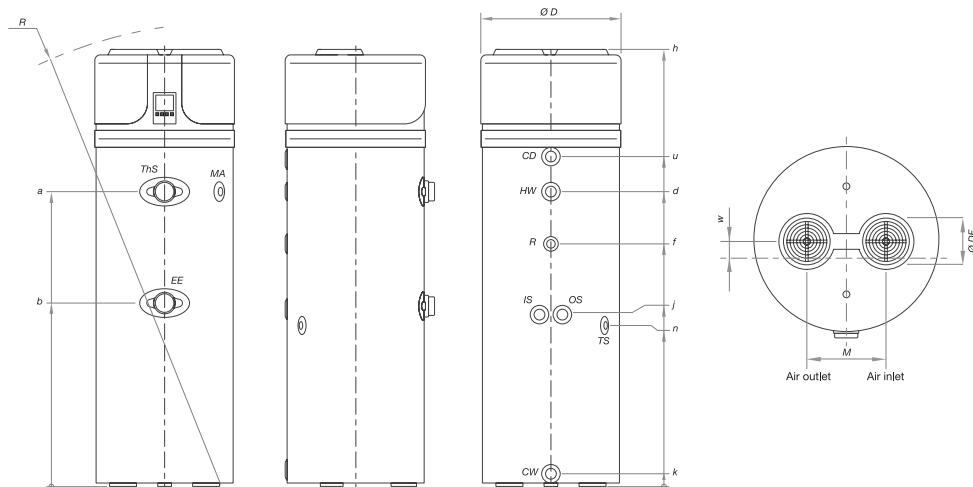


Fig 7 - Heat pump dimensions

Dimensions (+/- 5mm)	260 litres model	200 litres model	Dimensions (+/- 5mm)	260 litres model	200 litres model
h	2010	1720	n	766*	681*
a	1285	994	u	1440	1153
b	834	724	w	58	58
d	1285	995	M	260	260
f	1064	803	ØDF	160	160
j	781*	681*	R	2055	1785
k	60	60	ØD	630	630

* For models with heat exchanger only.

No.	Description	Connection (with heat exchanger)	Connections (without heat exchanger)
CW	Cold water inlet	G 1/2"	G 1/2"
HW	Hot water outlet	G 1/2"	G 1/2"
IS	Heat exchanger input	G 1"	-
OS	Heat exchanger output	G 1"	-
TS	Thermosensor	G 1/2"	-
R	Recirculation	G 3/4"	G 3/4"
EE	Opening for electric element	G 1 1/2"	G 1 1/2"
CD	Condense drainage	G 3/4"	G 3/4"
ThS	Thermal safety thermostat	-	-
MA	Magnesium anode	G 1 1/4"	G 1 1/4"

Thread designations according to EN ISO 228-1

9.3.2. Water supply connections

IMPORTANT

When the water hardness is particularly high (above 25°F), it is advisable to use a water softener, properly calibrated and controlled. The resulting water hardness must not be less than 15°F.

This product is equipped with a pressure and T/P valve that complies with the BS EN 1490:2000 standard. The T/P safety valve for protection against over pressure and temperature must be operated regularly to remove lime scale deposits and check it is not blocked.

WARNING

Use of this appliance at temperatures and pressures higher than those prescribed will invalidate the guarantee.

This appliance is intended for heating potable water in a liquid state. The use of different fluids in different states will also invalidate the guarantee.

The heat exchangers of the device are intended for the use of circulating clean water and its mixture with propylene glycol in liquid form. The presence of anti-corrosion additives is mandatory. The use of different fluids will invalidate the guarantee

Dissimilar metals cause galvanic corrosion. Therefore, pipes, joints and fittings made of dissimilar metals must be connected to the device by means of dielectric separators. Plastic pipes (PP) are permeable to oxygen. It is prohibited to connect the heat exchanger to systems with PP or open circulation pipes. This can lead to corrosion inside the pipe.

It is mandatory to install a 7 bar safety valve (No. 5 in Fig 8) in the cold water inlet pipe.

It is forbidden to install any shut-off valve or tap between the safety valve and the storage tank.

The safety equipment must be operated regularly to remove scale deposits and to check that it is not blocked.

The drain pipe (No. 6 in Fig 8) connected to the safety valve must be installed sloping continuously downwards and, in a place, where it is protected against the formation of ice (Fig 8).

Using a tundish is obligatory. The drain pipe must be made by a material that is able to sustain water temperature minimum 110°C.

An expansion vessel (No.10 in Fig 8) should be installed in order to absorb water expansion due to temperature variation. Pressure regulator (No. 3 in Fig 8) and expansion vessel should be calculated together by qualified persons.

The heat pump for the production of domestic hot water is capable of heating water more than 65°C. For this reason, as a protection against burns, it is necessary to install a thermostatic mixing valve (No. 16 in Fig 8) to the hot water pipe.

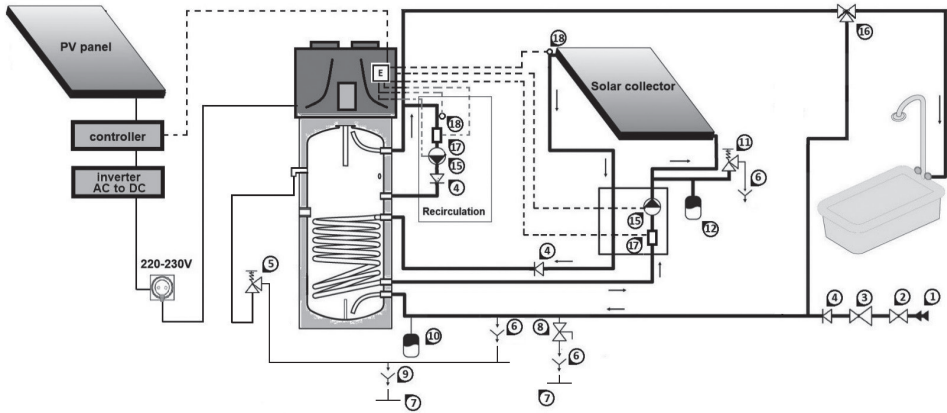


Fig 8 - Example of connection to the water supply and solar thermal panels (model with heat exchanger)

1	Water inlet pipe	10	Expansion vessel
2	Shut-off valve	11	Solar safety valve (6 bar)
3	Inlet water pressure regulator	12	Solar expansion vessel
4	Backflow prevention valve	15	Recirculating pump: I max. = 5A (solar or recirculation)
5	Safety valve (7 bar) +92°C	16	Thermostatic mixing valve
6	Safety valve (7 bar)	17	Flow switch
7	Drainage pipe	18	External thermosensor (solar or recirculation)
8	Tank drainage valve	E	Heat pump controller
9	Tundish		

9.4. Pipework and taps

The pipe runs should be executed as short as possible. Unused pipework should be removed and all remaining lagged in accordance with regulatory requirements to prevent heat loss and condensation. All pipework connections must be made according to Fig 6. A drain cock (not supplied) should be fitted in the position shown in Fig 6. All taps and fittings should have a rated operating pressure of 0.6 Mpa (bar) or above.

9.5. Pressure reducing valve

The pressure reducing valve should be installed in the cold water supply to the product, above the tundish and pointing in the direction as shown in Fig 6. The pressure reducing valve can be connected to a maximum supply pressure of 0.9 Mpa.

9.6. Expansion vessel

The expansion vessel is mandatory on this product and is available within the Rointe installation kit (sold separately). It **MUST** be fitted to the safety group and positioned with the entry point at the bottom (Fig 6). We recommend to mount the expansion vessel higher than the water heater to avoid draining the water heater when maintaining and replacing the expansion vessel. It is important to check the pre-charge pressure of the expansion vessel membrane before filling the cylinder. The expansion vessel should be pressurised to 0.15 or 0.3 MPa at all times.

