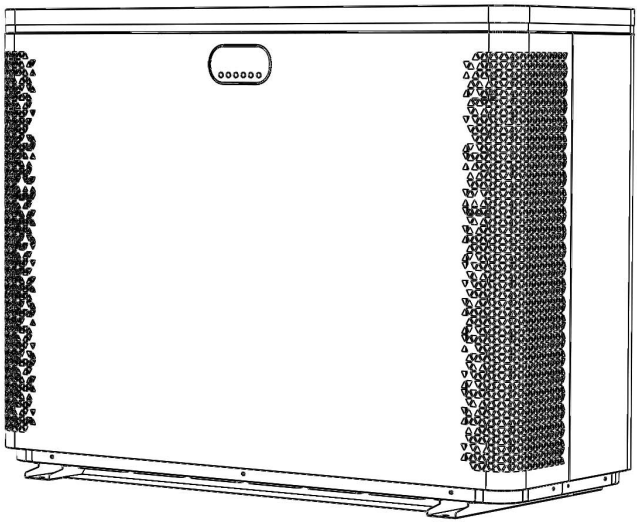


Pinnacle Heat Pump

Models: 78581 78582 78583
78584 78585 78586

⚠ WARNING

FOR YOUR SAFETY – This product must be installed and serviced by a contractor who is licensed and qualified in pool equipment in accordance with the latest applicable version of AS/NZS 3000, along with any other applicable local or council codes/standards. Before installing this product, read and follow all warning notices and instructions that accompany this product. Failure to follow warning notices and instructions may result in property damage, personal injury, or death. Improper installation and/or operation may void the warranty.

Improper installation and/or operation can create unwanted hazards which may cause serious injury, property damage, or death.

ATTENTION INSTALLER – This manual contains important information about the installation, operation and safe use of this product. This information should be given to the owner/operator of this equipment.

Table of Contents

IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS

	Read the instructions in this manual carefully before using the device.		This device contains R32.

⚠ WARNING

- **Before handling the appliance, it is vital that you read this installation and user manual, as well as the "Warranties" booklet delivered with the appliance.** Failure to do so may result in material damage or serious or fatal injury and will void the warranty.
- Keep and pass on these documents for later viewing throughout the appliance's service life.
- The distribution or modification of this document in any way is prohibited, without prior authorisation from the manufacturer.
- The manufacturer is constantly developing its products to improve their quality.
- We reserve the right to totally or partially change our products' features or the content of this document without prior warning.

⚠ WARNING

GENERAL WARNINGS

- Failure to respect the warnings may cause serious damage to the pool equipment or cause serious injury, even death.
- Only a person qualified in the technical fields concerned (electricity, hydraulics or refrigeration) is authorised to carry out maintenance or repair work on the appliance. The qualified technician working on the appliance must use/wear personal protective equipment (such as safety goggles and protective gloves, etc.) in order to reduce the risk of injury occurring when working on the appliance.

- Before handling the appliance, check that it is switched off and isolated.
- The appliance is intended to be used for pools and spas for a specific purpose; it must not be used for any purpose other than that for which it was designed.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
- The appliance must be installed according to the manufacturer's instructions and in compliance with local and national standards.
- The installer is responsible for installing the appliance and for compliance with national installation regulations. Under no circumstances may the manufacturer be held liable in the event of failure to comply with applicable local installation standards.
- For any work other than the simple user maintenance described in this manual, the product should be referred to a qualified professional.
- If the appliance suffers a malfunction, do not try to repair it yourself; instead contact a qualified technician.
- Refer to the warranty conditions for details of the permitted water balance values for operating the appliance.
- Deactivating, eliminating or by-passing any of the safety mechanisms integrated into the appliance shall automatically void the warranty, in addition to the use of spare parts manufactured by unauthorised third-party manufacturers.
- Do not spray insecticide or any other chemical (inflammable or non-inflammable) in the direction of the appliance, as this may damage the body and cause a fire.
- Do not touch the fan or moving parts and do not place objects or your fingers in the vicinity of the moving parts when the appliance is in operation. Moving parts can cause serious injury or even death.

⚠ WARNING

WARNINGS ASSOCIATED WITH ELECTRICAL APPLIANCES

- The power supply to the appliance must be protected by a dedicated Residual Current Device (RCD), in accordance with AS/NZS 3000.
- The equipment does not include an electrical switch for disconnection; include a disconnection supply device (isolator switch) in the fixed wiring in accordance with AS/NZS 3000.
- The unit must be permanently hardwired by a licensed electrician to a fixed wiring supply and connected via a dedicated circuit fitted with a compliant isolating switch in accordance with AS/NZS 3000.
- Before carrying out any operations, check that:
  - The required input voltage indicated on the appliance information plate corresponds to the mains voltage;
  - The mains supply is compatible with the appliance's electricity needs and is correctly grounded.
- In the event of abnormal operation or the release of odours from the appliance, turn it off immediately, isolate it from the power supply and contact a professional.
- Before servicing or performing maintenance on the appliance, check that it is powered off and completely isolated from the power supply. Moreover, check that the heating priority (where applicable) is deactivated and that any other device or accessory connected to the appliance is also disconnected from the power supply.
- Do not disconnect and reconnect the appliance to the power supply when in operation.
- If the power cord is damaged, it must be replaced by a suitably qualified technician.
- Do not perform maintenance or servicing operations on the appliance with wet hands or if the appliance is wet.
- In stormy weather, isolate the appliance from the power supply to prevent it from suffering lightning damage.
- Do not immerse the appliance in water or mud.

⚠ WARNING

WARNINGS CONCERNING APPLIANCES CONTAINING R32 REFRIGERANT

- This device contains R32 refrigerant, a class A2L refrigerant, which is considered to be potentially flammable.
- Do not discharge R32 fluid into the atmosphere. This is a fluorinated greenhouse gas, covered by the Kyoto Protocol, with a Global Warming Potential (GWP) = 675 (European regulation EU 517/2014).
- In order to comply with the applicable standards and regulations in terms of the environment and installation, in particular Decree No. 2015-1790 and/or European regulation EU 517/2014, a leak test must be performed on the cooling circuit when the appliance is first started and at least once a year. This operation must be carried out by a specialist certified to test cooling appliances.
- Install the unit outdoors. Do not install the unit indoors or in an enclosed, non-ventilated area.
- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).
- Do not pierce or burn.
- Be aware that R32 refrigerant may not contain an odour.

⚠ WARNING

INSTALLATION AND MAINTENANCE

- Our products may only be assembled and installed in pools compliant with standards IEC/HD 60364-7-702 and required national rules. The installation should follow standard IEC/HD 60364-7-702 and required national rules for swimming pools. Consult your local dealer for more information.
- The appliance may not be installed close to combustible materials, or the air duct inlet of an adjacent building.
- During installation, troubleshooting and maintenance, pipes may not be used as steps: the pipe could break under the weight, spilling coolant and possibly causing serious burns.
- When servicing the appliance, the composition and state of the heat transfer fluid must be checked, as well as the absence of any traces of coolant.
- During the appliance's annual sealing test in accordance with applicable legislation, the high and low pressure switches must be checked to ensure that they are securely fastened to the cooling circuit and that they cut off the electrical circuit when tripped.
- During maintenance work, ensure there are no traces of corrosion or oil around the cooling components.
- Before beginning work on the cooling circuit, stop the appliance and wait for a few minutes before fitting the temperature and pressure sensors. Some elements such as the compressor and piping may reach temperatures in excess of 100°C and high pressures with the consequent risk of severe burns.

⚠ WARNING

TROUBLESHOOTING

- All brazing must be carried out by qualified brazers.
- Replacement pipes must always be made of copper in compliance with standard NF EN 12735-1.
- Leak detection; pressure test:
  - never use oxygen or dry air (risk of fire or explosion)
  - use dry nitrogen or the mixture of nitrogen and refrigerant indicated on the information plate,
  - the test pressure for both the high and low pressure circuits must not exceed 42 bar in cases where pressure gauges are connected to the appliance.
- The high pressure circuit pipes are made of copper and have a diameter equal to or greater than 1-5/8". A certificate as indicated in §2.1 in compliance with standard NF EN 10204 must be requested from the supplier and filed in the installation's technical file.
- Technical data relative to the safety requirements of the various applicable directives are indicated on the information plate. All this information must be recorded in the appliance's installation manual, which must be kept in its technical file: model, code, serial number, maximum and minimum OT, OP, year of manufacture, CE marking, manufacturer's address, coolant and weight, electrical parameters, thermo-dynamic and acoustic performance.

⚠ WARNING

LABELLING

- Equipment shall be labelled stating that it has been decommissioned and emptied of refrigerant.
- The label shall be dated and signed.
- For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

⚠ WARNING

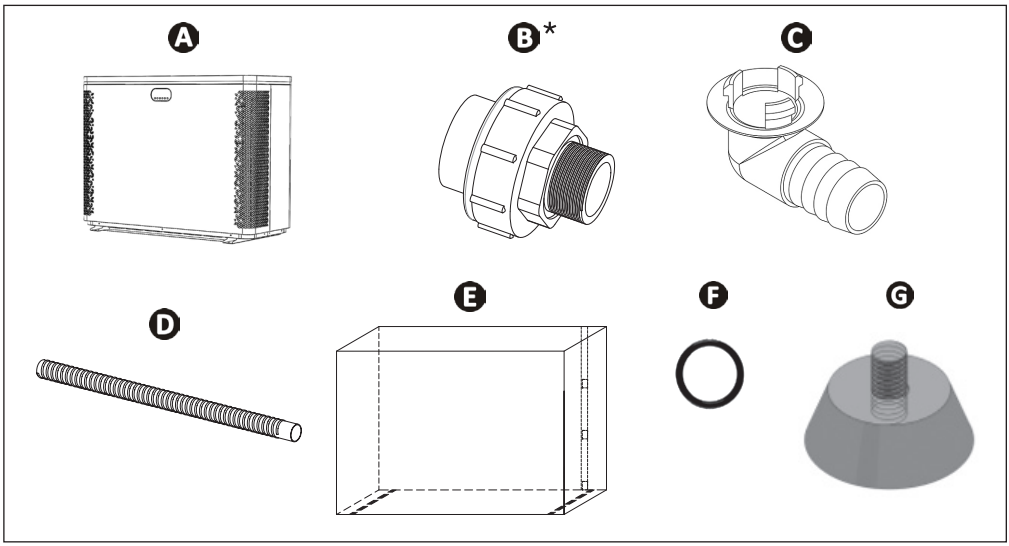
RECOVERING

- When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.
- When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.
- The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, flammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery appliance, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer it in doubt.
- The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.
- If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When all is drained from a system, it shall be carried out safely.

SAVE THESE INSTRUCTIONS

Section 1. System Overview

1.1 Contents



A	AstralPool Pinnacle
B*	Hydraulic inlet/outlet connectors (x2)
C	Condensate drainage elbow Ø18 (x3)
D	Drainage pipe (x3)
E	Winter cover
F	Rubber joint (x2)
G	Anti-vibration feet (x4)

* Two protective caps are placed behind the connectors. Remove them the first time the appliance is used. Keep them for later use (winterizing).

