

ENERGYLINE PRO

SWIMMING POOL HEAT PUMP UNIT



Installation & Instruction Manual

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Please read attentively and save for future consultation.

This document must be given to the pool owner and should be kept in a safe place.

1. PREFACE

We thank you for purchasing this Hayward swimming pool heat pump unit. This product was designed according to strict manufacturing standards to satisfy the required quality levels. This manual includes all of the necessary information concerning installation, debugging and maintenance. Please attentively read this manual before opening the unit or before carrying out any maintenance operations on it. The manufacturer of this product will not, under any circumstances, be held responsible in the case of injury to the user or damage to the unit resulting from improper installation, debugging or unnecessary maintenance. It is essential to follow all of the instructions specified in the manual at all times. The unit must be installed by a qualified professional.

- Repairs must be made by a qualified professional.
- All electrical connections must be made by a qualified electrician according to standards in the country of installation see § 3.4.
- Maintenance and the different operations must be carried out at the recommended times and frequencies as specified in this manual.
- Only use genuine spare parts.
- Failure to comply with these recommendations will invalidate the warranty.
- This swimming pool heat pump unit heats swimming pool water and maintains a constant temperature; it should not be used for any other purpose.

After having read this manual, keep it for future usage.

Warnings concerning children/people with reduced physical capacity:

This appliance is not intended to be used by persons (especially children) with reduced physical, sensory or mental capabilities or by persons who lack experience or knowledge, unless they are under supervision or have received instructions concerning the use of the appliance by a person responsible for their safety.

This product contains greenhouse effect fluorinated gases covered by the Kyoto protocol.

Type of refrigerant: R410A

GAP Value⁽¹⁾: 1975

Periodic inspections for refrigerant leakage can be required as a function of European or local legislation. Please contact your local distributor for additional information.

(1) Potential for global warming

2. SPECIFICATIONS

2.1 Technical data for the swimming pool heat pump unit



| Models | ENERGYLINE PRO | ENP1M | ENP2M | ENP3M | ENP4M | ENP5M | ENP6M | ENP4T | ENP5T | ENP6T |
|-----------------------------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Heating capacity* | KW BTU/h | 5,9 20140 | 7,9 27000 | 11 37570 | 12,5 42690 | 15 51225 | 17,5 59765 | 12,5 42690 | 15 51225 | 17 58058 |
| Absorbed electrical power | KW | 1,4 | 1,8 | 2,4 | 2,9 | 3,4 | 3,8 | 2,85 | 3,3 | 3,6 |
| Running current* | A | 6,4 | 8,2 | 11,3 | 13,1 | 14,9 | 17,3 | 5,7 | 6,1 | 7,1 |
| Power supply | V Ph/Hz | 230 V~ 1 / 50Hz | 230 V~ 1 / 50Hz | 230 V~ 1 / 50Hz | 230 V~ 1 / 50Hz | 230 V~ 1 / 50Hz | 230 V~ 1 / 50Hz | 380 V~ 3 / 50Hz | 380 V~ 3 / 50Hz | 380 V~ 3 / 50Hz |
| aM type fuse calibre | A | 10 aM | 12 aM | 16 aM | 20 aM | 25 aM | 30aM | 10aM | 10aM | 12aM |
| Curve D circuit breaker | A | 10 D | 12 D | 16 D | 20 D | 25 D | 30D | 10D | 10D | 12D |
| Compressor quantity | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Type of compressor | | Rotary | Rotary | Rotary | Scroll | Scroll | Scroll | Scroll | Scroll | Scroll |
| Fan quantity | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Fan power | W | 120 | 120 | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| Fan rotation speed | RPM | 850 | 850 | 850 | 850 | 850 | 850 | 850 | 850 | 850 |
| Ventilation | | Horizontal | Horizontal | Horizontal | Horizontal | Horizontal | Horizontal | Horizontal | Horizontal | Horizontal |
| Sound pressure level (at 1 metre) | dB(A) | 51 | 54 | 56 | 56 | 56 | 56 | 56 | 56 | 56 |
| Hydraulic connection | mm | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| Nominal water flow* | m ³ /h | 2,5 | 3,4 | 5 | 5,2 | 6 | 7 | 5,1 | 6,2 | 7 |
| Water pressure drop (max) | kPa | 10 | 10 | 12 | 12 | 12 | 17 | 12 | 12 | 17 |
| Unit net dimensions (L/I/h) | mm | 1025/455/ 660 | 1025/455/ 660 | 1140/470/ 875 | 1140/470/ 875 | 1140/470/ 875 | 1140/470/ 875 | 1140/470/ 875 | 1140/470/ 875 | 1140/470/ 875 |
| Unit shipping dimensions (L/I/h) | mm | 1130/470/ 760 | 1130/470/ 760 | 1240/500/ 980 | 1240/500/ 980 | 1240/500/ 980 | 1240/500/ 980 | 1240/500/ 980 | 1240/500/ 980 | 1240/500/ 980 |
| Net weight / shipping weight | kg | 57/71 | 61/75 | 80/98 | 106/124 | 106/124 | 110/125 | 106/124 | 106/124 | 110/125 |