9.7. Expansion relief valve

The expansion relief valve must be installed between the pressure reducing valve and the product (Fig 6). No other valve should be fitted between this valve and the cylinder. The expansion relief valve contains a non return valve. The discharge pipework from the expansion relief valve must be installed constantly falling to an open point of discharge. It is recommended to combine it with the discharge of the T/P valve (Fig 6).

9.8. T/P valve

The T/P valve (temperature and pressure relief valve) is supplied factory fitted as part of the product, to meet the requirements of the G3 building regulations. It complies with the BS EN 1490 standard. The valve is pre-calibrated to lift at 0.7 MPa or 90°C. The T/P valve should not be removed or modified in any way and if done so, will render the guarantee invalid.

The outlet of the T/P valve should be routed in 15mm copper piping, in a downward direction alongside the product to the tundish. The outlet of the expansion relief valve must be T'd into this pipe before the tundish. This is so any water exiting either valve can drain through the tundish (see diagram opposite).

The T/P valve must be discharged directly or by way of a manifold via a short length of pipe (D1) into a tundish. The discharge pipe must be installed in a continuous downward direction and in a frost free environment. Water may drip from the discharge pipe and this pipe must be left open to the atmosphere. The diameter of the discharge pipe (D1) should not be less than the nominal outlet size of the safety device e.g. T/P valve.

Where a manifold is used it should be sized to accept and discharge the total discharge from all D1 discharge pipes connected.

9.9. Tundish

The tundish should be vertical and located in the same space as the product and clearly visible to the user. It must be fitted in close proximity to the safety device and close to the

electrical current carrying the wiring. There should be no more than 600mm of pipe between the valve outlet and the tundish (Fig 9).

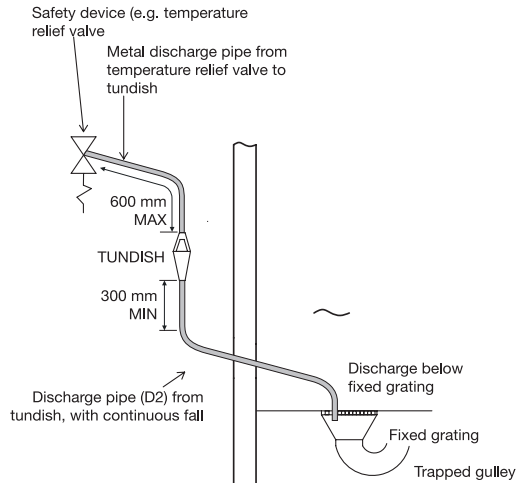


Fig 9 - Tundish and discharge pipe

9.10. Discharge pipe arrangement (D2)

WARNING

Discharge will consist of scalding water and steam. Asphalt, roofing felt and non-metallic rain-water goods may be damaged by such discharges.

Please see Fig 9 for discharge (D2) pipe arrangement. The discharge pipe from the tundish should:

- Terminate in a safe place, where there is no risk to persons in the vicinity of the discharge.
- Be manufactured of metal or other material that is clearly demonstrated to be capable of safely withstanding temperatures of the water discharged.
- Be clearly and permanently labelled to identify the product and its performance standard.
- Be at least one size larger than the normal outlet size of the safety device, unless its total hydraulic resistance exceeds that of a straight pipe 9m long, i.e. discharge pipes between 9m and 18m equivalent resistance length should be at least two sizes larger than the normal outlet size of the safety device, between 18m and 27m and at least three sizes larger and so on.
- Have a vertical section of pipe at least 300mm long below the tundish, before any

elbows or bends in the pipework and installed in a continuous fall.

- Have discharges visible at both the tundish and the final point of discharge. Where this is not possible or practical, here are some examples of acceptable discharge arrangements:
 - a) Ideally below a fixed grating and above the water seal in a trapped gully.
 - b) External surfaces such as car parks, hard standings, grassed areas etc. are acceptable providing that where children play or humans/animals otherwise come into contact with discharges, a wire cage or similar guard is positioned to prevent contact whilst maintaining visibility.
 - c) Discharge at high level, e.g. 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 3m from any plastic guttering system that would collect such discharges (tundish visible).
 - d) 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 six systems so that any installation discharging can be traced reasonably easily.

The single discharge pipe should be at least one pipe size larger than the largest individual discharge pipe to be connected. If unvented hot water systems are installed where discharges from safety devices may not be apparent (i.e. in dwellings occupied by blind or disabled people), consideration should be given to the installation of an electrically operated device to warn when discharge takes place.

IMPORTANT

Rointe do not take responsibility for any damage or injury caused from discharges.

Sizing table for copper discharge (D2) pipe for common temp. relief valve outlets:

Valve outlet size (diameter, inches)	Min. size of discharge pipe before tundish (mm)	Min. size of discharge pipe D2 after tundish (mm)	Max. allowed length of pipe after tundish (m)
G 1/2	15	22	9
		28	18
		35	27
G 3/4	22	28	9
		35	18
		42	27

9.10.1. Calculated example

The example below is for a 1/2" diameter temperature relief valve with a discharge pipe (D2) having 4 x 22mm elbows and a length of 7m from the tundish to point of discharge.

The maximum resistance allowed for a straight length of 22mm copper discharge pipe (D2) from a 1/2" diameter temperature relief valve is 9.0m. Subtract the resistance for 4 x no 22mm elbows at 0.8m each = 3.2m.

The maximum permitted length equates to: 5.8m, which is less than the actual length of 7m, therefore, calculate the next largest size.

Maximum resistance allowed for a straight length of 28mm pipe (D2) from a 1/2" diameter temperature relief valve equates to: 18m. Subtract the resistance for 4 x 28mm elbows at 1.0 each = 4m.

Therefore the maximum permitted length equates to: 14m. As the actual length is 7m, a 28mm diameter copper pipe will be satisfactory.

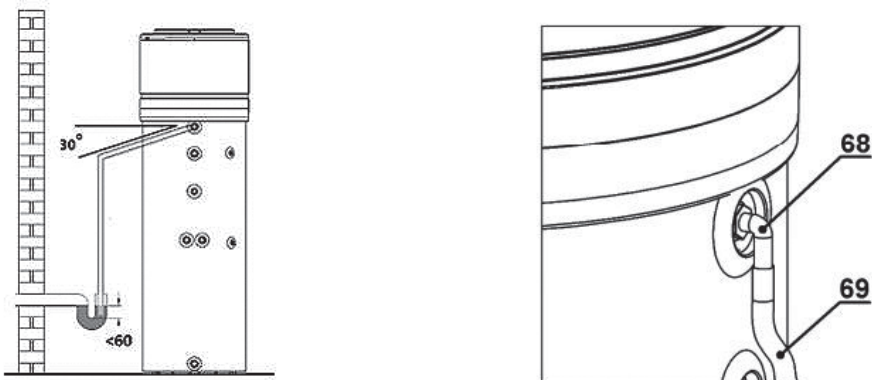
9.11. Drain valve

We recommend a drain valve is installed (not supplied) in the lowest point of the cold water feed to the product. This allows the product to be drained in a controlled manner if necessary (Fig 6).

9.12. Condensation drain connections

Condensate that forms during the operation of the heat pump, flows through an appropriate discharge pipe (G 3/4") that passes inside cladding and it comes out on the side of the equipment. Use a flexible hose Ø16 (No .69 on Fig 10) to connect it to the plastic part (No. 68 on Fig 10). This plastic part should be handled with care to avoid damages. Connect the hose to a siphon so that the condensate can flow freely (Fig 10).

Fig 10 - Condensate drainage



9.13. Electrical fittings

The product is supplied already wired for the mains power supply. It is powered through a flexible cable and a British socket/plug combination (see diagram below). An earthed Type G socket (UK) with separate protection is needed for the connection to the mains power supply.

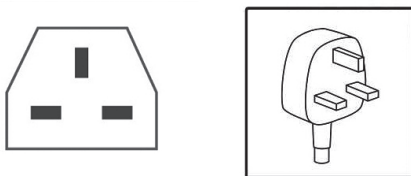


Fig 11 - Plugs

WARNING

The power supply to which the equipment will be connected must be protected by an adequate residual current circuit breaker at least: 13A/230V.