1.2 Technical Data

Performances: Air at 27 °C / water at 26 °C / humidity at 80 %							
		78581	**78582**	**78583**	**78584**	**78585**	**78586**
Operating power (max-min speed)	kW	10,7- 2,65	12,5 - 4,06	15,3 - 4,0	21,7 - 5,27	25 - 4,6	31,5 - 7,8
Consumed power (max-min speed)	kW	1,67 - 0,12	1,82- 0,19	2,25 - 0,2	3,5 - 0,28	3,71- 0,24	4,63 - 0,36
COP		6,41 - 22,3	6,87-22,1	6,8 - 21,8	6,2 - 21,1	6,1 - 20,8	6,8 - 21,8

Performances: air at 15 °C / water at 26 °C / humidity at 70 %							
		78581	**78582**	**78583**	**78584**	**78585**	**78586**
Operating power (max-min speed)	kW	7,6 - 1,9	9,6 - 3,0	12,0 - 3,0	17 - 4,65	19,5 - 4,6	24,5 - 7,0
Consumed power (max-min speed)	kW	1,4 - 0,3	1,8 - 0,5	2,3 - 0,45	3,5 -0,7	3,8 - 0,75	4,9 - 1,1
COP		5,41 - 13,66	5,2 - 13,28	5,1 - 13,5	5 - 13,46	5,03 - 13,16	5 - 13,45

Technical specifications		
Operating temperature	Air	from -15 to 43 °C
	Water	In “heating mode” from: 15 to 35 °C In “cooling mode” from: 8 to 35°C
Operating pressure	Refrigerant	from 0,5 to 42 bar (from 0,05 to 4,2 MPa)
	Water	from 0 to 2 bar (from 0 to 0,2 MPa)
Power supply		220 - 240 V / 1 phase / 50 Hz (78581, 78582, 78583, 78584, 78585) 380 - 415V / 3 phase / 50 Hz (78586)
Admissible variation in voltage		± 6 % (during operation)
Hydraulic connections		2 PVC unions Ø 40 NB
Type of refrigerant fluid		R32
Protection rating		IPX4
Frequency bands	GHz	2,400 - 2,497
Installation location		outdoors
Wi-Fi		2.4 GHz

Technical specifications							
		78581	**78582**	**78583**	**78584**	**78585**	**78586**
EN 17645 SCOP		7,9	7,4	7,4	7,3	7,4	7,2
Nominal operating power	A	5,89	7,92	9,74	15,5	16,15	8,76
Max operating power	A	10,72	12,8	15,0	17,1	23,09	10,75
Minimum cable section*	mm^2	3 x 1,5		3 x 2,5	3 x 4	3 x 4	5 x 2.5
Acoustic power** (max-min)	dB(A)	61 - 52	62 - 53	64 - 57	65 - 56	68 - 61	68 - 61
Acoustic pressure at 10 m** (max-min)	dB(A)	33 - 23	33 - 23	34 - 25	34 - 24	35 - 27	35 - 28
Recommended water flow	m^3/h	4,3	5,3	6,5	9,6	10,3	12,3
Refrigerant fluid load	kg	0,53	0,65	0,85	1,15	1,3	1,8
	Tonn CO2 eq.	0,358	0,439	0,574	0,776	0,878	1,215
Approximate weight	kg	82	87	105	122	150	155

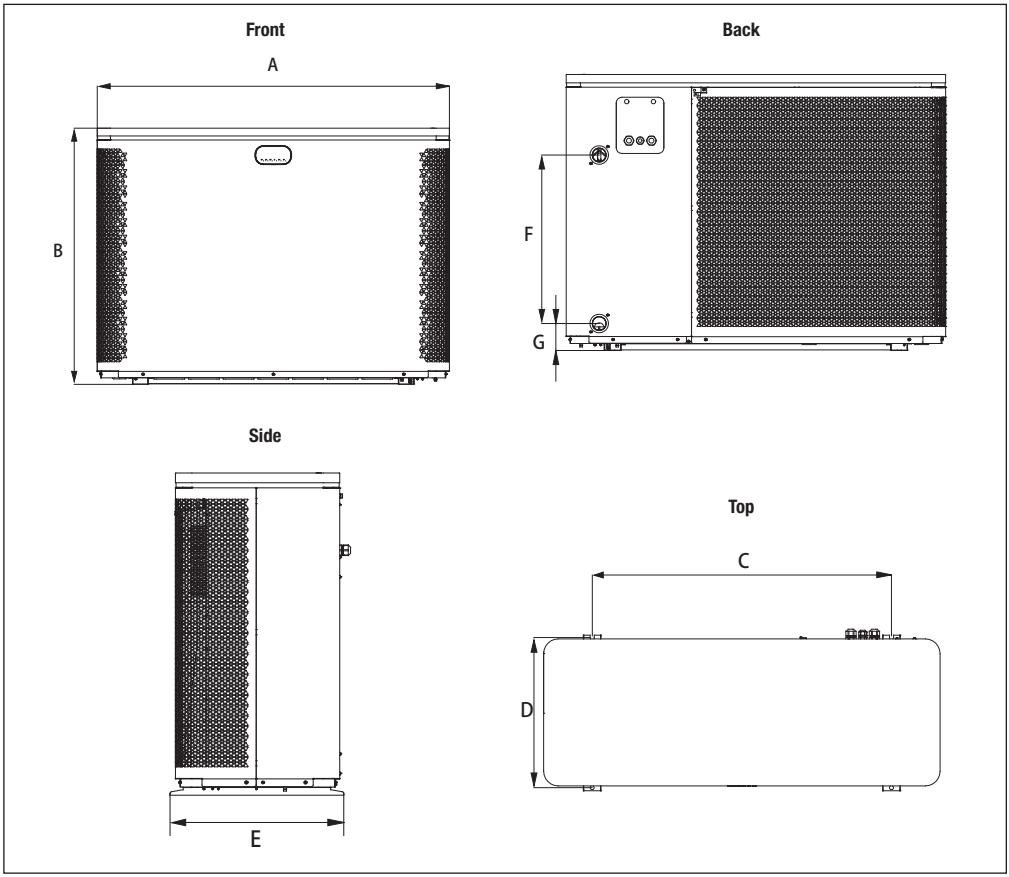
NOTE: The technical specifications are provided for information purposes only. The manufacturer reserves the right to make changes without prior notice.

* Values provided for information purposes for a maximum length of 20 metres (calculation base: NFC15-100), must be checked and adapted to the installation conditions and standards of the installation country.

** Acoustic values at 10 m in accordance with Directives EN60704-1:2010+A11:2012 standard

1.3 Dimensions

1.3.1 Appliance Dimensions



	A	B	C	D	E	F	G
78581	1061	787.2	810	422	467	350	96.2
78582							
78583	1161	885.2	910	468	500	465	96.2
78584							
78585	1351	983	1020	501	530	600	96.2
78586							

Table 1. Dimensions (mm)

Section 2. Installation

2.1 Selecting the Location

2.1.1 Installation Precautions

⚠ WARNING

- The appliance should be installed at a distance of at least 2 metres from the edge of the pool.
- Do not lift the appliance by the body; use its base.

- The appliance can only be installed outdoors: provide free space around it (see *Section 2.1.2, Location Spacing*).
- Place the appliance on its anti-vibration pads (supplied with appliance) on a stable, solid and level surface.
- The surface must be able to bear the weight of the appliance (in particular in the case of installation on a roof, a balcony or any other support).
- The appliance may be secured to the ground using the holes in the base of the appliance or with rails (not supplied).

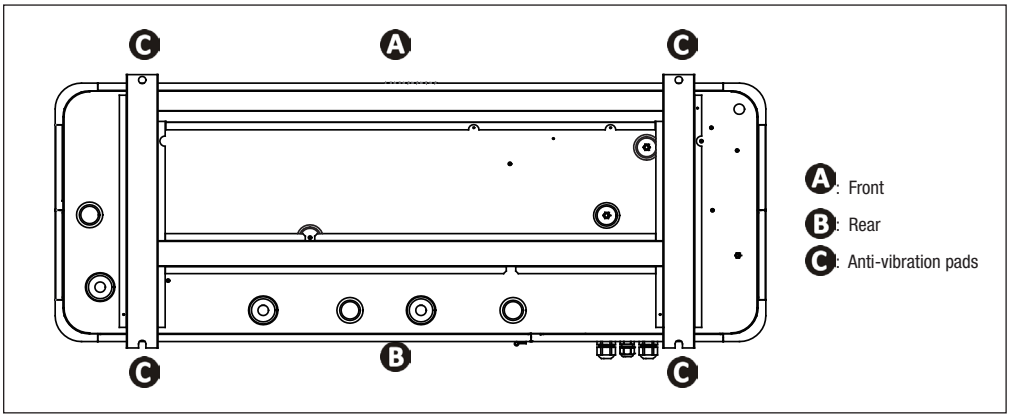


Figure 1. View of the appliance base from below for installing the anti-vibration pads

The appliance **must not** be installed:

- In a closed and unventilated room
- In a location where it would be subject to snow build-up
- In a location where it might be flooded by the condensates produced by the appliance when operating
- In a location subject to high winds
- With the blowing towards a permanent or temporary obstacle (awning, brushwood, etc.) less than 2,5 metres away
- On brackets
- Within range of water or mud jets, sprays or run-off (take the effect of the wind into account)
- Near a heat source or flammable gas
- Near high-frequency equipment

ATTENTION

Tips to reduce noise produced by your heat pump:

- Do not install it under or facing a window.
- Do not tilt it towards your neighbours.
- Install the appliance in an open space (sound waves are reflected on surfaces).
- Install an acoustic screen around the heat pump, respecting the distances (see *Section 2.2, Hydraulic Connections*).
- Install 50 cm of flexible PVC pipe at the heat pump water inlet and outlet (to stop vibrations.)

2.1.2 Location Spacing

When installing the appliance, provide free space around it as shown on the pictures below. The further the obstacles are away, the quieter the heat pump will be.

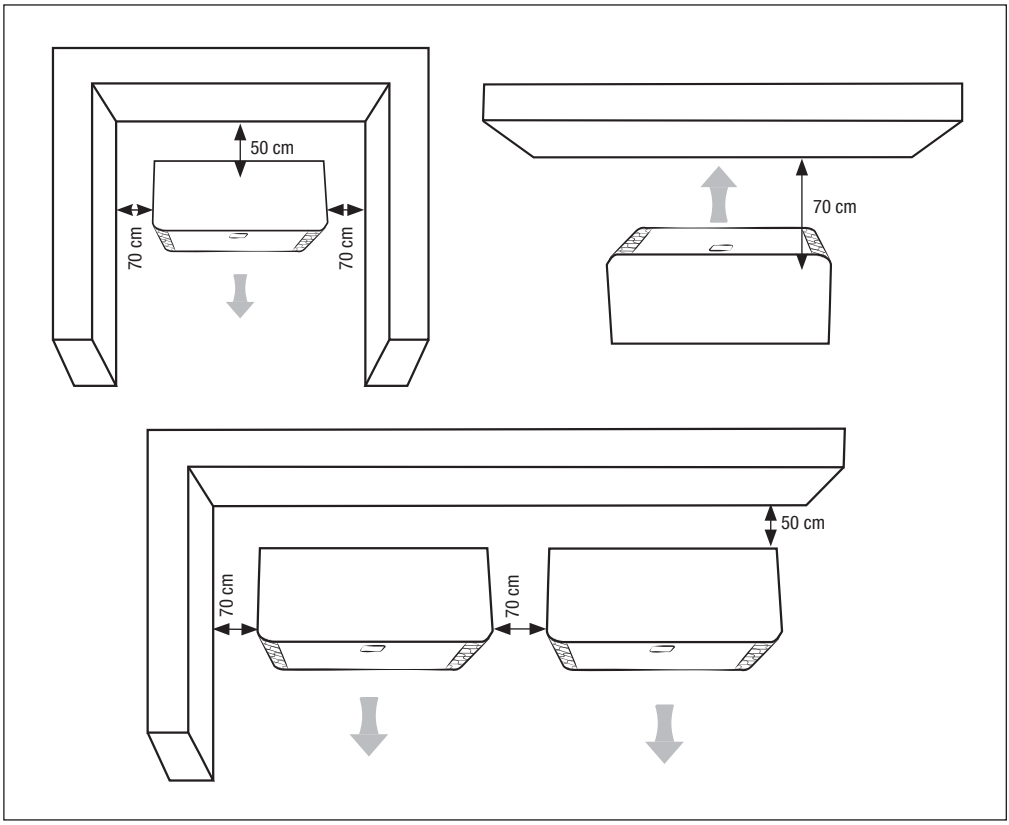


Figure 2. Minimal distances

2.2 Hydraulic Connections

- The appliance will be connected with a Ø40 NB PVC pipe, using the half union connectors supplied (see *Section 1.1, Contents*), to the pool's filtration circuit, **after the filter and before the water treatment**.
- Respect the direction of hydraulic connection.
- A by-pass must be installed to make it easier to work on the appliance.