* Value at +/- 5% under the following conditions: Exterior temperature = 15°C (59°F) / HR = 71% / Water inflow temperature = 26°C (78.8°F) / ΔT water 2°C (3.6°F). According to the NF 414 standard.

2. SPECIFICATIONS (continued)

2.2 Operating range

Use the swimming pool heat pump unit within the following ranges of temperature and humidity to ensure safe and efficient operation.

| | Heating mode  | Cooling mode  |
|----------------------------------|--|---|
| Outside temperature | +2°C ~ +35°C | +7°C ~ +43°C |
| Water temperature | +12°C ~ +40°C | +8°C ~ +40°C |
| Relative humidity | < 80% | < 80% |
| Setting range from the set point | +15°C ~ +40°C | +8°C ~ +35°C |



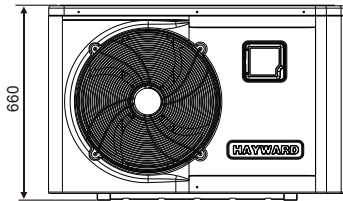
If the temperature or humidity does not correspond to these conditions, the security measures could be activated and the swimming pool heat pump unit may no longer work.

2. SPECIFICATIONS (continued)

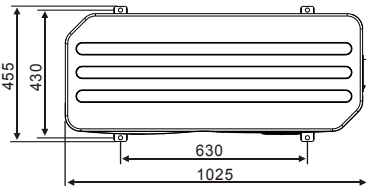
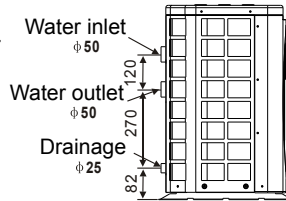
2.3 Dimensions

Models: ENP1M/ENP2M

Unit: mm



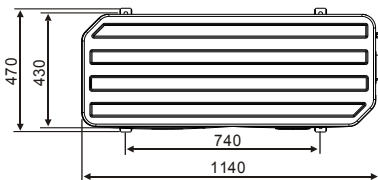
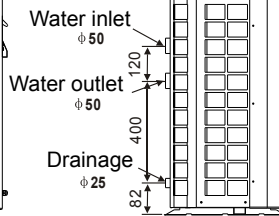
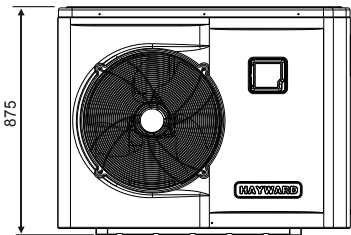
Frontal view



Overhead view

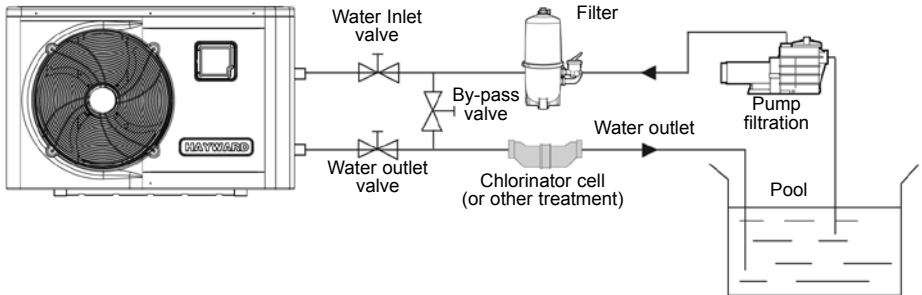
Models: ENP3M/ENP4M/ENP5M
ENP4T/ENP5T/ENP6M/ENP6T

Unit: mm



3. INSTALLATION AND CONNECTION

3.1 Functional Diagram



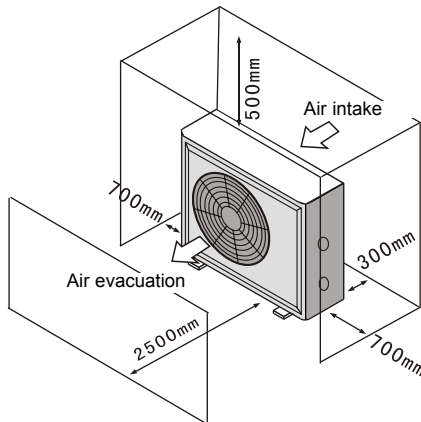
Note: The swimming pool heat pump unit is sold without any treatment or filtration equipment. The components presented in the diagram are spare parts to be supplied by the installer.