The type of residual current circuit breaker must be chosen by evaluating the type of electric equipment to be used on the entire system.

With reference to the connection to the main power supply and the safety equipment (e.g. residual current circuit breaker) comply with standard IEC 60364-4-41.

The power supply must comply with all regulations in the country of product installation, as well as IEE Wiring regulations.

If the power cable is damaged, please contact us on 0203 321 5929. Please do not shorten, modify or alter the power cable or plug without authorisation from Rointe. It will render your guarantee invalid.

9.14. Sheathed heating element

A 1.5kW 230v 50Hz sheathed heating element is installed inside the product.

It is recommended that the power supply to the product is via an insulated double pole switch or controller, with a contact separation of at least 3mm, fully earthed. In the event of an electrical problem, perform the following checks:

- a) The earth wire is connected to the terminal marked with the earth symbol.
- b) The power supply cable is connected to the high temperature cut-off terminal.
- c) The neutral wire is connected to the corresponding terminal.

10. CONTROLLER ADJUSTMENT/PARAMETERS

10.1. Wiring diagram

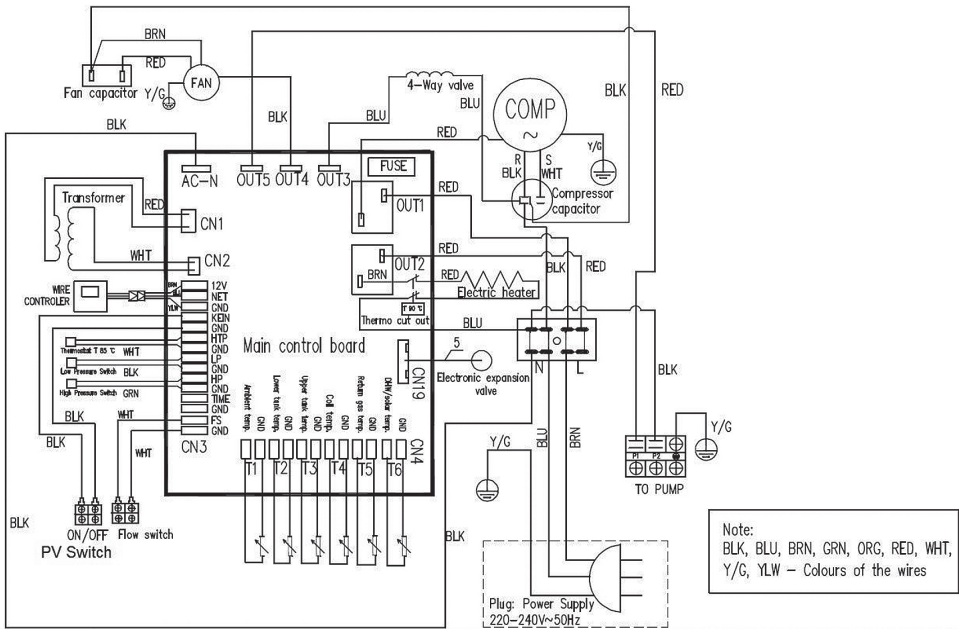


Fig 12

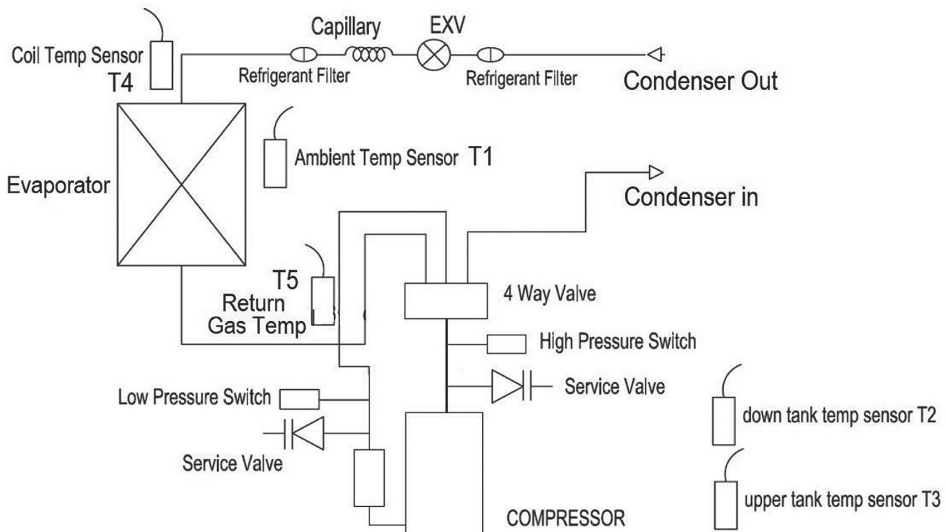





Fig 13

10.2. Parameter list

Checking parameters: When the unit is on, press button  and hold for 5 seconds to entry the system parameter view.


Adjusting parameters: When the unit is off (standby), press simultaneously  &  for 5 seconds to entry the parameter adjusting interface. A password is necessary to change the parameters.

Parameter	Visibility: U=user I=installer	Description		Range	Default	Remarks
Adjustable parameters						
0	I/U	Tank water setting temp.	TS1	10 ~ 65°C	Adjust	Adjustable
1	I	Water temp difference	TS6	2 ~ 15°C	5°C	Adjustable
2	I	E-heater off tank water temp	TS2	10 ~ 90°C	65°C	Adjustable
3	I	E-heater delay time	t1	0 ~ 90min	6	t * 5 min
4	I	Week disinfection temperature.	TS3	50 ~ 70°C	70°C	Adjustable
5	I	High temp disinfection time	t2	0 ~ 90 min	30 min	Adjustable
13	I	Disinfection start up time adjusting		0 ~ 23	23:00 h	Adjustable (hour)
14	I	Type of water pump		0/1/2	0	0: no water pump 1: (circulation pump) 2: (solar water pump)
15	I	Setting circulation water temperature		15 ~ 50°C	35°C	Adjustable
16	I	The temperature difference to start the circulation water pump		1-15°C	2°C	Adjustable

17	I	The temperature difference to start the solar water pump		5-20°C	5°C	Adjustable
18	I	The temperature difference to stop the solar water pump		1-4°C	2°C	Adjustable
19	I	Low outside temp. electrical heater activation		0/1	1	Adjustable 0=off , 1=on
20	I	Electrical heater activation during defrosting		0/1	1	Adjustable 0=off , 1=on
21	I	Disinfection period		1~30 days	7 days	Adjustable
35	I	ON / OFF		0-1	0	0: (remote on/off signal) 1: (PV function)

Checking parameters

Check the real temperature and expansion valve working process.

Short press button  to entry temp and EXV open step checking.

A	U	Lower tank water temp.	T2	-9 ~ 99°C		Actual testing value. Error code P1 will be shown in case of a malfunction
b	U	Upper tank water temp.	T3	-9 ~ 99°C		Actual testing value. Error code P2 will be shown in case of a malfunction
C	U	Evaporator coil temp.	T4	-9 ~ 99°C		Actual testing value. Error code P3 will be shown in case of a malfunction
d	U	Return gas temp.	T5	-9 ~ 99°C		Actual testing value. Error code P4 will be shown in case of a malfunction

E	U	Ambient temp.	T1	-9 ~ 99°C		Actual test value. Error code P5 shall be displayed in case of malfunction
F	U	Temp. of solar thermal collector		~0 ~ 140°C		Measured value if failure show P6
G	U	Electronic expansion valve step		10 ~ 47 step		N*10 step
H	U	Tank water setting temp "T calc". (real value)	TS1			

11. EXTERNAL SOLAR CONNECTIVITY

11.1. External solar connectivity

The product can be connected to other remote energy systems (solar panels and solar thermal power). See Fig 14.