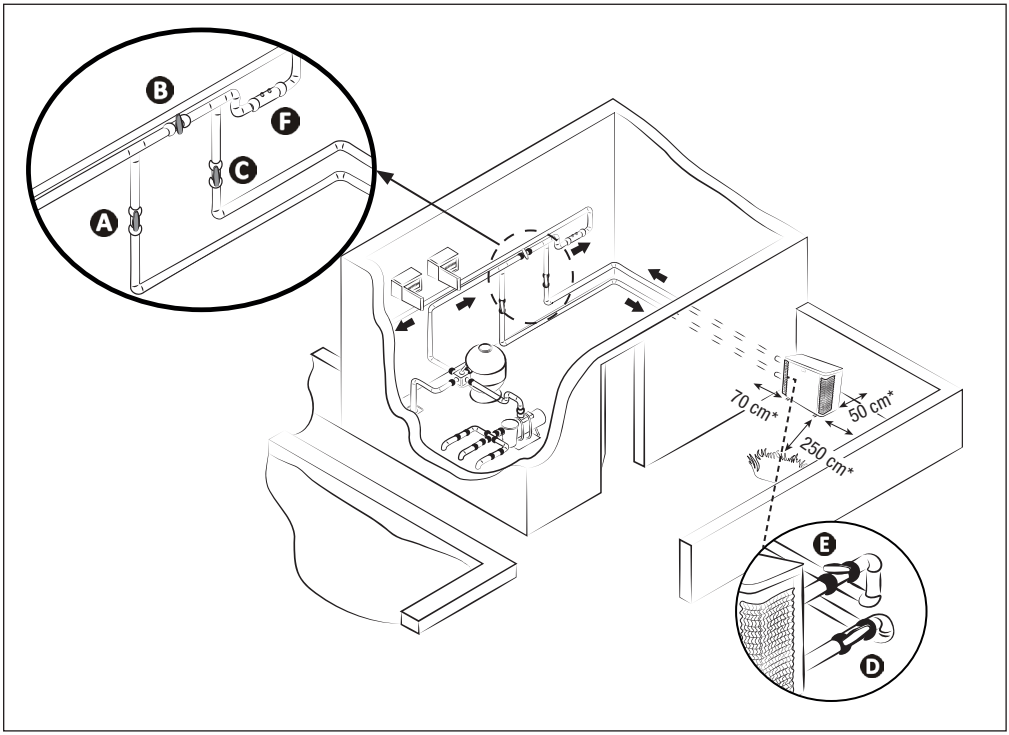


Figure 3. Connection to a standard filtration circuit

A: Water inlet valve

B: By-pass valve

C: Water outlet valve

D: Water inlet adjustment valve (optional)

E: Water outlet adjustment valve (optional)

F: Water treatment

* minimum distance

To evacuate the condensates:

- Raise at least 10 cm the appliance with anti-vibration pads.
- Fit the two condensate drainage pipes to the openings located under the appliance base (supplied).

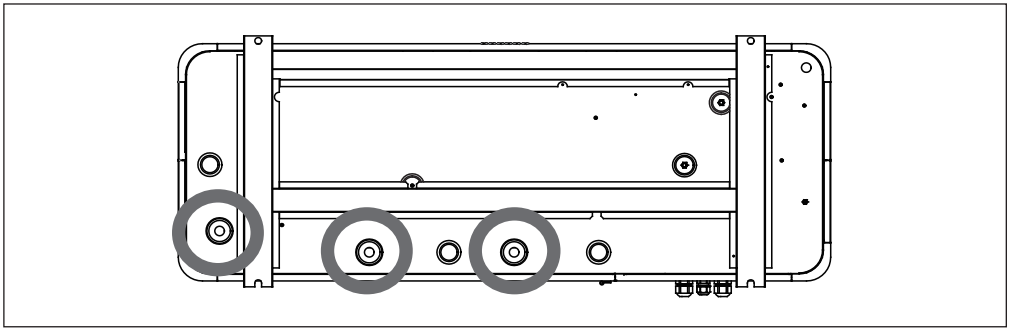


Figure 4. Location for connecting the condensate drainage pipes (seen from below the appliance)

⚠ CAUTION

Condensate Drainage

- Caution, several litres of water can be drained from your appliance each day. We strongly recommend connecting the drain to a suitable water drainage system.

2.3 Electricity Supply Connections

⚠ WARNING

- **Before any work inside the appliance, you must cut the electricity supply as there is a risk of electric shock which may cause material damage, serious injury or even death.**
- **Poorly tightened cabling terminals can cause the cables to overheat at the terminals and create a fire risk. Make sure that the terminal screws are fully tightened. Incorrectly tightened terminal screws will cancel the warranty.**
- **Only a qualified and experienced technician is authorised to carry out cabling work within the appliance or to replace the power cord.**
- **Do not disconnect the electricity supply when the appliance is running. If the electric power supply is interrupted, wait a minute before restoring the power.**
- **The installer must consult the electricity provider if necessary and ensure that the equipment is connected correctly to an electricity network with impedance under 0.095 ohm.**

- The heat pump's electrical supply must be provided through a protection and circuit breaking device (not supplied) complying with the standards and regulations in force in the country where it is installed.
- The appliance is provided for connection to a general power supply with a TT and TN.S neutral regime.
- Electrical protection: by circuit breaker (D curve, rating to be defined according to the table, see *Section 1.2, Technical Data*), with a 30 mA dedicated residual-current protection system (circuit breaker or switch).
- Additional protection may be required during installation to guarantee the overvoltage category II.
- The power supply must correspond to the voltage indicated on the appliance's information plate.
- The power cord must be insulated against any cutting or hot elements that may damage or crush it.
- The appliance must be correctly connected to a suitable earth/ground circuit.
- The electrical connection lines must be fixed.
- Use the cable gland and cable clamp to pass the power cord into the appliance.
- Use the power cord (RO2V type) adapted for outdoor or buried use (or run the cable into a protection duct), see *Section 2.3.1, Cable Cross Section* for more details.
- We recommend burying the cable at a depth of 50 cm (85 cm under a road or path) in an electrical duct (red ribbed).
- If this buried cable meets another cable or pipe (gas, water, etc.), there must be more than 20 cm between them.

2.3.1 Cable Cross Section

Model	Electricity Supply	Max. Current	Cable Diameter*	Thermal Magnetic Protection (C / D curve)
78581	220 - 240 V 1 phase 50-60 Hz	11	RO2V 3 x 1,5 mm^2	16A
78582		13		
78583		15	RO2V 3 x 2,5 mm^2	
78584		17	RO2V 3 x 4 mm^2	20A
78585		23		25A
78586	380 - 400 V 3 phase 50-60 Hz	11	RO2V 5 x 2,5 mm^2	16A

* Cable cross section suitable for max. length 10 metres. For longer than 10 metres, consult an electrician.

1. Open the service panel on the back of the machine with a screwdriver (2 screws on top) to access the electrical terminal block.
2. Insert the power supply cable into one of the cable glands on the rear part of the appliance.
3. Inside the appliance, fix the power supply cable by threading it through the cable clamp.
4. Connect the power supply cable to the terminal block inside the appliance as shown.
5. Carefully close the panel.

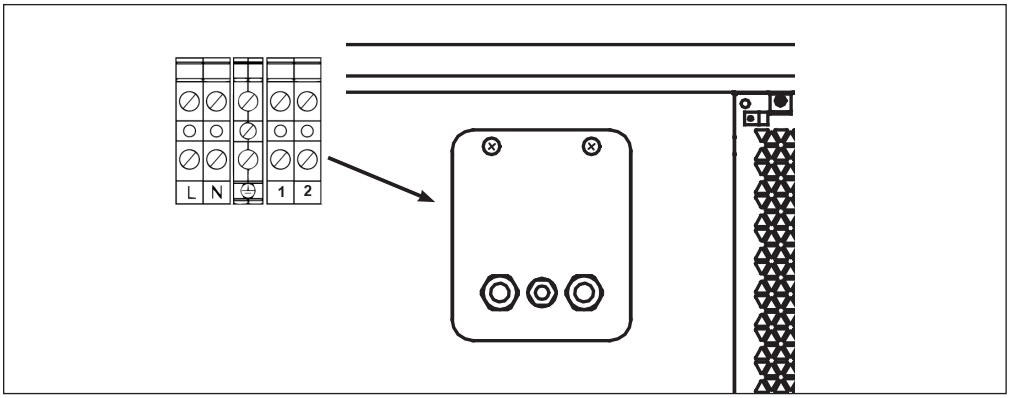


Figure 5. Accessing the electrical terminal block

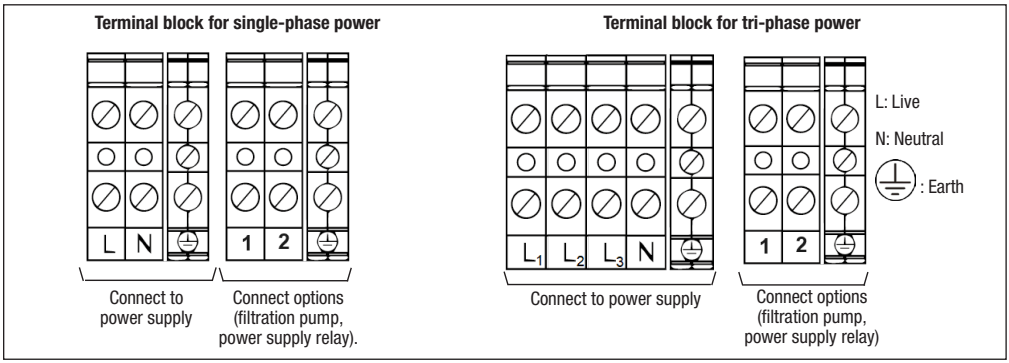


Figure 6.

2.4 Option Connections

There are 2 options available:

- Heating priority
- Remote ON/OFF

⚠ WARNING

Connecting the "Heating Priority" option:

- **Before any work inside the appliance, you must cut the appliance's electricity supply as there is a risk of electric shock which may cause material damage, serious injury or even death.**
- **Any incorrect connection to terminals 1 to 2 may damage the appliance and cancel its warranty.**
- **Terminals 1 to 2 are exclusively dedicated to the options and must never be used to directly supply other equipment.**
- **When intervening on terminals 1 to 2, there is a risk of electrical return current, injuries, material damage and death.**
- **Use cables with a section of at least 2 x 0.75 mm², RO2V type and with a diameter between 8 and 13 mm.**
- **If the power of the filtration pump exceeds 3.5A (700W), activating heating priority requires the use of a power relay.**

Before connecting any options: remove the seal (above the cable gland) and install the cable gland provided in order to pass the cables into the appliance.

The cables used for the options and the power cord must be kept separate (risk of interference) using a collar inside the appliance just after the glands.

2.4.1 "Heating Priority" Option

Connect the filtration pump to the heat pump (= activate the heating priority) to force the filtration to operate if the water is not at the desired temperature.

When heating priority is activated:

- If heating is needed, the heat pump will force the filtration pump to run even though it is outside its filtration hours to maintain the pool water temperature.
- If heating is not needed:
  - And filtration is inside its running hours: the filtration pump will continue to run without the heat pump.
  - And filtration is outside its running hours: the filtration pump will not run.
- Make sure that the electricity supply has been switched off.
- **Connect a <u>230 V/dry contact relay</u> (not included)** to terminals 1 and 2 (230 V output), then connect the connection cable **(not included)** from the output of this relay to the filtration timer as shown in the diagram.
- By default, when connecting the filtration pump to the heat pump electrically, the heating priority is activated: every 120 minutes (system parameter **P02**, set on "120" by default), the filtration pump will run during 5 minutes to check if heating is needed.
- Access the system parameters and modify **P02**, if needed, see *Section 5.4, Accessing to System Parameters*.