3.2 Heat pump



Place the heat pump outdoors and away from any enclosed technical space.

Placed under a shelter, the minimum required distances mentioned below must be respected in order to avoid any risk of air recirculation and a deficiency in the unit's overall performance.



3. INSTALLATION AND CONNECTION (continued)



It is advised to install the unit on a dissociated cement block or a mounting bracket designed for this use and to set up the unit on the supplied rubber bushing (fastenings and washers not supplied).

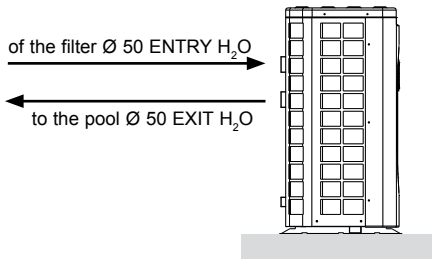
The maximum installation distance between the unit and the swimming pool is 15 metres.

The total length of the piping to and from the unit is 30 metres.

Insulate both the above ground and buried hydraulic piping.

3.3 Hydraulic connection

The unit is supplied with two 50 mm Ø union connections. Connect the water inlet to the heat pump coming from the filtration group then connect the water outlet to the heat pump at the water conduit going to the pool (see diagram below).



Install a by-pass valve between the heat pump entrance and exit.



If an automatic distributor or an electrolyser is used, it should be installed imperatively after the heat pump with the goal of protecting the titanium condenser against an elevated concentration of chemicals.



Be sure to install the by-pass valve and the supplied union connections at the water inlet and outlet level in order to simplify purging during the winter period and to facilitate access when disassembling for maintenance.

3. INSTALLATION AND CONNECTION (continued)

3.4 Electrical connection



Electrical installation and wiring for this equipment must be in conformity with local installation standards.

| | | | |
|-----|---|-----|-------------------------------------|
| F | NF C15-100 | GB | BS7671:1992 |
| D | DIN VDE 0100-702 | EW | EVHS-HD 384-7-702 |
| A | ÖVE 8001-4-702 | H | MSZ 2364-702/1994/MSZ 10-553 1/1990 |
| E | UNE 20460-7-702 1993, RECBT ITC-BT-31 2002 | M | MSA HD 384-7-702.S2 |
| IRL | Wiring Rules + IS HD 384-7-702 | PL | PN-IEC 60364-7-702:1999 |
| I | CEI 64-8/7 | CZ | CSN 33 2000 7-702 |
| LUX | 384-7.702 S2 | SK | STN 33 2000-7-702 |
| NL | NEN 1010-7-702 | SLO | SIST HD 384-7-702.S2 |
| P | RSIUEE | TR | TS IEC 60364-7-702 |



Verify that the available electrical power supply and the network frequency correspond to the required operating current taking into account the appliance's specific location, and the current required to supply any other appliance connected to the same circuit.

ENP 1M 230 V~ +/- 10% 50 HZ 1 Phase

ENP 2M 230 V~ +/- 10% 50 HZ 1 Phase

ENP 3M 230 V~ +/- 10% 50 HZ 1 Phase

ENP 4M 230 V~ +/- 10% 50 HZ 1 Phase

ENP 5M 230 V~ +/- 10% 50 HZ 1 Phase

ENP 6M 230 V~ +/- 10 % 50 HZ 1 Phase

ENP 4T 380 V~ +/- 10 % 50 HZ 3 Phases

ENP 5T 380 V~ +/- 10 % 50 HZ 3 Phases

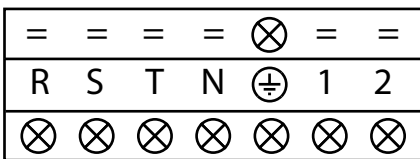
ENP 6T 380 V~ +/- 10 % 50 HZ 3 Phases



Check that the phases balance does not exceed 2%

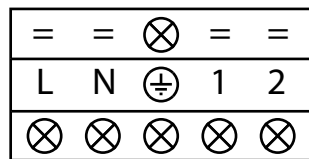
See the corresponding wiring diagram in the appendix.