Connection and adjustment of the main regulator must be carried out as follows:

- Parameter no. 14 of the list indicated in point "10.2. Parameter list" must be set by the installer, setting the number 2 = solar water circulation.
- Then connect the external circulation pump I max = 5A (No. 15 in Fig 14), as well as the solar thermosensor (No. 18 in Fig 14) and the flow switch (No. 17 in Fig 14) (optional). If the flow switch is not present, short-circuit contact FS 17 (Fig. 15).

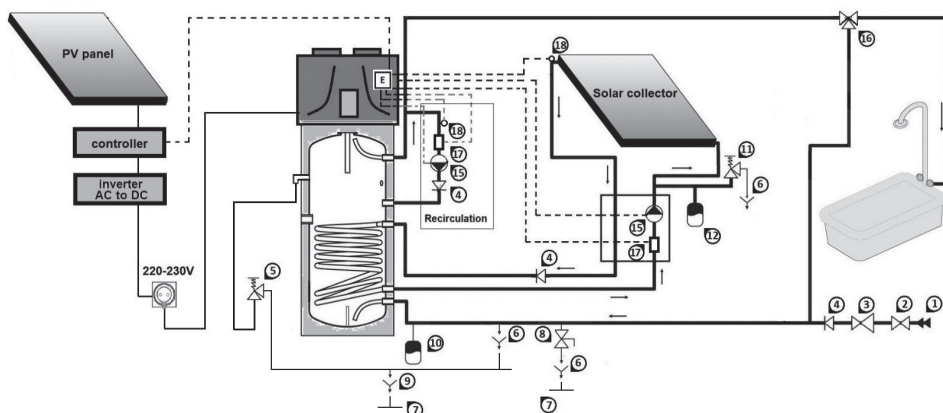


Fig 14 - Example of connection to the water supply and solar thermal panels (model with heat exchanger)

1	Water inlet pipe	10	Expansion vessel
2	Shut-off valve	11	Solar safety valve (6 bar)
3	Inlet water pressure regulator	12	Solar expansion vessel
4	Backflow prevention valve	15	Recirculating pump: I max. = 5A (solar or recirculation)
5	Safety valve (7 bar) +92°C	16	Thermostatic mixing valve
6	Safety valve (7 bar)	17	Flow switch
7	Drainage pipe	18	External thermosensor (solar or recirculation)
8	Tank drainage valve	E	Heat pump controller
9	Tundish		

The logic of solar thermal power function is as follows:

The pump will start when the below conditions are satisfied at the same time:

- The unit is on;
- $T6$ (temperature of solar collector - thermosensor 18) $\geq T2$ (lower tank water temperature) + parameter 17;
- $T2$ (lower tank water temperature) $\leq 78^{\circ}\text{C}$

The pump will stop when one of the below conditions is satisfied:

- The unit is off;
- $T6$ (temperature of solar collector - thermosensor 18) $\geq T2$ (lower tank water temperature) + parameter 18
- $T2$ (lower tank water temperature) $\geq 83^{\circ}\text{C}$

While solar thermal function is active, the compressor of heat pump is running too.

Parameters for solar thermal function:

Code	Description	Range	Default	Remarks
14	Type of water pump	0/1/2	0	0: no water pump 1: (circulation pump) 2: (solar water pump)
17	The temperature difference to start the solar water pump	5~20 °C	5 °C	Adjustable
18	The temperature difference to stop the solar water pump	1~4 °C	2 °C	Adjustable

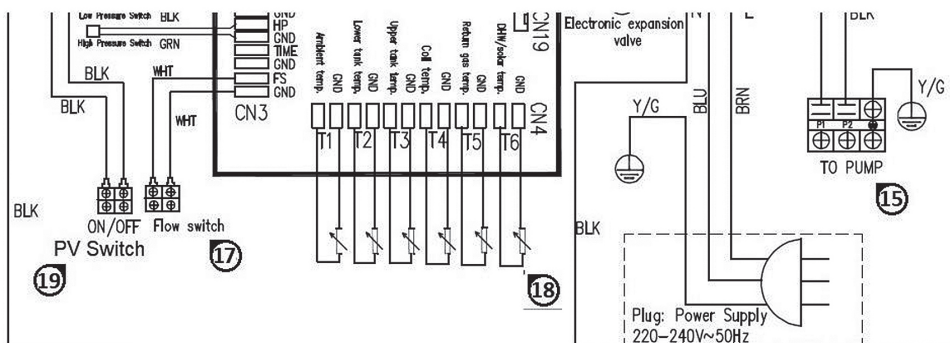


Fig 15 - Wiring of external devices

15. Recirculating pump: I max = 5A (solar or recirculation)	18. External thermosensor (solar or recirculation)
17. Flow switch	19. PV switch

WARNING

The solar heat exchanger of the device is intended for use with clean circulating water or with a mixture of the latter and propylene glycol in liquid form. The presence of anti-corrosion additives is mandatory. The use of any other type of fluid in different states will invalidate the guarantee.

Only qualified personnel should design and install solar thermal systems including all the elements indicated in Fig 14.

Flow switch: After the pump has been running for 30 seconds, if the water flow switch signal is kept OFF for 5 seconds, the pump will stop. After 3 minutes the pump will restart and start the process again. If this fault occurs 3 times within 30 min, the pump will not be able to start until the unit is powered again. The corresponding error code will be displayed on the controller panel 0. Only the pump will stop, but not the unit itself.

11.2. Solar photovoltaic integration

The equipment is capable of being powered through a photovoltaic collection system.

Once the product detects that the voltage of the solar PV energy is high enough to support its operation, the heat pump or the electrical resistance will make the water set temperature higher for higher hot water availability. PV switch No. 19 (Fig 15) must be connected to the PV system.

The logic of PV function is as follows:

When parameter 35 = 1, PV function is available as follows:

- If the terminal “PV switch” is closed and TS1 manually adjusted (by display button) < “TS1 calc”, the controller will automatically switch to “TS1 calc”.
- If the terminal “PV switch” is closed and TS1 manually adjusted (by display button) > “TS1 calc”, the controller will automatically switch to TS1 manually adjusted
- When the terminal “PV switch” is opened (there is no solar voltaic energy), the appliance will work in normal “heating mode”.

Parameters for PV function:

Code	Description	Range	Default	Remarks
35	On/Off	0: (remote on/off signal) 1: (PV function)	0	-
0	Setting temp of water tank TS1	10~65 °C	50 °C	Adjustable
1	Temp difference to start heating TS6	2~15 °C	5 °C	Adjustable

IMPORTANT

Only qualified personnel should design and install solar thermal systems.

11.3. Installation of an external re-circulation pump and flow switch

In case there is the possibility to re-circulate solar water or hot sanitary water, an external pump and flow switch must be connected and installed hydraulically and electrically. If the flow switch is not present, short connect contact FS 17. The max available output for the pump is 5 A resistive. Also, the optional thermosensor 18 must be connected to the controller and correctly positioned on the hydraulic plant. Parameter No. 14 must be configured by the installer (1= hot sanitary water circulation).

The circulation of hot sanitary water is useful to avoid water that becomes cold in the sanitary circuit if not used for a while. In this way the hot water will be always ready when requested.

The logic of recirculation pump function is as follows:

The pump will start when the below conditions are satisfied at the same time:

- The unit is on
- T3 (upper tank water temperature) \geq parameter 15 + parameter 16
- T6 (temperature of circulation water - thermosensor 18) \leq parameter 15-55°C

The pump will stop when one of the below conditions is satisfied:

- The unit is on
- T3 (upper tank water temperature) \leq parameter 15-2°C
- T6 (temperature of circulation water - thermosensor 18) \geq parameter 15

Parameters for recirculation pump function:

Code	Description	Range	Default	Remarks
14	Type of water pump	0/1/2	0	0: no water pump 1: (circulation pump) 2: (solar water pump)
15	Setting circulation water temperature	15~50 °C	35°C	Adjustable
16	Temp difference to start the circulation water pump	1~15 °C	2 °C	Adjustable

11.4. ON/OFF contact

Parameter 35, must be set to “0”.