Example: if choosing P02=90, the filtration pump will be activated every 90 minutes to check if heating is needed.

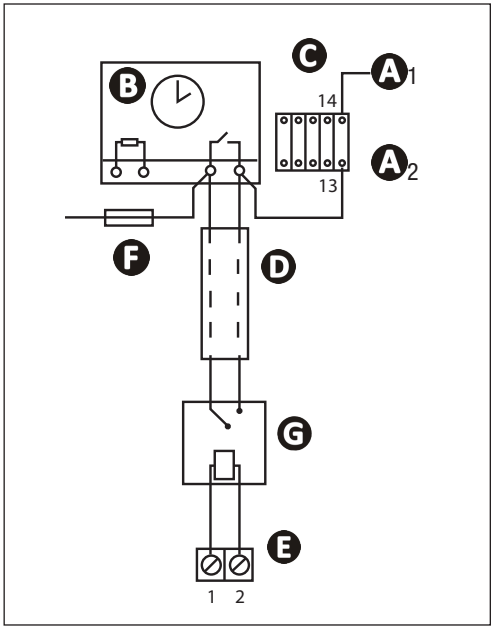


Figure 7.

A 1- **A** 2: Power for the filter pump power contactor evaporator

B: Filtration timer

C: Power contactor (two-pole contactor) for the filter pump motor

D: Independent connecting cable for the "heating priority" function (not included)

E: Heat pump terminal (230V output)

F: Fuse

G: **230V/dry contact relay (not included)**

2.4.2 Remote "On/Off" Control Option

- This option allows the remote On/Off function to be enabled by way of a switch installed remotely.
- To connect, couple the remote On/Off switch (not provided) to terminals 1 - 5 (dry contact).

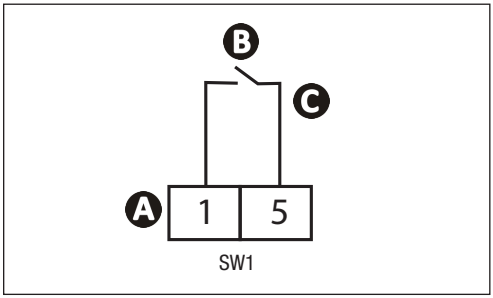


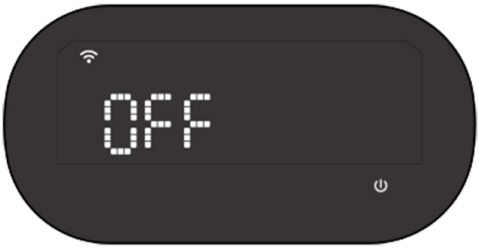
Figure 8.

A: heat pump terminal board

B: remote "on/off" switch (not supplied)

C: separate connection cable (not supplied)

- When the contact 1 - 5 is open:
  - The device cannot be started in any way.
  - The OFF message displays.



In this state (SW1 open) if a key is pressed, a beep sounds but the display remains frozen on OFF and the machine remains OFF.

Section 3. Use

3.1 Operating Principle

The heat pump uses the calories (heat) in the air to heat up your pool's water. The process to heat your pool's water to the temperature you want may take a few days as it depends on the weather conditions, the heat pump's power and the difference between the water temperature and the temperature you want.

The hotter and more humid the air, the better your heat pump will perform. The outdoor parameters for optimal operation are an air temperature of 26°C, a water temperature of 26°C and 80% relative humidity.

ATTENTION

Tips to improve the heating and maintaining of your pool's temperature:

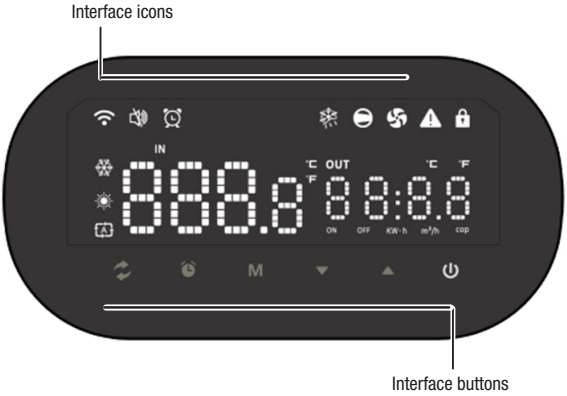
- Anticipate the commissioning of your pool far enough in advance before you use it.
- When the temperature of the pool is increasing at the beginning of a season to reach the desired temperature, set the water circulation to continuous operation (24/7).
- To maintain the temperature throughout the season, run "automatic" circulation for the equivalent of the water temperature divided by two (the longer this time, the more sufficient the operating range of the heat pump to heat the pool).
- Cover the pool with a sheet (bubble canopy, canvas, etc.) to prevent heat loss.
- Take advantage of a period with mild outdoor temperatures (on average > 10°C at night); it will be even more effective if it runs during the warmest hours of the day.
- Keep the evaporator clean.
- Set the temperature you want and let the heat pump run.
- Connect the "Heating Priority"; the filtration pump and heat pump operating time will be set according to requirements.

3.1.1 Precautions

⚠ WARNING

- Certain precautions must be taken to avoid damaging the condenser (for the precautions specific to winterising, refer to *Section 4.1, Winterizing*).
- **If the heat pump is subjected to extended exposure to negative outdoor temperatures (excluding winterising period), you must:**
  - **Activate the "Heating Priority" option:** the filtration pump will operate while the pool's temperature is below the heat pump's setpoint temperature. If the setpoint is reached, the pump will operate for 5 minutes every 120 minutes by default.
  - **Make sure that the pool's filtration pump is activated at least every 4 hours if the "Heating Priority" option is not activated on the heat pump.**

3.2 User Interface Presentation



Button	Description
	On/Off
	Up
	Down
	Mode (user mode conversion, parameter settings, etc.)
	Clock
	Switch (select the content of the secondary display - mode, time, or outlet temperature)

Icons	Description
	Wi-Fi blinks when pairing and on when connected.
	The mute timer is set (ON and/or OFF)- the machine functions in quiet mode during this time
	The timer is set (ON and/or OFF)
	Defrosting on
	Compressor on
	Fan on
	Error
	Keyboard locked

Icons	Description
	Cooling Heating Auto
	Inlet water temperature
	Outlet water temperature
	Indicates if the ON and/or OFF time has been set for a timer

3.3 Operation

3.3.1 Recommendations Prior to Start

- Check that there are no tools or other foreign objects in the appliance.
- The top panel that provides access to the technical section must be put in place.
- Check that the appliance is stable.
- Check that the electrical wiring is properly connected to the terminals and the earthing.
- Check that the hydraulic corrections are correctly tightened and that there are no leaks.

3.3.2 Operation

1. Activate the filtration pump (if heating priority is not activated) to turn on the water flow; check that the water is circulating correctly in the heat pump and that the flow rate is adequate.
2. Set the valves as follows: valve B wide open, valves A, C, D and E closed.

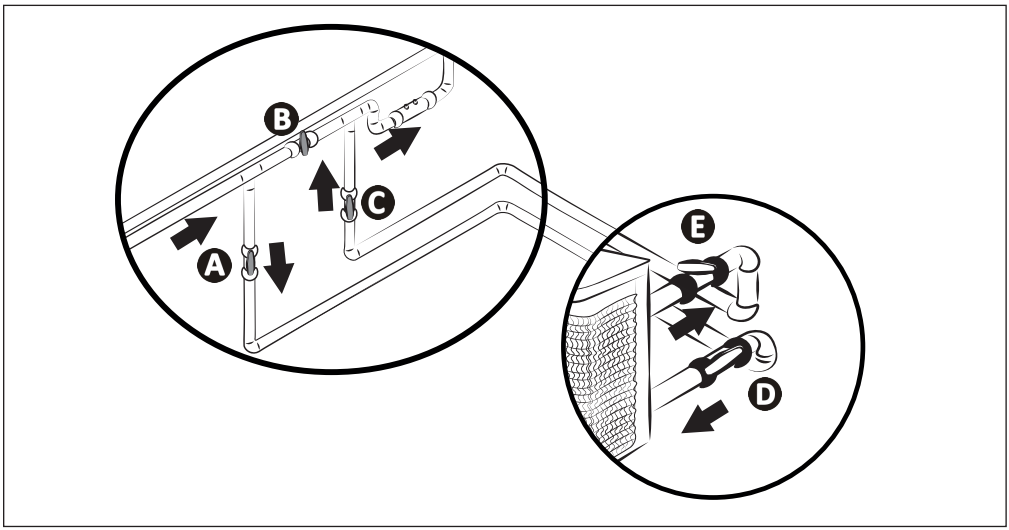


Figure 9.

A: Water inlet valve

B: By-pass valve

C: Water outlet valve

D: Water inlet adjustment valve (optional)

E: Water outlet adjustment valve (optional)

⚠ WARNING

An incorrect by-pass setting may cause the heat pump to malfunction.

3. Close valve B gradually so that the filter pressure is increased by 150 g (0.150 bars).
4. Open valves A, C and D fully then valve E by half (the air which has built up in the heat pump condenser and the filtration circuit will bleed out). If valves D and E are not present, open valve A wide and close valve C by half.
5. Connect the power supply to the heat pump (differential switch and circuit-breaker), see *Section 2.3, Electricity Supply Connections*.
6. Press ⏻ once to turn on the screen.
7. If needed, press ⏻ for 2 seconds to unlock the keypad.
8. Adjust the clock, see *Section 3.4.2, Setting the Time (clock)*.
9. Select a mode, see *Section 3.4.4, Choosing an Operating Mode*.
10. Set the desired temperature (called the “setpoint”), see *Section 3.4.5, Adjusting the Temperature Setpoint*.

The heat pump’s compressor will start up after few minutes.

To check if the heat pump is correctly operating, after the start-up steps:

11. Shut down the water circulation temporarily (by stopping the filtration or closing valve A or C) to check that the appliance stops after a few seconds (via the activation of the flow switch), **or,**
12. Reduce the setpoint temperature to below the water temperature to check that the heat pump stops operating.

3.3.3 Antifreeze Protection (if Heating Priority is activated)

⚠ WARNING

For the antifreeze protection to work, the heat pump must be powered and the filtration pump activated. If the heating priority is activated, the antifreeze protection will work automatically.

When the heat pump is on stand-by, the system monitors the ambient temperature and the water temperature in order to activate the antifreeze programme if required. The antifreeze protection is automatically activated when the air temperature or water temperature are less than 2°C and when the heat pump has been shut down for more than 120 minutes. When the antifreeze protection is running, the appliance activates its compressor and the filtration pump to reheat the water until it exceeds 2°C. The heat pump automatically leaves the antifreeze mode when the ambient temperature is higher than or equal to 2°C or when the heat pump is activated by the user.

3.4 User Functions

3.4.1 On/Off and Locking/Unlocking the Keypad

- Press  0.5 seconds to turn on/off the device.
- Press  for 5 seconds to lock/unlock the keypad: the main menu is displayed. The  icon appears (= locked) or disappears (= unlocked) depending on the keypad's state. The keypad is automatically locked after 60 seconds of inactivity.

3.4.2 Setting the Time (clock)

1. Unlock the keypad: the main menu is displayed.
2. Press  to open the clock.
3. Press  to set the hours. Press  to change the hours.
4. Press  to set the minutes. Press  to change the minutes.
5. Press  to confirm and return to the main screen.
6. To exit without saving press  . If no action for 5 seconds, the changes are automatically saved and the main interface is displayed.