The connection box is located on the right side of the unit. Three connections are designed for the power supply and two are for controlling the filter pump (Enslavement).



Power supply
380V~ / 50Hz

Output 230V~
Enslavement filtration
pump 20A max



Power supply
230V~ / 50Hz

Output 230V~
Enslavement filtration
pump 20A max

3. INSTALLATION AND CONNECTION (continued)



The electrical power supply must have, when appropriate, a fuse protection device like a feed motor (aM) or D curve circuit breaker as well as a differential circuit breaker 30mA (see following table).


| Models | | ENP1M | ENP2M | ENP3M | ENP4M | ENP5M | ENP6M | ENP4T | ENP5T | ENP6T |
|-------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Power supply | V/Ph/Hz | 230 V~ | 230 V~ | 230 V~ | 230 V~ | 230 V~ | 230 V~ | 380 V~ | 380 V~ | 380 V~ |
| | | 1/50 Hz | 1/50 Hz | 1/50 Hz | 1/50 Hz | 1/50 Hz | 1/50 Hz | 3/50 Hz | 3/50 Hz | 3/50 Hz |
| aM type fuse calibre | A | 10 aM | 12 aM | 16 aM | 20 aM | 25 aM | 30 aM | 10 aM | 10 aM | 12 aM |
| Curve D circuit breaker | A | 10 D | 12 D | 16 D | 20 D | 25 D | 30 D | 10 D | 10 D | 12 D |



Always shut down the main power supply before opening the electrical control box.

3.5 Initial start-up

Start-up procedure - After installation is complete, follow these steps:

- 1) Rotate the fan by hand to verify that it can turn freely, and that the turbine is correctly affixed to the motor shaft.
- 2) Ensure that the unit is connected correctly to the main power supply (see the wiring diagram in the appendix).
- 3) Activate the filtration pump.
- 4) Verify that all water valves are open and that the water flows toward the unit before switching on the heating or cooling mode.
- 5) Verify that the drainage hose is correctly affixed and that it causes no obstructions.
- 6) Activate the unit power supply, then press the On/Off button  on the control panel.
- 7) Ensure that no ALARM code is displayed when the unit is ON (see troubleshooting guide).

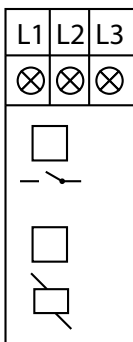
3. INSTALLATION AND CONNECTION (continued)

- 8) Set the water flow using the by-pass valve (see § 3.6 and 2.1), as provided for by each model, to obtain an Entry/Exit temperature of 2°C.
- 9) After running for several minutes, verify that the air exiting the unit is cool (between 5 and 10°).
- 10) With the unit operating, turn off the filter pump. The unit should automatically turn off and display error code E03.
- 11) Allow the unit and the pool pump to run 24 hours per day until the desired water temperature has been reached. When the set water inlet temperature is reached, the unit will turn off. It will automatically restart (as long as the pool pump is running) if the pool temperature is at least 0.5°C below the set temperature.

Water flow switch - The unit is equipped with a flow switch that turns on the heat pump when the pool filtration pump is running, and deactivates it when the filtration pump is out of order. If the water is low, the E03 alarm code will appear on the regulator (See § 6.4).

Time delay - The unit is equipped with a time delay of 3 minutes in order to protect the control circuit components, to eliminate restart cycling and contactor chatter. Thanks to this time delay, the unit automatically restarts approximately 3 minutes after each control circuit interruption. Even a brief power interruption will activate the restart time delay.

Phase switch - The Triphasic units include a phase switch to ensure that the compressor is rotating in the correct direction. If the unit does not start, check the condition of the phase switch located in the electrical box.