- When ON/OFF contact is closed, and the controller is ON, the unit can work and the running mode is decided by the setting of the controller.
- When ON/OFF contact is closed, but the controller is OFF, the unit can't work.
- When ON/OFF contact is opened, but the controller is ON, the unit can't work (with the exception of external pump).
- If the controller is ON, and the ON/OFF status is changed from opened to closed, the unit will work by the previous settings of the controller (auto-restart).
- If the unit was previously in stand-by, in case the ON/OFF status is changed from opened to closed, the unit remains in stand-by.
- A signal/warning in case of remote OFF signal (opened contact) is displayed. In such a way the customer can understand why the unit is not working.

IMPORTANT

Only qualified personnel should design and install systems ON/OFF.

11.5. Electrical heater

11.5.1. Turned ON or OFF - Condition 1:

When the unit is switched on and the Electric Heater button on the control panel has not been switched on manually:

1)

When the lower tank temperature T2 equals “TS1 calc”, the compressor is switched off and if “TS1 calc” < manual setting value TS1, the electric heater will operate according to the following logic:

- ON: when the upper tank temperature $T3 \leq$ manual value TS1 -3°C (parameter 33, default 3°C), the electric heater is switched on;
- OFF: when the upper tank water temperature T3 reaches the set temperature TS1 manual value $+ 1^{\circ}\text{C}$.

2)

- ON: when the ambient temperature $\leq -10^{\circ}\text{C}$ or $> 44^{\circ}\text{C}$;
- OFF: when the ambient temperature $\geq -8^{\circ}\text{C}$ or $< 42^{\circ}\text{C}$.

3)

- ON: when there is high pressure or low pressure protection for 3 times within 30 min;
- OFF: when pressure protection occurs for the third time, the error code will be displayed, and this protection cannot be recovered unless the supply is disconnected.
- Therefore, the electric heater keeps running until the set temperature is reached, and then it switches off.

4)

- ON: when in defrost (only if parameter 20 is set to 1=on) or disinfection;
- OFF: when exiting defrost or disinfection.

11.5.2. Turned ON or OFF - Condition 2:

1)

When the unit is switched on and the electric heater button on the control panel has been switched on manually:

- ON: The compressor running time exceeds the E-heater delay time (parameter 3), and the tank water temperature above $T3 \leq$ TS1 manual $- 3^{\circ}\text{C}$;
- OFF: Tank water temperature is higher $T3 \geq$ TS1 manual $+ 1^{\circ}\text{C}$.

11.5.3. Turned ON or OFF - Condition 3:

1)

When the unit is switched off:

- ON: If the electric heater button on the control panel has been manually turned on when the unit is OFF, the electric heater will operate until the water in tank T3 reaches the set temperature TS2;
- OFF: The electric heater button on the control panel has been manually turned off or the water in tank T3 reaches the set temperature TS2.

2)

ON: lower the water temperature in tank $T2 \leq 5^{\circ}\text{C}$ (protection against water freezing);

OFF: lower the tank water temperature $T2 \geq 10^{\circ}\text{C}$ or the appliance is switched on.

12. FILLING, START UP AND OPERATION

12.1. Filling and initial start up

IMPORTANT

Check the product is connected to the earth cable. Check that the line voltage corresponds to that indicated on the product identification label/plate. The tank must be filled with water before the product is switched on or connected to a power supply. If you notice that the product is leaking water, disconnect the electrical supply immediately and call the Rointe Technical Service on 0203 321 5929.

- 1) Check that the charge pressure is correct.
- 2) Check that all water and electrical connections are correctly set.
- 3) Open the main stopcock and fill the unit. Check that there are no leaks from gaskets, pipes, joins or connections. Tighten the bolts or connections if needed. Do not exceed the maximum permitted pressure indicated.
- 5) Open successive hot taps starting with the one furthest from the product. Leave each tap open for a few minutes to allow any residual air to escape from the system. Once the water flow is observed to be continuous, close all taps.
- 4) Shut off the mains water supply to the flask and drain the system through the drain tap.
- 5) Refill the boiler. Open and close the hot water taps in the house to allow the water to flow freely and remove any residual impurities.
- 6) Manually open the relief and pressure valves briefly to remove air trapped behind the valve seat and to check the correct operation of this safety device.
- 7) Check the seals for leaks and rectify if necessary.
- 8) With the product filled with water, switch on the power supply. Check that the cylinder heats the water and that the thermostat is working correctly. Open the hot water taps to check that the product is supplying hot water.
- 9) Check that while the unit is heating, no water is coming out of the discharge valve. If water comes out, check the pressure of the installation.
- 10) Increase the temperature to maximum and allow the unit to heat up and the temperature to stabilise. Check again that no water comes out of the valves. Set the thermostat to the desired temperature to have the product ready for use.

12.2. Control panel

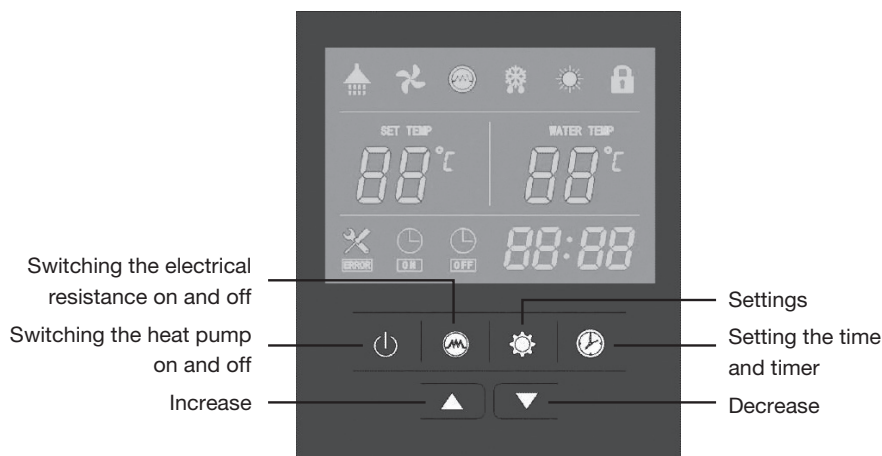
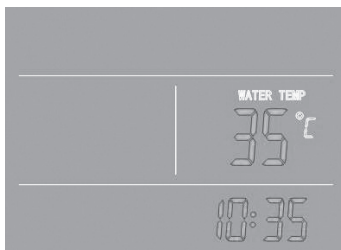


Fig 16 - Dalis heat pump control panel


	Hot water available	The icon indicates that the domestic hot water temperature has reached the set point. The hot water is available for use. Heat pump is in standby.
	Fan ventilation	The icon indicates that the fan ventilation function is enabled.
	Electrical heating	The icon indicates that the electrical heating function is enabled. The electrical heater will work according to the control program.
	Defrosting	The icon indicates that the defrosting function is enabled. This is an automatic function; the system will enter or exit the defrosting according to the internal control program.
	Heating	The icon indicates that the unit is operating in Heating mode.
	Key lock	The icon indicates the key lock function is enabled. The keys will be deactivated until this function is disabled.
	Left temperature display	The display shows the set water temperature. In case any malfunction occurs, this section will display the related error code.
	Right temperature display	When checking or adjusting the parameters, this section will display the related parameter value.
	Time display	The display shows the clock time or timer time.
	Timer 'ON'	The icon indicates that the timer 'ON' function is enabled.
	Timer 'OFF'	The icon indicates that the timer 'OFF' function is enabled.
	Error	The icon indicates there is a malfunction.




12.3. Power on

When you connect the unit to the power supply, all icons will appear on the display for 3 seconds. After the automatic verification and if the equipment is working properly, the unit enters standby mode, the following information will appear on the display.





12.4. Clock settings



When the device is switched on, press the button  to access the clock settings. The icons 88:88 hours and minutes will flash simultaneously.

To activate the hour and minute settings, press the button  and use the buttons   to set the hours and minutes.


Press the button  again to confirm the setting and exit the clock.