3.4.3 Setting the Timer

⚠ WARNING

If two different timers are set up on the filtration pump and on the heat pump, the timer on the filtration pump will be ignored.

Two timers can be set up - normal:  and mute:  .

1. Unlock the keypad: the main menu is displayed.
2. Long press on  until  and  appear on the top of the screen - the flashing icon is type of timer that is selected. Use the arrow buttons to change the selection (timer or mute timer).
3. Short press on  to validate, then use the arrows to select ON or OFF.
4. Short press on  to validate, hours are flashing, use the arrow buttons to set the hour.
5. Short press on  to validate, minutes are flashing, use the arrow buttons to set the minutes.
6. Short press on  to validate, both hours and minutes are flashing, press  to validate and return to the main screen.

To clear a timer:

- Long press on  until  and  appear on the top of the screen - the flashing icon is type of timer that is selected. Use the arrow buttons to change the selection (timer or mute timer).
- Short press on  to validate, then use the arrows to select ON or OFF.
- Short press on  to validate, hours are flashing, press  to clear the timer. The timer can be cleared when only the hours or minutes are flashing. When the clock is cleared ——: —— is displayed.

3.4.4 Choosing an Operating Mode

The operating mode can be adjusted depending the heating/cooling need for the pool. To change the operating mode:

1. Unlock the keypad: the main menu is displayed.
2. Press M to change the operating mode. The mode is selected when it displays (Cooling , heating , auto mode) steady on the screen.
3. To exit without saving press ⏻. If no action for 5 seconds, the changes are automatically saved and the main interface is displayed.

3.4.5 Adjusting the Temperature Setpoint

1. Unlock the keypad: the main menu is displayed.
2. Press ▲ / ▼ to set the temperature.
3. Press M to validate. Recommended temperature: 28°C.
4. To exit without saving press ⏻. If no action for 5 seconds, the changes are automatically saved and the main interface is displayed.

ATTENTION

- When the setpoint temperature is exceeded by 1°C for 20 minutes, the heat pump stops heating the water. Then, the heat pump automatically regulates the pool water temperature (independent to the chosen mode).
- The heat pump runs again to reach the setpoint when there is a gap of 1°C between the pool water temperature and the setpoint water temperature.
- *Example: the setpoint temperature is 25°C and the pool water temperature has reached 26°C in heating . The heat pump stops.*
  - *In heating mode, the appliance will automatically run again if the pool water temperature is lower than 24°C.*
- If heating priority is not activated, the heat pump waits for the next filtration pump cycle to run.

Section 4. Maintenance

4.1 Winterizing

⚠ WARNING

- Winterising is vital to prevent the condenser breaking due to freezing. This is not covered by the warranty.
- To prevent condensation from damaging the appliance: cover the appliance with the winterising cover supplied (do not hermetically-seal the appliance inside a cover).

1. Turn the machine off by pressing ⏻ (the user interface displays OFF).
2. Disconnect the power supply.
3. Open valve B (see *Section 2.2, Hydraulic Connections*),
4. Close valves A and C and open valves D and E (if present, see *Section 2.2, Hydraulic Connections*).
5. Make sure that there is no water circulating in the heat pump.
6. Drain the water from the condenser (risk of freezing) by unscrewing the two water inlet and outlet connectors on the back of the heat pump.
7. In the case of full winterizing for the pool (complete shutdown of the filtration system, bleed the filtration circuit or even pool drainage): re-fit the two connectors by one turn to prevent any foreign bodies from getting into the condenser.
8. In the case of winterizing for the heat pump only (shutdown of the heating only, the filtration keeps

running): do not tighten the connectors but set up the 2 protective caps (supplied) behind the hydraulic inlet/ outlet connectors.

NOTE: We recommend that you put the aired winterizing micro cover (provided) on the heat pump.

4.2 Maintenance

⚠ WARNING

- Before any maintenance work on the appliance, you must cut the electricity supply as there is a risk of electric shock which may cause material damage, serious injury or even death.
- Do not disconnect the electricity supply when the appliance is running.
- If the electric power supply is interrupted, wait a minute before restoring power to the appliance.
- It is recommended that the appliance undergo general servicing at least on a yearly basis to ensure proper operation, maintain performance levels and potentially prevent certain failures. These operations are carried out at the user's expense by a technician.

4.2.1 Safety Instructions Concerning Appliances Containing R32 Refrigerant

Area check:

- Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimized.

Work procedure:

- Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed.

General work area:

- All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.

Check for the presence of refrigerant:

- The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

Check for the presence of a fire extinguisher:

- If any work involving heat is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO2, fire extinguisher adjacent to the charging area.

No source of ignition:

- No person carrying out work in relation to a refrigerating system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.

Area ventilation:

- Prior to penetrating the unit in any way to perform any required service, ensure that the area is open and adequately ventilated. Proper ventilation, to allow for safe dispersion of any refrigerant which may be inadvertently released to the atmosphere, should be maintained while service is being performed on the unit.

Refrigeration equipment check:

- The manufacturer's recommendations in terms of care and maintenance must always be complied with. When replacing electric components, check that components used are of the same type and category as those recommended/approved by the manufacturer. When in doubt, contact the manufacturer's technical department for assistance.
- The following checks must be applied to installations using flammable refrigerants:
  - if an indirect cooling circuit is used, the presence of refrigerant in the secondary circuit must be analysed;
  - the markings on the equipment must remain visible and legible; any illegible markings or signs must be rectified;
  - the hoses or components of the cooling circuit are installed in a position where they are unlikely to be exposed to any substance capable of corroding the components containing refrigerant, unless the components are made from materials that are typically corrosion-proof or correctly protected from such corrosion.

Electric component check:

- The repair and maintenance of electric components must include initial safety checks and component inspection procedures. If a defect capable of jeopardising safety arises, no power supply must be connected to the circuit until the problem has been completely resolved. If the defect cannot be rectified immediately and if maintenance work must continue, an appropriate temporary solution must be found. This must be reported to the equipment's owner so that all persons concerned are made aware.
- The repair and maintenance of electric components must include the following initial safety checks:
  - the capacitors are discharged: this must be carried out safely to prevent all risks of ignition;
  - no electric component or live wiring is exposed while charging, overhauling or draining the system;
  - the system must be grounded at all times.

Repair of insulated components:

- When repairing insulated components, all power sources must be disconnected from the equipment on which the work is being carried out before removing the insulating cover, etc. If the equipment must be powered during maintenance work, a leak detector must continuously monitor for leaks at the most critical point in order to report any potentially hazardous situation.
- Particular attention must be paid to the following points to ensure that, when performing work on the electric components, the housing is not altered to the point of affecting the protection rating. This includes damaged wires, an excessive number of connections, terminals that do not comply with the original specifications, damaged seals, incorrect installation of the cable glands, etc.
- Make sure that the appliance is properly fixed.
- Make sure that the seals or insulating materials are not deteriorated to the point that they no longer prevent a flammable atmosphere from penetrating the circuit. Spare parts must be compliant with the manufacturer's specifications.

Repair of intrinsically safe components:

- Do not apply any permanent electric capacitance or induction charge to the circuit without checking that it does not exceed the allowed voltage and intensity for the equipment being used.
- Typically safe components are the only types on which work can be carried out in the presence of a flammable atmosphere when live. The test appliance must fall under a suitable classification.
- Only replace components with parts specified by the manufacturer. Other parts could cause the refrigerant to leak and ignite in the atmosphere.

Wiring:

- Check that the wiring shows no signs of wear, corrosion, excessive pressure, vibration, cutting edges or any other detrimental environmental effect. The check must also take into account the effects of ageing or continuous vibrations caused by sources such as compressors or fans.

Detection of flammable refrigerant:

- Under no circumstances must potential ignition sources be used to search for or detect refrigerant leaks. A halide torch (or any other detector using a naked flame) must not be used.
- The following leak detection methods are considered to be acceptable for all cooling systems.
- Electronic leak detectors can be used to detect refrigerant leaks; however, in the case of flammable refrigerants, the sensitivity level may not be suitable or recalibration may be necessary. (The detection equipment must be calibrated in an area devoid of refrigerant). Check that the detector is not a potential ignition source and is appropriate for the refrigerant used. The leak detection equipment must be adjusted to a percentage of the refrigerant's LFL and must be calibrated according to the refrigerant used. The appropriate gas percentage (25% at most) must be confirmed.
- Leak detection fluids are also suited for use with most refrigerants, however the use of detergents containing chlorine must be avoided since it could react with the refrigerant and cause corrosion to the copper piping.
- If a leak is suspected, all naked flames must be removed/extinguished.
- If a refrigerant leak is detected and requires soldering, the entire quantity of refrigerant must be removed from the system or isolated (by way of shut-off valves) in part of the system located away from the leak.

Removal and discharge:

- When accessing the cooling circuit to carry out repairs, or for any other reason, conventional procedures must be employed. However, for flammable refrigerants, the recommendations must be complied with in order to take account of the product's flammability. The following procedure must be followed:
  - remove the refrigerant;
  - purge the circuit with an inert gas (optional for A2L);
  - drain (optional for A2L);
  - purge with an inert gas (optional for A2L);
  - open the circuit by cutting or soldering.
- The refrigerant charge must be recovered in suitable recovery cylinders. For appliances containing flammable refrigerants other than A2L refrigerants, the system must be bled with nitrogen devoid of oxygen to make the appliance suitable for receiving

flammable refrigerants. You may need to repeat this process several times. Compressed air or oxygen must not be used to purge cooling systems.

Loading procedures:

- Check that the vacuum pump outlet is not located in the vicinity of any potential ignition source and that ventilation is provided.
- In addition to conventional charging procedures, the following requirements apply.
  - Check that there is no possibility of cross-contamination between the different refrigerants when using charging equipment. Hoses or lines must be as short as possible to reduce the quantity of refrigerant contained therein.
  - Cylinders must be kept in an appropriate position, in accordance with the instructions.
  - Check that the cooling system is grounded before charging the system with refrigerant.
  - Label the system once charging is complete (if this is not already the case).
  - Pay close attention to not overfilling the cooling system.
- Before recharging the system, carry out a pressure test using a suitable purge gas. The system must be examined to make sure there are no leaks after the charging operation and before commissioning. A follow-up leak test must be carried out before leaving the site.

Dismantling:

Before dismantling, the technician must familiarise himself/herself with the equipment and its specifications. We highly recommend carefully recovering all refrigerants. Before this, oil and refrigerant samples must be taken if analyses are to be carried out before any other use of the recovered refrigerant. Check for the presence of a power supply before starting work.

- Familiarise yourself with the equipment and how it operates.
- Electrically isolate the system.
- Before starting work, check the following points:
  - mechanical handling equipment is available if needed to handle the refrigerant cylinders;
  - all personal protective equipment is available and used correctly;
  - the recovery process is followed at all times by a cognizant person;
  - the recovery cylinders and equipment comply with the relevant standards.
- Drain the cooling system where possible.
- If a vacuum cannot be created, install a manifold in order to be able to remove the refrigerant from various locations within the system.
- Make sure that the cylinder is located on the scales before starting recovery operations.
- Start the recovery unit and operate as per its instructions.
- Do not overfill the cylinders (no more than 80% of the volume must be filled with liquid).
- Do not exceed the maximum working pressure of the cylinder, even temporarily.
- When the cylinders have been filled correctly and the process is complete, check that the cylinders and the equipment are quickly removed from the site and that the alternative shut-off valves on the equipment are closed.
- The recovered refrigerant must not be charged in another cooling system, unless it has been cleaned and inspected.

4.2.2 User Maintenance

- Clean your pool and the water system regularly to avoid the damage of the unit.
- Clean the evaporator using a soft brush and a fresh water spray (disconnect the power cable); do not fold over the metal wings, then clean the condensate drainage line to remove any impurities that may be blocking it.
- Do not use a high pressure jet. Do not spray with rain water, salt water or water which is full of minerals.
- Clean the outside of the appliance; do not use any solvent-based products. We can provide you with a specific cleaning kit as an accessory: the PAC NET, see *Section 1.1, Contents*.