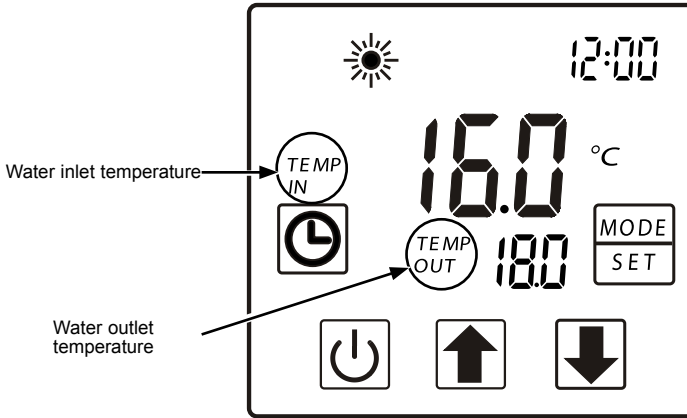


- ▶ Yellow/orange ON = Relay ON = Order and Phase number OK
- ▶ Green = Power on

3. INSTALLATION AND CONNECTION (continued)

3.6 Water flow setting

With the water entry and exit valves being open, adjust the by-pass valve in order to obtain a difference of 2°C between the inflow and outflow temperature (see principle diagram § 3.1). You can verify the switch by seeing the entry/exit temperatures directly on the control panel.



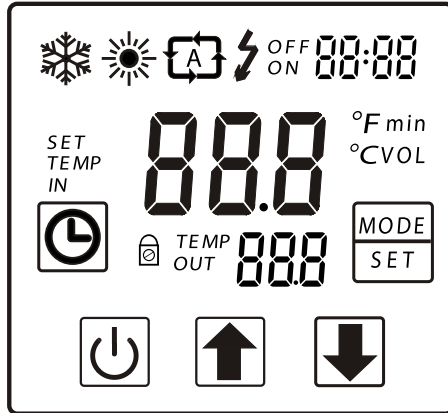
Note: Opening the by-pass valve creates a weaker flow, which leads to an increase in ΔT .

Closing the by-pass valve creates a stronger flow, which leads to a decrease in ΔT .

4. USER INTERFACE

4.1 General presentation

The heat pump is equipped with a digital control panel with a touch screen, electronically connected and pre-set at the factory in heating mode.



Key



Symbol Cooling Mode



Symbol Heating Mode



Automatic mode



Clock and timer settings



Selection and settings button



On/Off button and return



Scroll down

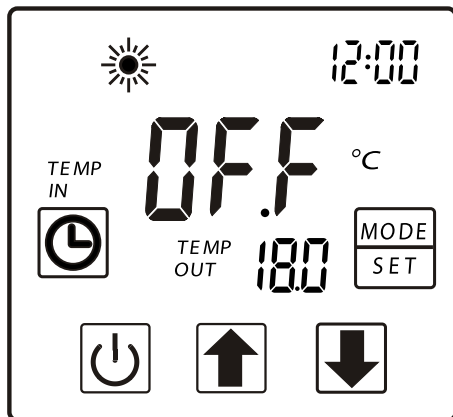


Scroll up

4. USER INTERFACE (continued)

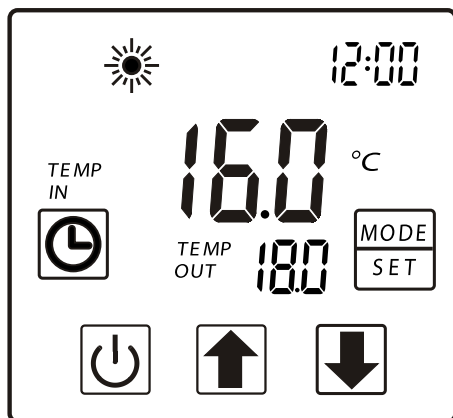
OFF Mode

When the heating pump is in sleep mode (OFF Mode) “OFF” is displayed on the command screen.










ON Mode


When the heating pump is running or regulating (ON Mode), the inlet and outlet water temperatures are displayed on the command screen.



4. USER INTERFACE (continued)

4.2 Clock settings








Press 2 times on , the blinking time display then set the time with the arrows  or  then press one more time  to set the minutes with the arrows  or . Press  to validate.

Note: The settings will be automatically saved if no button is pressed after 5 seconds, if not press  to validate.

4.3 Timer function settings









Setting this function is necessary if you would like to run the heat pump for a shorter period than what is defined by the filtration clock. Therefore, you can program a deferred start and an anticipated stop or simply stop a certain timeframe from running (at night, for example).

Start Program (Timer ON) / Start

- 1) Press  2 seconds, Timer "ON" blinks.
- 2) Press  to set the hour using the buttons  .
- 3) Press  to set the minutes using the buttons  .






It is automatically saved after 5 seconds of no action.

Stop Program (Timer OFF) / Stop

- 1) Press  2 seconds, Timer "ON" blinks then press  3 times in a row until timer "OFF" blinks.
- 2) Press  to set the hour using the buttons  .
- 3) Press  to set the minutes using the buttons  .