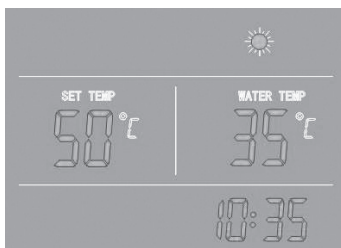
12.5. Locking the control panel

Press the buttons   simultaneously and hold for 5 seconds to lock the control panel.

Press the buttons   simultaneously and hold for 5 seconds again to unlock.

12.6. Switch on

Press and hold the button  for 2 seconds while the unit is in standby mode. After this it will turn on and start the "Warm-up mode".



On the left side of the screen, under the words SET TEMP, we will see the temperature set for the water (the temperature at which we want the water to be). On the right side of the screen, under the words WATER TEMP, we will see the current temperature of the water contained in the water tank.

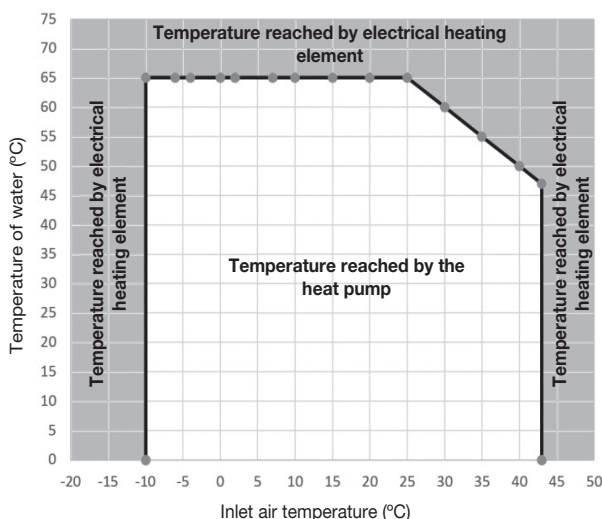
The heat pump will start working to reach the set temperature (SET TEMP). If the set temperature is higher than 65 °C, the electric heater will switch on as a support source to reach the set temperature.

If the outside air temperature is below -10 °C or above 44 °C, the water will be heated by the electric heater only.

While the heat pump is operating with low outdoor air temperature, the anti-freeze mode can be activated automatically to melt the ice accumulated on the evaporator.

12.7. Water temperature setting

While the heat pump is running, use the buttons ▲ ▼ to set the desired water temperature. The maximum temperature achievable with the heat pump alone depends directly on the inlet air temperature. See the temperature and performance table below:



If the set temperature (via the control panel) is higher than the temperature achievable by the heat pump alone (shown in the graph), the electric heater will automatically switch on to reach this temperature.

IMPORTANT

To reduce energy consumption, avoid setting temperatures above 55°C if it is not necessary.

12.8. Switching off the equipment


To turn off the heat pump, press and hold the button ⏻ for 2 seconds while the equipment is running.

13. FUNCTIONS






13.1. BOOST function

While the heat pump is running, press the button  to activate the “Boost Mode”. The icon  will appear on the display and the electric heater will start to operate according to the set programme and simultaneously with the heat pump until the set temperature is reached.






13.2. Programming

When the appliance is switched on, press the button  to access programming. The icons for 88:88 hours and minutes will flash simultaneously. Next:

- Set the power-on time:

Use the buttons   to set the time. Press the button  to access the minute setting. Use the buttons   again to set the minutes.

- Set the off time:

Press the button  to access the off setting. The timer off icon  and the 88: clock icon will flash simultaneously. Use the buttons   to set the time. Press the button  again to save and exit programming mode.

Press the button  to stop the timer, while the schedule mode is activated.

IMPORTANT

The on and off functions of the timer can be set simultaneously. The programming is repeated automatically on a daily basis. The timer settings are saved even in the event of a power failure.


13.3. Anti-legionaire's mode

To eliminate any traces of harmful bacteria in the water contained inside the tank, the electrical resistance is switched on periodically, whether the appliance is on or off (in standby mode). The heating element will automatically switch off when the temperature reaches 70 °C (temperature at which water disinfection is guaranteed).


13.4. No-frost mode

When the unit is in standby mode, if the water temperature drops below 5 °C, the electric heater will switch on until the water temperature rises to 10 °C. This automatic mode protects the product components from excessive cold.

13.5. Defrost mode

The icon  indicates that the defrost function is activated. This is an automatic activation function. The system will enter or exit this mode according to the control programme.



13.6. Heating element mode

By pressing the heating element button  when the appliance is in standby mode will activate the heating element until the water in the top of the tank reaches the set temperature.

13.7. Anti-lock function

For products connected to external circulation systems, if the unit has been off for over 12 hours, the function will activate the external circulation pump for 2 minutes to prevent blockage of the system.

13.8. Fan function

The fan icon  indicates that the fan function is enabled. When the unit is on, press and hold the button  for 5 seconds to enable or disable the fan function. By enabling this option, the fan will continue to run even when the water reaches the set temperature and the unit is in standby mode. Otherwise, if we disable this function, the fan will stop running when the water temperature reaches the desired set point and the unit enters standby mode.

14. TROUBLESHOOTING

IMPORTANT

In case of problems or equipment performance, without the occurrence of any of the alarms or errors described, check to see if the problem can be easily solved by referring to the items specified in the table below prior to seeking technical assistance.

Problem	Possible causes
The heat pump does not work	There is no electricity. The plug is not correctly inserted in the socket.
The compressor and/or the fan do not work	The set safety period of time has not finished. The scheduled temperature has been reached.

14.1. Malfunctioning of the unit and error codes

When an error occurs or the protection mode is set automatically, the circuit board and the wired controller will both display the error message.

See next page for a list of error codes, reasons and actions. If, after checking this list, you still need assistance, please call our Technical Support department on **0203 321 5929** or send an email to **support@rointe.co.uk**. Please check this list **before** contacting us.

Protection/ Malfunction	Error code	LED indicator	Possible reasons	Corrective actions
Lower tank water temp. sensor failure	P1	1flash	1) Sensor open circuit 2) Sensor short circuit 3) PCB board failure	1) Check sensor connection 2) Replace sensor 3) Change PCB board
Upper tank water temp. sensor failure	P2	2 flashes	1) Sensor open circuit 2) Sensor short circuit 3) PCB board failure	1) Check sensor connection 2) Replace sensor 3) Change PCB board
Evaporator coil temp. sensor failure	P3	3 flashes	1) Sensor open circuit 2) Sensor short circuit 3) PCB board failure	1) Check sensor connection 2) Replace sensor 3) Change PCB board
Return gas temp sensor failure	P4	4 flashes	1) Sensor open circuit 2) Sensor short circuit 3) PCB board failure	1) Check sensor connection 2) Replace sensor 3) Change PCB board
Ambient temp. sensor failure	P5	5 flashes	1) Sensor open circuit 2) Sensor short circuit 3) PCB board failure	1) Check sensor connection 2) Replace sensor 3) Change PCB board
Solar temp. sensor failure	P6	10 flashes	1) Sensor open circuit 2) Sensor short circuit 3) PCB board failure	1) Check sensor connection 2) Replace sensor 3) Change PCB board
T6 too high temp. protection	P8	No flashes	1) T6 too high temp. 2) T6 sensor has problem	1) P8 appears at 125°C and disappears at 120°C 2) Check and if it's necessary replace sensor
Emergency switch off	EC	Shows the code	1) Connecting wire off 2) PCB board failure	1) According to the physical truth judging whether is normal or not 2) Change PCB board
High pressure protection (HP Switch)	E1	6 Flashes	1) Too high air inlet temp 2) Less water in the tank 3) Electronic expansion valve assembly blocked 4) Too much refrigerant 5) Switch damaged 6) Uncompressed gas is in refrigerant system 7) PCB board failure	1) Check if air inlet temp is over working limited 2) Check if tank is full of water. If not, charge water. 3) Replace electronic expansion valve assembly 4) Discharge some refrigerant 5) Replace a new switch 6) Discharge and then recharge the refrigerant 7) Change PCB board