4.2.3 Maintenance to be Carried Out by a Qualified Technician

- Check that the control system is operating correctly.
- Check that the condensates flow correctly when the appliance is in operation.
- Check the safety mechanisms.
- Check the connection of the metal masses to the earth.
- Check that the electrical cables are correctly tightened and connected and that the switch box is clean.

Section 5. Troubleshooting

⚠ WARNING

Actions to be performed by a qualified technician only.

ATTENTION

- Before you contact the retailer, carry out these few simple checks using the following tables if a problem occurs.
- If the problem is not resolved, contact your retailer.

5.1 Appliance Behaviour

Problem	Possible Solutions
The appliance does not start heating straight away	• When the setpoint temperature is reached, the appliance stops heating: the water temperature is higher than or equal to the setpoint temperature. • When the water flow rate is zero or is not enough, the appliance stops: check that the water is circulating correctly in the appliance and that the hydraulic connections are correct. • The appliance stops when the outdoor temperature falls below -15 °C. • The appliance may have detected an operating fault (see *Section 5.2, Error Code Display*). • If you have checked these points and the problem persists: contact your retailer.
The appliance is discharging water	• Often called condensates, this water is the moisture contained in the air which condenses on contact with certain cold mechanisms in the appliance, especially on the evaporator. The damper the air, the more condensates your appliance will produce (your appliance may drain several litres of water per day). This water is retrieved by the base of the appliance and drained through the holes. • To check that the water is not coming from a leak in the pool circuit on the appliance, shut it down and run the filter pump to circulate water in the appliance. If the water continues to flow through the condensate drainage lines, there is a water leak in the appliance; contact your retailer.
The evaporator is iced over	• The appliance will soon switch to its defrost cycle to melt the ice. • If the appliance cannot manage to defrost its evaporator, it will stop itself; this means that the outdoor temperature is too low (below -15°C).
The appliance is “smoking”	• This may occur when the appliance is in a defrost cycle and the water is converted to gas. • If the appliance is not in its defrost cycle, this is not normal. Turn off and disconnect the appliance immediately and contact your retailer.
The appliance is not working	• If there is no display, check the supply voltage. • When the setpoint temperature is reached, the appliance stops heating: the water temperature is higher than or equal to the setpoint temperature. • When the water flow rate is zero or is not enough, the appliance stops: check that the water is circulating correctly in the appliance. • The appliance stops when the outdoor temperature falls below -15 °C. • The appliance may have detected an operating fault (see *Section 5.2, Error Code Display*).
The appliance is working but the water temperature does not increase	• The appliance may have detected an operating fault (see *Section 5.2, Error Code Display*). • Check that the automatic filling valve is not stuck in open position; this will keep supplying cold water into the pool and will prevent the temperature from rising. • There is too much heat loss as the air is cool. Install a heat insulated cover on the pool. • The appliance is unable to capture enough calories as its evaporator is clogged with dirt. Clean it to restore its performances (see *Section 4.2, Maintenance*). • Check that the external environment is not hindering the heat pump (see *Section 2, Installation*). • Check that the appliance is the right size for this pool and its environment.
The appliance trips the circuit breaker	• Check that the circuit breaker is correctly dimensioned and that the cable section used is correct (see *1.2, Technical Data*). • The supply voltage is too low; contact your electricity supplier.

5.2 Error Code Display

⚠ WARNING

All actions must be performed by a qualified technician only.

ATTENTION

- If an error occurs, the error code is displayed on the screen, see the table below for details.
- If the error does not trigger a shutdown, you must power off the machine to cancel the error.

5.2.1 Errors That Trigger a Shutdown

Code	Description	Auto Restart if Canceled	Possible Causes	Solutions
P01	Inlet water temperature sensor failure	yes	Connection issue or temperature sensor failure	Correct the connection or replace the temperature sensor.
P02	Outlet water temperature sensor failure			
P081	Discharge temperature sensor failure			
P082	High discharge temperature protection 3 times	no	Discharge temperature ≥120°C	Check the gas refrigerant
	High discharge temperature protection	yes		
E01	High pressure protection 3 times	no	• Water flow insufficient • Connection issue • Pressure switch issue • Fan motor not working or speed too low • 4-way valve blocked • EEV or Capillary or filter blocked	Measure the pressure value when the heat pump is running, if it's higher than 4.4 MPa, the heat pump has very high pressure protection: • Check whether the inlet/outlet water temp difference is more than 8°C, normally it should be within 3°C • Check the water flow of the pump and the speed of fan • Check the connection of cables between the high pressure switch to PCB board • Check the high pressure switch by the multimeter, it should be closed when the pressure of the unit is normal • Switch it to cooling mode to check whether it runs without error
	High pressure protection	yes		
E02	Low pressure protection 3 times	no	• Connection issue • Pressure switch issue • Water flow insufficient cooling mode or the fan motor is not working or speed is too low • EEV, Capillary, or filter blocked • System leakage	Measure the pressure value when heat pump is running, if it's lower than 0.15 MPa, the heat pump has very low pressure protection: • Check the connection of cables between the low pressure switch and PCB board • Check the low pressure switch by the multimeter, it should be closed when the pressure of the unit is normal • Check the water flow of the pump and the fan speed • Check the leakage in the refrigeration system
	Low pressure protection	yes		
NF	Water flow protection 3 times	yes	• No water flow or water flow insufficient • Flow switch disconnected • Flow switch failure	• Check the water circuit • Reconnect or replace the flow switch sensor
	Water flow protection	yes		

Code	Description	Auto Restart if Canceled	Possible Causes	Solutions
E06	High inlet and outlet water temperature difference protection	yes	The difference between inlet and outlet water temperature is too high	Outlet water temperature - inlet water temperature ≥ 13°C
E07	Anti-freeze protection 3 times	no	When the outlet water temperature is ≤4°C	Wait for the outlet water temperature to be > 4°C
	Anti-freeze protection	yes		
E51	Compressor overcurrent protection 3 times	no	• Wrong compressor setting value • Compressor rotor is blocked • Compressor failure	• Check the compressor current show on the display • Check the high and low pressure difference of the compressor, whether the load is too heavy, whether the compressor rotor is blocked • Check the compressor start up high and low pressure difference. • Check whether the status of the system is normal
	Compressor overcurrent protection	yes		
F02	Driver board offline	No	• Connection failure • Power supply failure • Reactor failure • Inverter driver board failure • PCB board failure	• Check the RS485 signal connection wire between PCB board and Inverter driver board , the wire connection order should be the same as the diagram • Check the power supply connection and voltage (Single phase: AC220V, three phase: AC380V) • Check the electric reactor connection • If above connection is ok, replace the Inverter driver board or PCB board
F03	IPM module protection		Problem on compressor inverter board	Replace the compressor inverter board (mainboard on 78581, 78582, 78583, 78584, 78585)
F04	Compressor start-up failure	yes	Compressor start-up failure	• Check compressor connection • Check the power supply connection and voltage (Single phase: AC220V, three phase: AC380V) • Check the resistance value of the compressor with the multimeter to confirm whether the compressor is damaged • Check system pressure and compressor for blocking • If above situation is ok, replace the Inverter driver board
TP	Low ambient temperature protection	yes	Ambient temperature < -15°C	The heat pump can not work below -15°C
F05	DC fan motor failure		DC fan motor defective/ fan driver board failure	Replace fan motor
F07	DC voltage too high	yes	Power supply too high/Inverter driver board failure contact your supplier	• Check power supply whether is 170V~265V, if not, the input voltage has a problem • Restart the unit after 5 mins, if the issue persists, replace the Inverter driver board
F08	DC voltage too low	yes	Power supply too low/Inverter driver board failure contact your supplier	

Code	Description	Auto Restart if Canceled	Possible Causes	Solutions
F09	Input voltage too low	yes	Power supply too low/Inverter driver board failure contact your supplier	• Check whether the input voltage is under 165 V, if yes,the input voltage has a problem • If the input voltage is normal and voltage is detected under 165V, then replace the driver board
F10	Input voltage too high	yes		• Check whether the input voltage is over 270 V, if yes,the input voltage has a problem • If the input voltage is normal and voltage is detected over 270 V, then replace the driver board
F25	EEPROM error alarm		Parameter setting failure	Replace mainboard
F26	Input current high		Power supply too high/Inverter driver board failure	Replace inverter driver board
F27	PFC failure		• Fan speed too low or stop problem • Compressor running frequency too high/Inverter driver board failure	Replace inverter driver board
F31	DC fan 1 feedback fault		• Fan parameter setting problem • Connection failure • Power supply failure • Fan module failure • Fan motor failure	• Check the connection between the fan module to the PCB board • Detect the fan module input and output voltage (input voltage: AC220V output voltage: DC380V) • If above is ok, replace the fan motor

5.2.2 Errors That DO NOT Trigger a Shutdown

Code	Description	Auto Restart if Canceled	Possible Causes	Solutions
P04	Ambient temperature sensor failure	yes	Connection issue or temperature sensor failure	Correct the connection or replace the temperature sensor
P05	Outlet water temperature sensor failure			
P07	Discharge temperature sensor failure			
E19	Primary anti-freeze protection in winter	yes	When 2°C < inlet or outlet water temperature ≤4°C and ambient temperature ≤0°C, it enters the primary anti-freezing state.	
E29	Secondary anti-freeze protection in winter	yes	When the temperature of water inlet or outlet ≤2°C and the ambient temperature ≤0°C, it enters the secondary anti-freezing state.	
PP	Pressure sensor failure	yes	• Check the connection of the pressure sensor • Check the pressure sensor	Correct the connection or replace the pressure sensor
E08	Communication failure		Communication failure	Replace mainboard

5.3 Displaying the Working Parameters

⚠ WARNING

Modifying the default settings must be performed by a qualified technician only to facilitate maintenance or future repairs.

To access to the working parameters:

1. Turn on the device by pressing ⏻.
2. Long press on M (10s). Enter the code 066.
3. First digit blinking, short press M to validate 0.
4. Second digit blinking, select 6 using the arrows, short press M to validate.
5. Do the same for the third digit.
6. Use the arrows to browse through the available parameters.
7. Press ⏻ to return the main menu.

The parameters that can be displayed are listed in the following table.

Code	Description
001	Compressor
002	Circulate pump
003	4-way valve
004	High fan
005	Low fan
006	Exp. valve
007	Comp. output frequency
008	Comp phase current value (RMS)
009	IPM temp
010	Inverter board DSP version
011	Inverter board PFC version
012	Inverter board EEPROM version
S01	HP switch
S02	LP switch
S03	Flow switch
S04	Remote on/off switch
t01	Suction temperature
t02	Inlet water temperature
t03	Outlet water temperature.
t04	Coil 1 temperature
t05	Ambient temperature
t06	Exhaust temperature
t07	Compressor current detect
t08	AC fan output
t10	Pressure sensor
t11	Super heat
t12	Fan motor speed
t13	Compensated target superheat
t14	Inverter board AC input voltage
t15	Anti-freeze temperature
t16	EC fan speed
t17	DC fan 1 actual speed
t19	Main voltage
t20	Frequency limited protection status
t21	Frequency reduce protection status

5.4 Accessing to System Parameters

⚠ WARNING

Modifying the default settings must be performed by a qualified technician only to facilitate maintenance or future repairs.

To access to the system parameters:

1. Turn on the device by pressing ⏻.
2. Long press on M (10s). Enter the code 066.
3. First digit blinking, short press M to validate 0.
4. Second digit blinking, select 6 using the arrows, short press M to validate.
5. Do the same for the third digit.
6. Use the arrows to select **P**, press M to validate.
7. Select **P02**.