4. USER INTERFACE (continued)

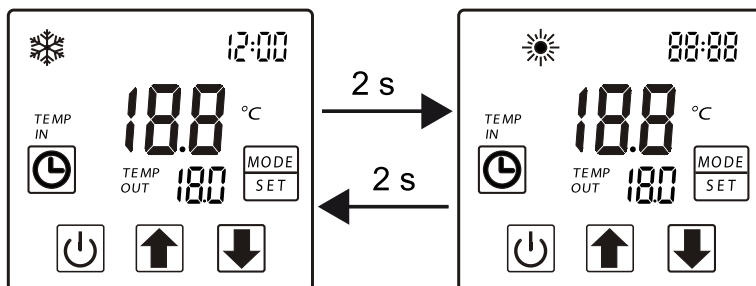
Turn off the Timer (Timer ON and OFF) / Off and On

- 1) Press  2 seconds, Timer "ON".
- 2) Press  to delete the programme.
- 3) Press  2 seconds timer "ON" blinks then press  2 seconds, Timer "OFF" blinks.
- 4) Press  to delete the programme.

4.4 Operating mode choice: heating or cooling

In Mode "OFF" or "ON"



Press the button  2 seconds to go from heating mode to cooling mode, and vice-versa.



4. USER INTERFACE (continued)



4.5 Settings and visualisation from the set point (desired water temperature)

In Mode “OFF” and Mode “ON”



Press the buttons  or  to define the desired set point. The settings are made with a precision of 0.5 °C.





It is recommended to never surpass 30°C to avoid alteration of the liners.

Note: When on or off, it suffices to press the button  or  to see or modify the set point.

4.6 Locking and unlocking the touch screen

Press the On/Off button  5 seconds until it beeps and this symbol appears .

To unlock, press  5 seconds until it beeps and this symbol disappears .

5. MAINTENANCE AND WINTERISING

5.1 Maintenance

These maintenance operations must be carried out once per year in order to guarantee the longevity and the good working condition of the heat pump.

- Clean the coil with the help of a soft brush or jet of air or water (**Warning, never use a high pressure cleaner**).
- Verify that the drains flow well.
- Verify the tightening of the hydraulic and electrical connections
- Verify the hydraulic sealing of the condenser.



Before any maintenance operation, the heating pump must be disconnected from any electrical current source. The maintenance operations must only be carried out by personnel that is qualified and authorised to handle liquid refrigerants.

5.2 Winterising

- Put the heat pump in “OFF” mode.
- Cut the power supply to the heat pump.
- Empty the condenser with the help of the drain to avoid any risk of deterioration. (high risk of freezing).
- Close the by-pass valve and unscrew the entry/exit connection unions.
- Eliminate the maximum amount of residual stagnant water from the condenser with the help of an air gun.
- Close the water entry and exit areas of the heating pump to avoid introducing foreign bodies.
- Cover the heating pump with a dedicated winterising case.

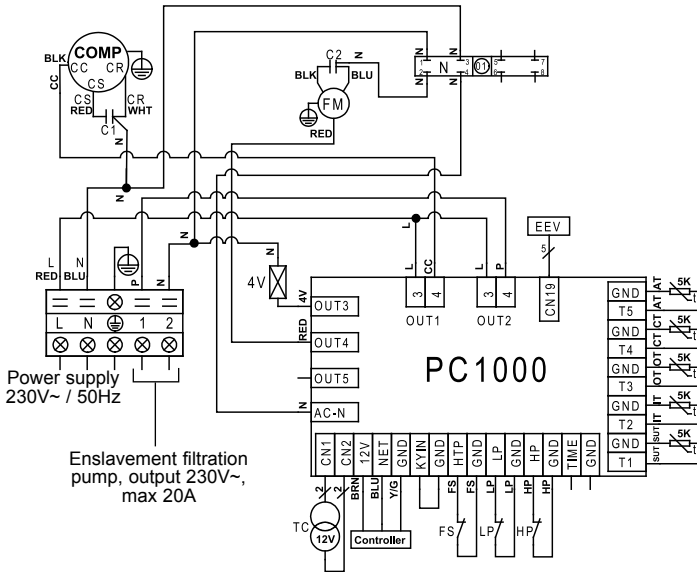


Any damage caused by poor winterising maintenance will lead to cancellation of the warranty.