Protection/ Malfunction	Error code	LED indicator	Possible reasons	Corrective actions
Low pressure protection (LP Switch)	E2	7 Flashes	1) Too low air inlet temp 2) Electronic expansion valve assembly blocked 3) Too less refrigerant 4) Switch damaged 5) Fan assembly cannot work 6) PCB board failure	1) Check the air inlet temp is over the working limited 2) Replace electronic expansion valve assembly 3) Charge some refrigerant 4) Replace a new switch 5) Check if fan working when compressor working. If not, some problems with fan assembly 6) Change PCB board
Over heat protection (HTP Switch)	E3	8 Flashes	1) Too high tank water temp 2) Switch damaged 3) PCB board failure	1) If the tank water temp is over 85°C, switch will open and unit will stop for protection. After water comes to normal temp. 2) Replace a new switch 3) Change PCB board
Solar thermal collector high temp protection	E4	11 Flashes	1) Solar water circuit water flow very little or without water flow 2) Related connecting wires off 3) Water pump failure 4) PCB board failure	1) Solar water circuit fluid infusion and exhaust 2) Related connecting wires being reconnected 3) Change water pump 4) Change PCB board
Water flow failure	E5	9 Flashes	1) Solar water circuit water flow very little or without water flow 2) Related connecting wires off 3) Water pump failure 4) Water flow switch failure 5) PCB board failure	1) Solar water circuit fluid infusion and exhaust 2) Related connecting wires being reconnected 3) Change water pump 4) Change water flow switch 5) Change PCB board
Defrost	Defrosting indicate	Always flashing		
Communication failure	E8	Bright		

IMPORTANT

When remote signal is on, no P7 will be showed on the controller, when remote signal is off, P7 will be displayed. It is not an error code, but a situation for remote on/off signal.

In the event you do not succeed in solving the problem, switch off the equipment and call our Technical Support department on 0203 321 5929 or send an email to support@rointe.co.uk.

15. MAINTENANCE AND CLEANING

IMPORTANT

Before attempting any maintenance operation, make sure that the equipment is not and cannot be accidentally connected to the power supply. Therefore, disconnect the equipment from the mains power supply before carrying out any maintenance or cleaning activities.

Our guarantee will be applied on the condition that the heater has been properly installed with the SAFETY GROUP and the PROTECTIVE CAPS that we supply together with the product.

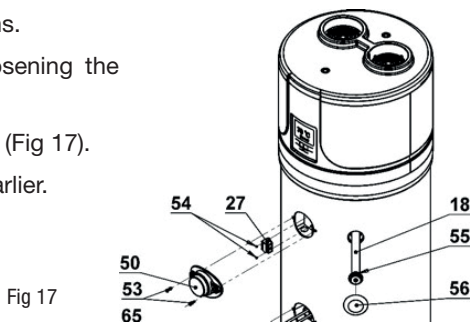
Do not use any abrasive products on the body of the product such as chemicals, rough cloths, stiff bristle brushes or wire/steel wool.

Any equipment repair must be performed by qualified personnel. Improper repairs can put the user in serious danger. If your equipment needs to be repaired, please call our Technical Support department on 0203 321 5929 or send an email to support@rointe.co.uk.

15.1. Resetting of safety thermostat

The unit is equipped with a safety thermostat, activated in case of overheating. When active it must be manually reset. To reset the safety thermostat, follow these steps:

- Disconnect the appliance from the mains.
- Remove plastic cover (No. 50) by loosening the corresponding lock screws 53 (Fig 17).
- Manually reset the safety thermostat 27 (Fig 17).
- Refit the top cover that was removed earlier.



IMPORTANT

The activation of the safety thermostat may be caused by a fault in the control panel or by the absence of water in the tank.

WARNING

Carrying out repair operations on parts that fulfil safety functions jeopardises the safe operation of the equipment. Replace defective parts only with original spare parts.

The intervention of the thermostat excludes the operation of the electric heating elements but not of the heat pump system within the permissible operating limits.

15.2. Thermal protections

First level of protection: when the water in the tank rises to 85°C, the unit will stop and the corresponding error code will display on the control panel. This is an automatic restart protection. When the tank water temperature drops, the unit can restart.

Second level of protection: when the water in the tank continues to rise and reaches 90°C, the manual reset safety thermostat is activated and the unit stops, requiring a manual reset.

15.3. Inspections

A visual inspection of the products' condition and systems including leaks and the ventilation filter is recommended on a quarterly basis, conducted by a qualified professional.

Inspection and tightening of bolts, nuts, flanges and water supply connections that may have been loosened by vibrations is recommended annually. This must be conducted by a qualified professional. We also recommend to check all magnesium anodes annually.

15.4. Magnesium anodes

The magnesium anode (No. 18 in Fig. 17), also known as the “sacrificial” anode, prevents stray currents generated inside the product, which can lead to corrosion processes on the inside surface and the accumulation of minerals on the inside of the heater.

Magnesium is a metal with a lower electrochemical potential than the inside lining of the tank, so it first attracts the negative charges that form when the water is heated and causes corrosion. Therefore, the anode is “sacrificed” by corroding this instead of the tank.

The integrity of magnesium anodes should be checked **at least every year** by qualified personnel. Before carrying out the inspection:

- Drain the water from the heater.
- Unscrew the upper anode and check its state of corrosion; if **more than 30%** of the anode surface is corroded, it **must be replaced**.

The anodes have appropriate sealing gaskets to prevent water leakage. We recommend to use anaerobic thread sealant compatible for use in sanitary and heating systems. The gaskets should be replaced with new ones when inspected yearly and anode replaced.

IMPORTANT

The integrity of the magnesium anodes **must be checked annually**. We are not responsible for any consequences caused by not obeying these instructions regarding the anodes.

15.5. Emptying the water heater

It is advisable to drain the water from inside the water heater if it should remain unused for a period of time, especially at low temperatures to avoid freezing water. It is sufficient to disconnect the water supply inlet connection. Alternatively, during the installation stage of the system, it is advisable to install a drain trap with a connection to a hose.

16. PRODUCT DISPOSAL

IMPORTANT

This equipment contains fluorinated greenhouse gases. Maintenance and disposal operations must only be carried out by qualified personnel.

Under the European Directive 2012/19/UE on Waste Electrical and Electronic Equipment (WEEE), the product cannot be disposed of in the usual council bins and containers. They must be separated to optimise the recovery and recycling of all of the components and materials and reducing the impact to human health and the environment. The symbol of the container crossed out over a horizontal line is marked on all of ROINTE products to remind the consumer of the obligation to separate them on disposal. The consumer should contact the local authority or original point of sale to learn more about the correct disposal of this product. The unauthorised removal of the device by the user may lead to administrative sanctions imposed on the user by the applicable legislation.

17. PRODUCT GUARANTEE

There are certain terms and conditions on this ROINTE product. These conditions comply with all the rights construed within national legislation, as well as any additional rights and guarantees, which are offered by ROINTE. Please ensure that you register your product guarantee at www.rointe.com/uk.

Any incident you might detect with your product can be sorted by the product seller or by ROINTE. Please contact ROINTE by telephoning **0203 321 5929** or send an email to **support@rointe.co.uk**, through which we will instruct you on how to solve the incident.

You will need to state the product reference and serial number (located on the metal tag with the product) and the type of incident when contacting ROINTE. In addition,

please attach a copy of the product invoice and/or proof of purchase that indicates the date on which the product was sold.

Model: DWI260DHW5 Type: Outdoor air source (EN 16147:2017)		Series: DALIS		Serial No. 	
Actual capacity	251 L			 205003 YYYYMMDDSS	
Max. working pressure (water tank)	0.8 MPa	Code: 305697			
Power Supply / Frequency	230V~ / 50Hz	Dimensions	2011 / 630 / 630 mm		
Max. current / Max. starting current	9.6A / 13.5A	Gross Weight	106 kg		
Max. power consumption	2 kW	Net Weight	99 kg	 205003 YYYYMMDDSS ION 9741	
Refrigerant type / Charge quantity	R134a / 0.9kg	Producer:  Pol. Ind. Vicente Arbolinos, Calle E Parcela 43 C.P. 30140 Santomera (Murcia) Spain			
GWP / CO2 equivalent	1430 / 1287t				
Max. / Min. pressure refrigerant circuit	2.5 / 0.1 MPa				
		 Made in Bulgaria		IPX4	
		Contains fluorinated greenhouse gases!			