Code	Name	Range	Default
R11	Heating setpoint maximum value	Maximum 40°C	35°C

Section 6. Wiring Diagrams

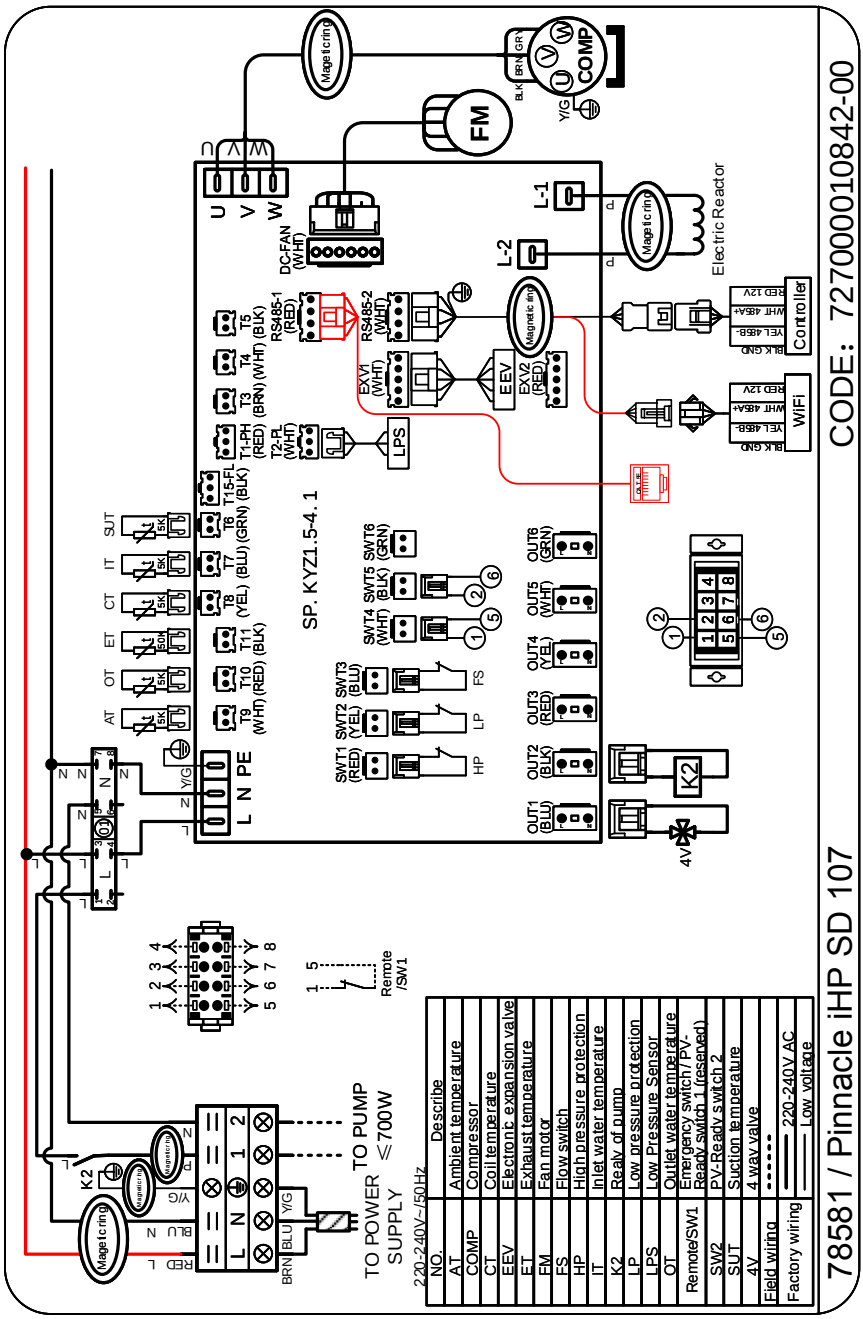


Figure 10. 78581 / Pinnacle iHP SD 107

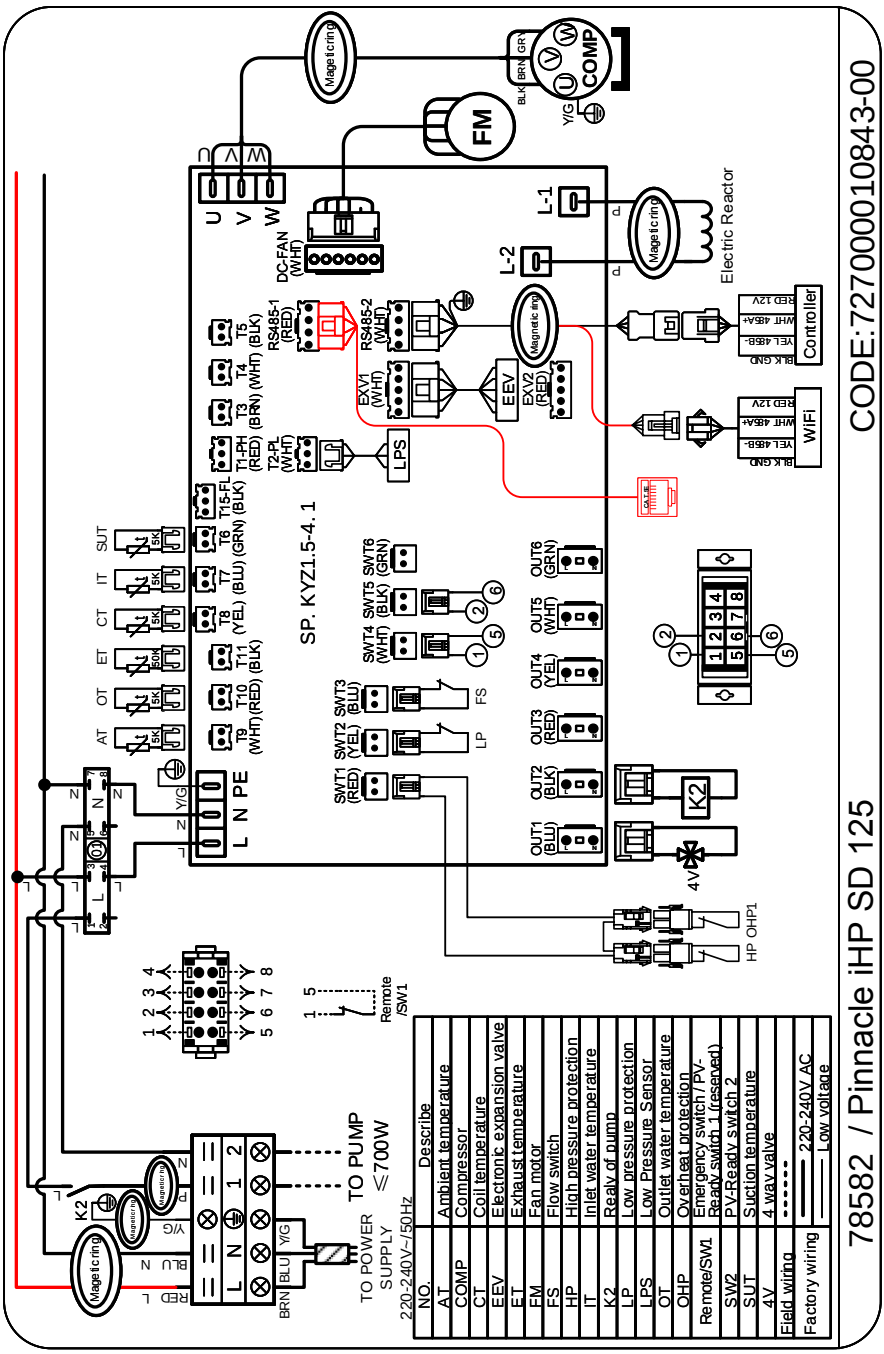


Figure 11. 78582 / Pinnacle iHP SD 125

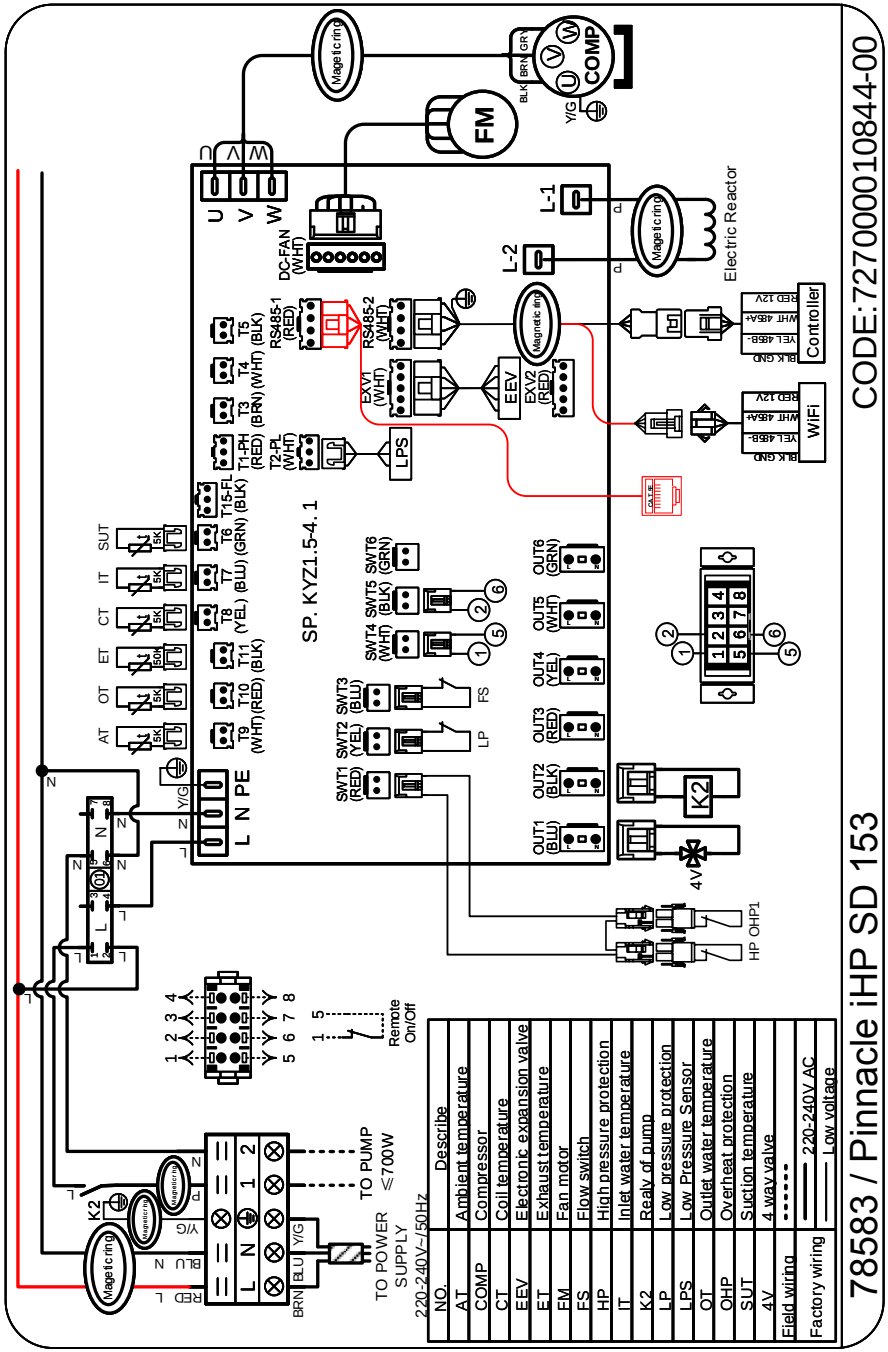


Figure 12. 78583 / Pinnacle iHP SD 153

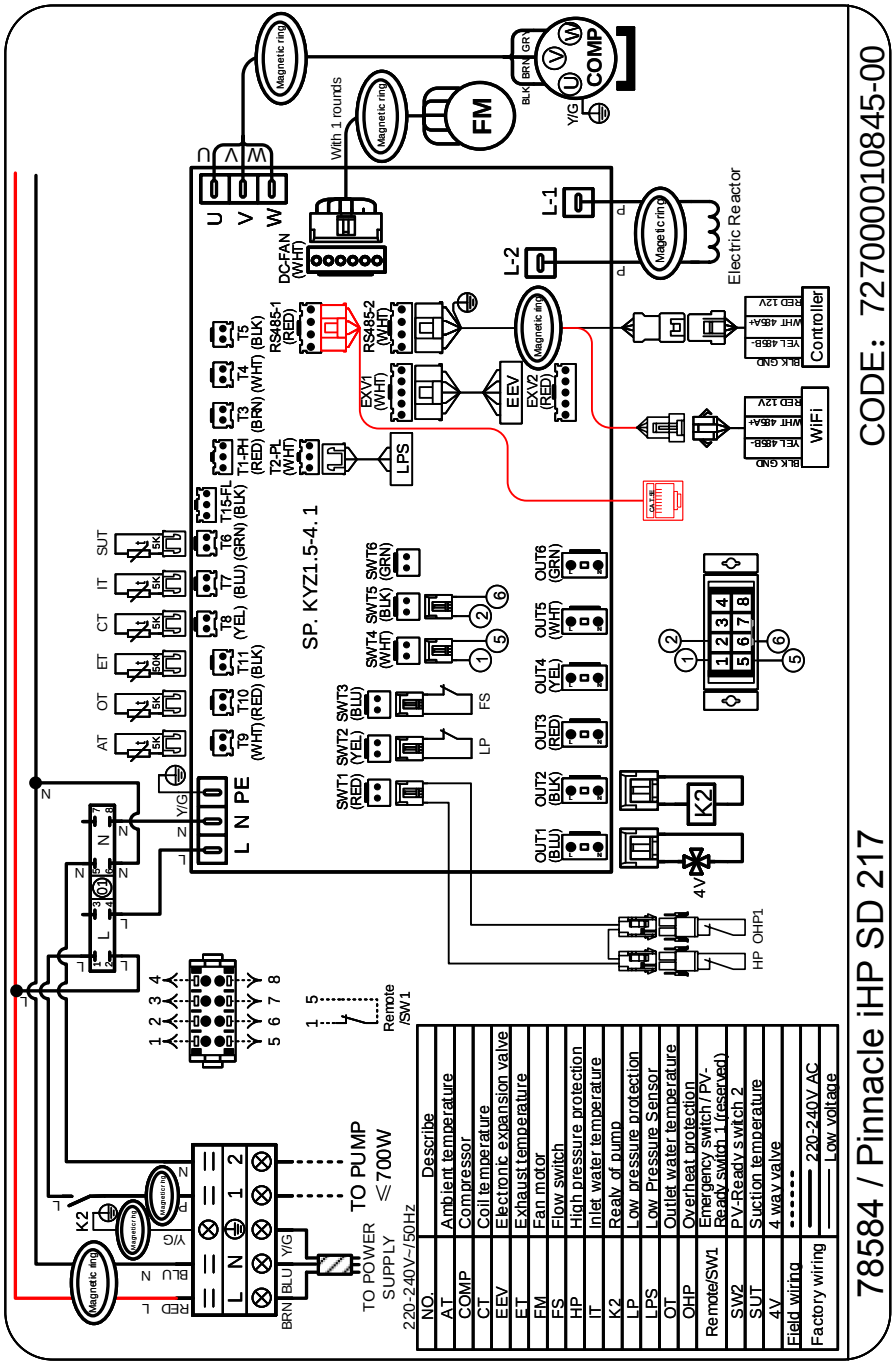


Figure 13. 78584 / Pinnacle iHP SD 217

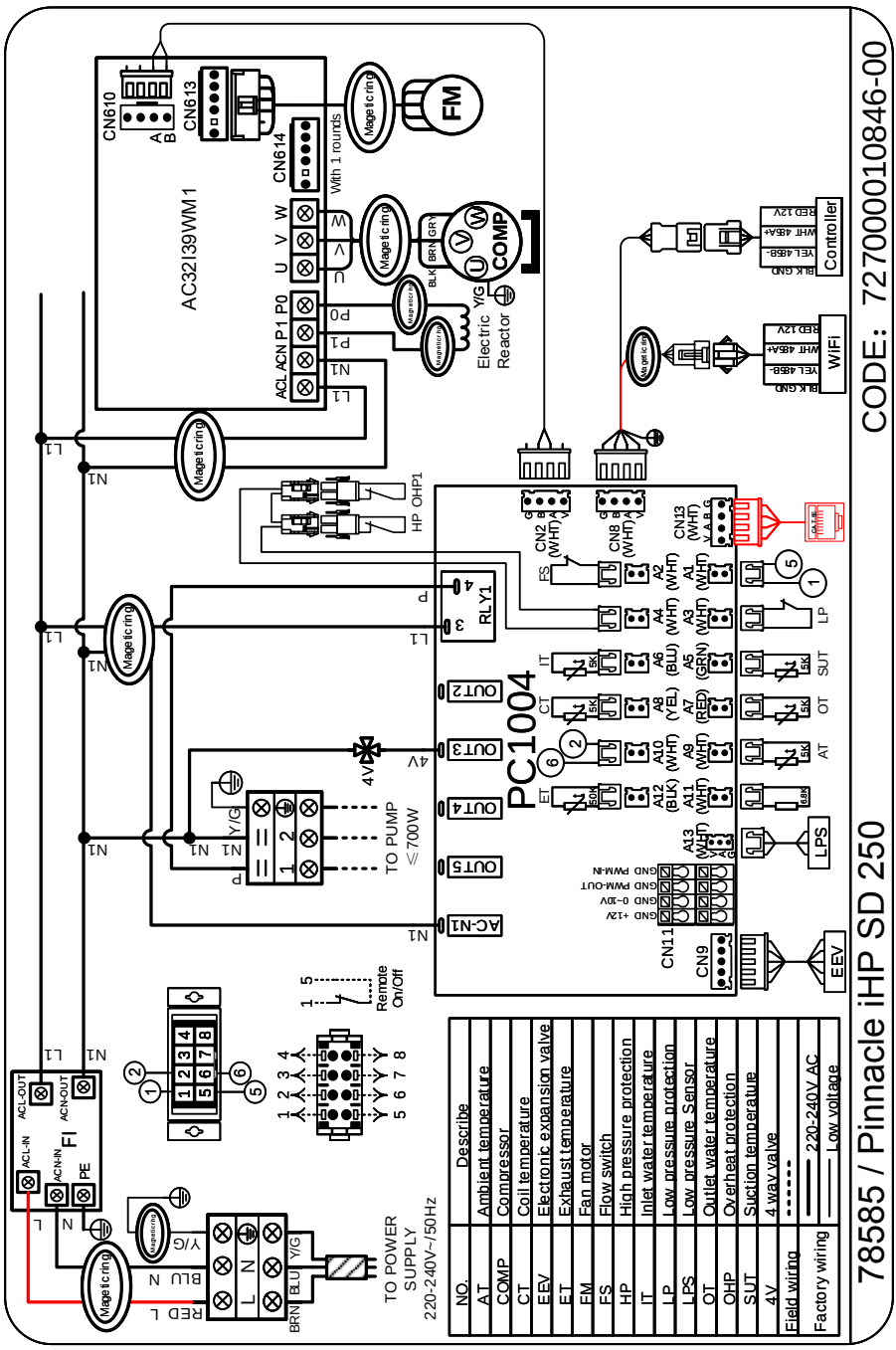


Figure 14. 78585 / Pinnacle iHP SD 250

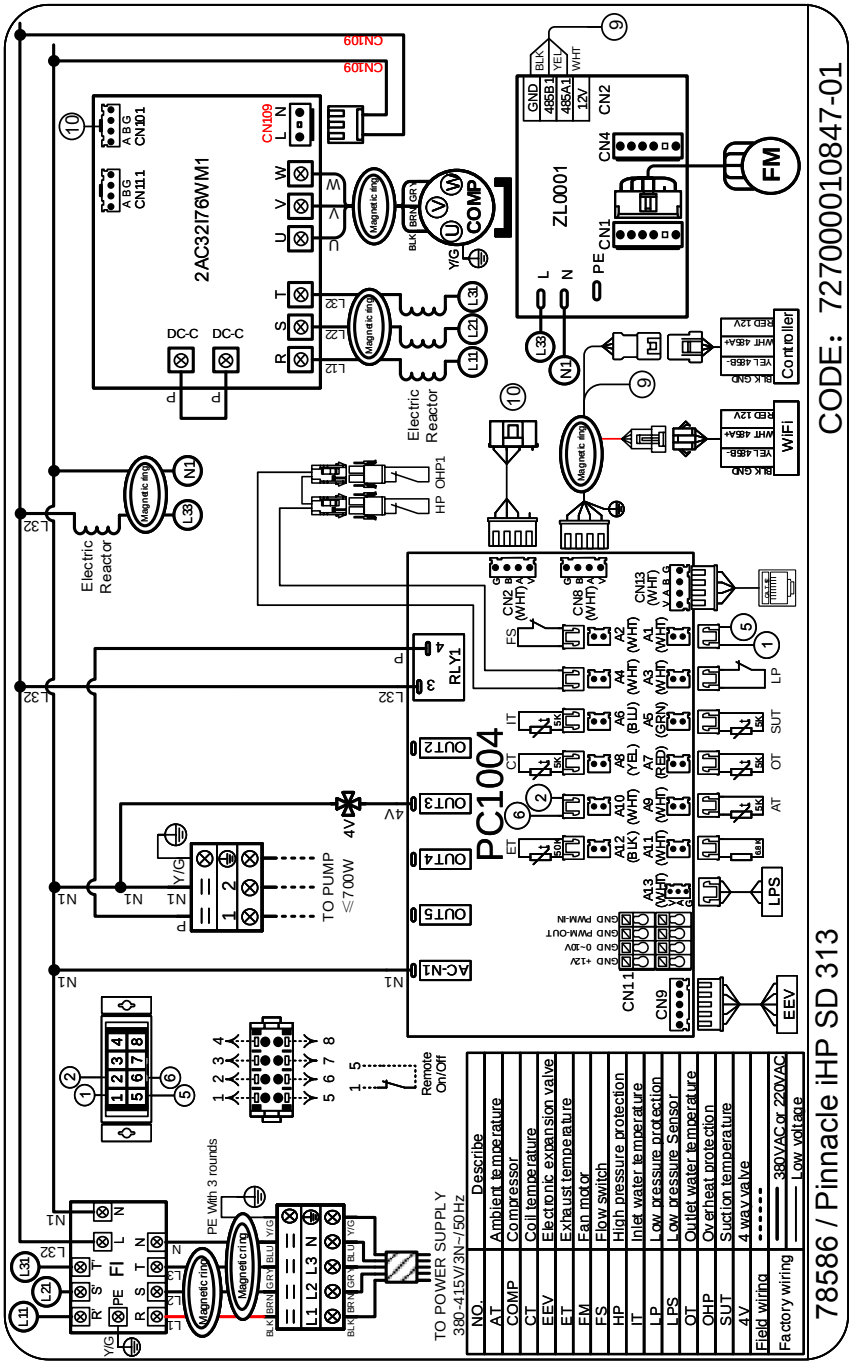


Figure 15. 78586 / Pinnacle iHP SD 313

WARRANTY REGISTRATION	Record your equipment details here for quick reference: Model No. : _____ Serial No. : _____
	AUSTRALIA WARRANTY: For full warranty terms and conditions and to register your warranty, visit *www.astralpool.com.au/warranty* and complete your details. ◀ Or scan the QR code to go directly to the registration page.
	NEW ZEALAND WARRANTY: For full warranty terms and conditions and to register your warranty, visit *www.astralpool.co.nz/warranty* and complete your details. ◀ Or scan the QR code to go directly to the registration page.

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