6. APPENDIX

6.1 Electrical diagrams

ENP1M



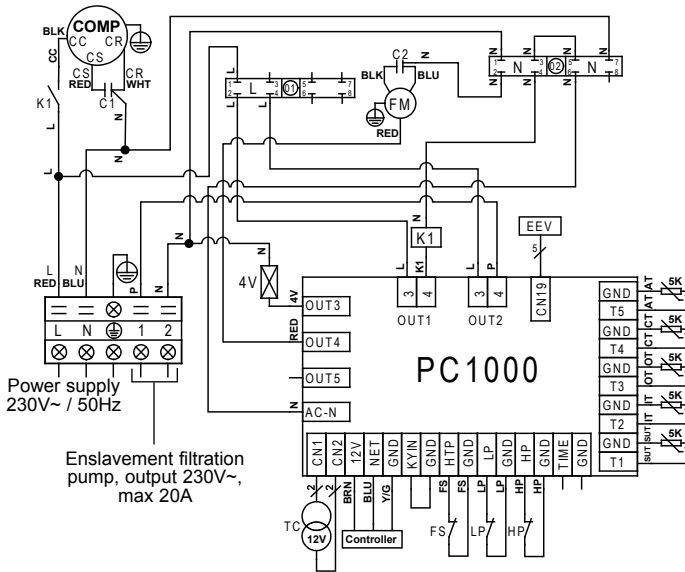
REMARKS:

- 1. AT: AIR TEMPERATURE SENSOR
- 2. COMP: COMPRESSOR
- 3. CT: EVAPORATOR TEMPERATURE SENSOR
- 4. EEV: ELECTRONIC EXPANSION VALVE
- 5. FM: FAN MOTOR
- 6. FS: WATER PRESENCE DETECTOR
- 7. HP: HIGH PRESSURE SWITCH

- 8. IT: WATER INLET TEMPERATURE SENSOR
- 9. LP: LOW PRESSURE SWITCH
- 10. OT: OUTLET WATER TEMPERATURE SENSOR
- 11. SUT: ASPIRATION TEMPERATURE SENSOR
- 12. TC: TRANSFORMER 230V~ / 12V~
- 13. 4V: 4 WAYS VALVE
- 14. C1: COMPRESSOR CAPACITOR
- 15. C2: FAN MOTOR CAPACITOR

6. APPENDIX (continued)

ENP2M



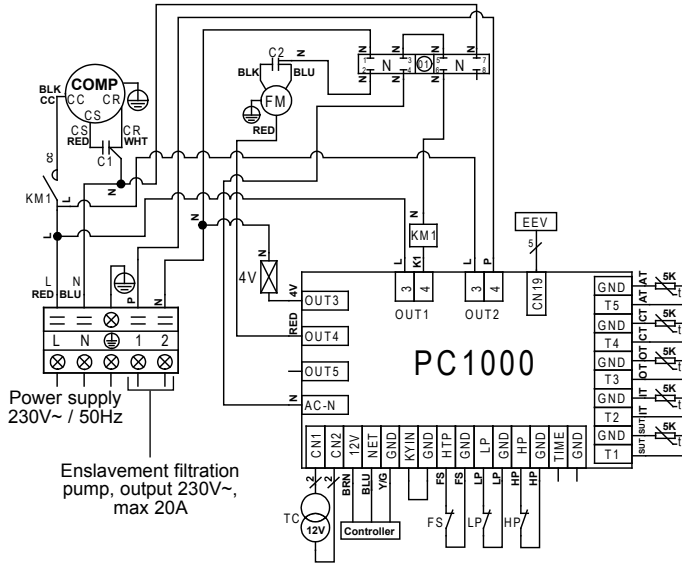
REMARKS:

1. AT: AIR TEMPERATURE SENSOR
2. COMP: COMPRESSOR
3. CT: EVAPORATOR TEMPERATURE SENSOR
4. EEV: ELECTRONIC EXPANSION VALVE
5. FM: FAN MOTOR
6. FS: WATER PRESENCE DETECTOR
7. HP: HIGH PRESSURE SWITCH
8. IT: WATER INLET TEMPERATURE SENSOR

9. LP: LOW PRESSURE SWITCH
10. OT: OUTLET WATER TEMPERATURE SENSOR
11. SUT: ASPIRATION TEMPERATURE SENSOR
12. TC: TRANSFORMER 230V~ / 12V~
13. 4V: 4 WAYS VALVE
14. K1: RELAY
15. C1: COMPRESSOR CAPACITOR
16. C2: FAN MOTOR CAPACITOR