17.1 Terms & conditions

1. ROINTE guarantees there are no material defects of design or manufacture at the time of original purchase. ROINTE guarantees the inner tank for 60 months and electric plus electronic components for 24 months for this product only, provided it has not been modified in any way. **Please ensure you register your product online at www.rointe.com/uk with a valid proof of purchase, such as an invoice.**

2. If during the guarantee period, the product does not work correctly under normal use, and any design, material or manufacturing defect is found, ROINTE will repair or substitute the product as it sees fit, in accordance with the terms and conditions as follows:

2.1. The guarantee is only applicable if the original guarantee is issued by the seller and when the said guarantee has been registered with ROINTE correctly, including product reference, series number (marked on the product's metal tag), purchase date and proof of purchase. The product guarantee can be registered on our website at www.rointe.co.uk or can be sent via email to support@rointe.co.uk within 90 days of installation. ROINTE reserves the right to reject the guarantee when this information has been removed or modified after the original product purchase.

2.2. The guarantee is only applicable if the product has been installed by a competent person in accordance with this installation manual and all current regulations at the time of installation.

2.3. The guarantee is only applicable to those cases that concern material, design and manufacturing defects, and under no circumstances covers damage to the product for the following reasons:

- i) Damage caused by negligence and / or misuse of the product, i.e. used for other purposes that are not construed as its normal use or for not respecting instructions of use and maintenance given by ROINTE, as well as incorrect installation or use of the

product that may not comply with the current technical standards of safety.

ii) Corrosion of any part of the product caused by direct exposure to salt-water. When the product is installed less than 200m from the coast, the guarantee period for damages caused by corrosion will be reduced by 50%.

iii) Any unauthorised modification of the product or repairs of the product carried out by third parties or unauthorised persons, or opening of the product by third parties or unauthorised persons.

iv) Any accidents that are deemed outside the control of ROINTE, such as (but not limited to): lightning, fires, floods, natural disasters, public disorder, atmospheric or geologic phenomena etc.

v) Faults that result from incorrect installation. Guidance can be found from Rointe and in this installation manual. If in doubt, please contact ROINTE.

2.4. Any repairs or substitutions completed as part of this guarantee service do not allow extension periods or new periods of guarantee i.e. your guarantee will not be extended should a repair or substitution of this product take place.

2.5. Any repairs or substitutions covered under this guarantee must be parts that are functionally equivalent. The defective parts or parts removed or replaced shall become the property of ROINTE and should be returned as such.

2.6. The product must be installed in a way that allows access for ROINTE technicians or authorised persons if they need to gain access to the product for repair or maintenance. The user/client is responsible for any costs or organisation required to provide access to the products for repair and/or substitution.

2.7. Aesthetic wear and tear produced by use, the cleaning of lime scale accumulation, revision and substitution of the magnesium anode as well as other operations of maintenance of the product. Such repairs will be charged to the user.

2.8. The product is installed appropriately, in a frost free environment and has solely been used for the purpose of heating potable water that complies with current (at time of installation) regulations and standards and is not fed with water from private sources.

2.9. The product has not been subjected to excessive pressure or electrolytic actions from dissimilar materials or attack from salt deposits.

3. The ROINTE Technical Support department will advise you if you need to purchase any parts not covered under this guarantee or out of guarantee.

4. This guarantee will be invalid if the product: has been manipulated, modified and / or repaired in any way and/or by unauthorised persons. This guarantee will also be invalid if the product is not correctly installed.

5. This guarantee is not transferable and does not include claims due to damage by lime scale or frost.

6. Proof of purchase will be required by ROINTE for any claim.
7. This guarantee does not affect your statutory rights.
8. This guarantee does not affect the buyer's legal rights stipulated in current national legislation, nor affects those rights against the distributor or installer that could come forth in compliance with the purchase contract.
9. In the absence of applicable national legislation, this guarantee shall prevail and may be construed as the buyer's only protection. ROINTE, its offices, employees, distributors and installers will not be held responsible for any accidental damage that emerges due to infringement of any rules implicitly related to this product.

IMPORTANT

For details on how to register your product, please see section 17.2 on the next page. For help about the product or guarantee, please contact ROINTE by phoning **0203 321 5929** or send an email to **support@rointe.co.uk**.

17.2 How to register your product guarantee

WEBSITE

1. Go to www.rointe.com/uk/register-your-guarantee/.
2. Login to your account or create a new one if you need to. Click on “My products”.
3. Enter your **product reference** (alphanumeric and in upper case).
4. Enter your **serial number** (26 digits located on the product metal tag, starts with 843).
5. Upload your **proof of purchase**, such as invoice in PDF, JPEG or PNG format. This is not mandatory but by doing so you ensure your guarantee period is accurate.
6. Click “Register”. Congratulations! Your product is now registered.

EMAIL

1. Send an email to support@rointe.co.uk with the following information:
 - **Customer name, address and postcode**
 - **Telephone number and email address**
 - **Product reference** (as described in 1.4. above)
 - **Serial number** (as described in 1.5. above)
 - **Purchase date and proof of purchase** (as described in WEBSITE section above).
2. Our Technical Support team will confirm your product registration and request any additional information needed via email.

POST

1. Post the information listed in the EMAIL section above to: **INDUSTRIAS ROYAL TERMIC, S.L. t/a Rointe UK, C/E Parcela 43, 30140, Santomera (SPAIN).**

18. COMMISSIONING RECORD

CUSTOMER DETAILS			
NAME:			
ADDRESS:			
POSTCODE:		TELEPHONE NO.	
INSTALLER DETAILS			
COMPANY NAME:		DATE:	
ADDRESS:			
POSTCODE:		TELEPHONE NO.	
INSTALLER NAME:		REGISTRATION NO.	
SIGNATURE:			
COMMISSIONING ENGINEER (if different)			
COMPANY NAME:		DATE:	
ADDRESS:			
POSTCODE:		TELEPHONE NO.	
ENGINEER NAME:		REGISTRATION NO.	
SIGNATURE:			
CYLINDER/PRODUCT DETAILS			
MODEL:		CAPACITY (l)	
SERIAL NO.			

19. SERVICE RECORD

SERVICE RECORD DETAILS

Before completing the appropriate Service Record below, please ensure you have carried out the service as described in the manufacturer's instructions and in compliance with all relevant codes of practice. It is recommended that your hot water system is serviced regularly and that your service engineer completes the appropriate Service Record below.

SERVICE 1 DATE		SERVICE 2 DATE	
ENGINEER NAME		ENGINEER NAME	
TELEPHONE NO.		TELEPHONE NO.	
REG NO.		REG NO.	
SIGNATURE		SIGNATURE	

SERVICE 3 DATE		SERVICE 4 DATE	
ENGINEER NAME		ENGINEER NAME	
TELEPHONE NO.		TELEPHONE NO.	
REG NO.		REG NO.	
SIGNATURE		SIGNATURE	

SERVICE 5 DATE		SERVICE 6 DATE	
ENGINEER NAME		ENGINEER NAME	
TELEPHONE NO.		TELEPHONE NO.	
REG NO.		REG NO.	
SIGNATURE		SIGNATURE	

SERVICE 7 DATE		SERVICE 8 DATE	
ENGINEER NAME		ENGINEER NAME	
TELEPHONE NO.		TELEPHONE NO.	
REG NO.		REG NO.	
SIGNATURE		SIGNATURE	

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T. 01 73 05 70 01

Rointe Nederland

3197 LG Botlek, RT
T. 010 742 00 46

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