6. APPENDIX (continued)

ENP3M



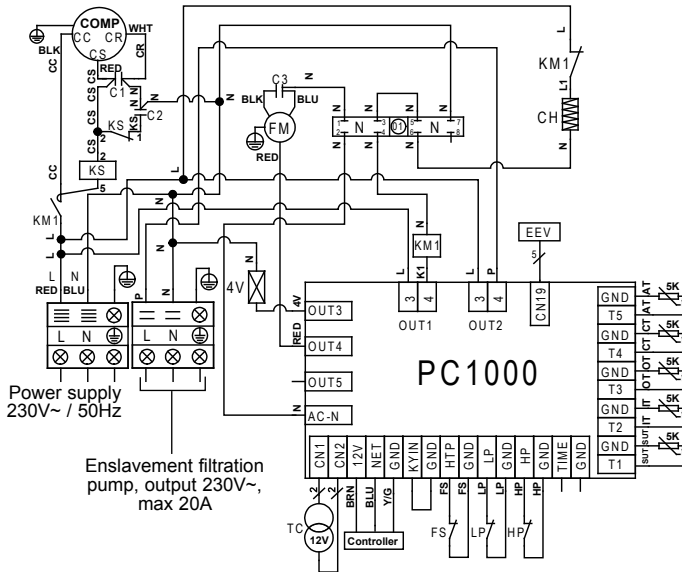
REMARKS:

1. AT: AIR TEMPERATURE SENSOR
2. COMP: COMPRESSOR
3. CT: EVAPORATOR TEMPERATURE SENSOR
4. EEV: ELECTRONIC EXPANSION VALVE
5. FM: FAN MOTOR
6. FS: WATER PRESENCE DETECTOR
7. HP: HIGH PRESSURE SWITCH
8. IT: WATER INLET TEMPERATURE SENSOR

9. LP: LOW PRESSURE SWITCH
10. OT: OUTLET WATER TEMPERATURE SENSOR
11. SUT: ASPIRATION TEMPERATURE SENSOR
12. TC: TRANSFORMER 230V~ / 12V~
13. 4V: 4 WAYS VALVE
14. KM1: POWER CONTACTOR
15. C1: COMPRESSOR CAPACITOR
16. C2: FAN MOTOR CAPACITOR

6. APPENDIX (continued)

ENP4M

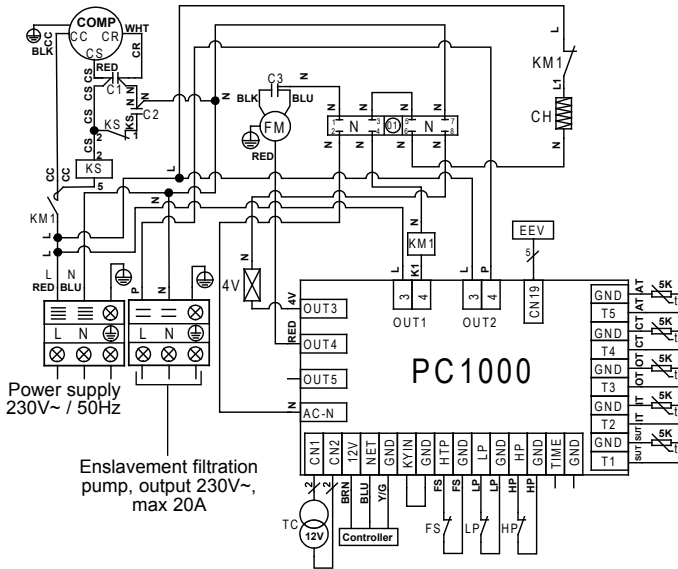


REMARKS:

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. AT: AIR TEMPERATURE SENSOR 2. COMP: COMPRESSOR 3. CH: SUMP HEATER 4. CT: EVAPORATOR TEMPERATURE SENSOR 5. EEV: ELECTRONIC EXPANSION VALVE 6. FM: FAN MOTOR 7. FS: WATER PRESENCE DETECTOR 8. HP: HIGH PRESSURE SWITCH 9. IT: WATER INLET TEMPERATURE SENSOR | <ol style="list-style-type: none"> 10. KS: RELAY COIL FOR COMPRESSOR START-UP 11. LP: LOW PRESSURE SWITCH 12. OT: OUTLET WATER TEMPERATURE SENSOR 13. SUT: ASPIRATION TEMPERATURE SENSOR 14. TC: TRANSFORMER 230V~ / 12V~ 15. 4V: 4 WAYS VALVE 16. KM1: POWER CONTACTOR 17. C1: COMPRESSOR CAPACITOR 18. C2: FAN MOTOR CAPACITOR |
|--|---|

6. APPENDIX (continued)

ENP5M

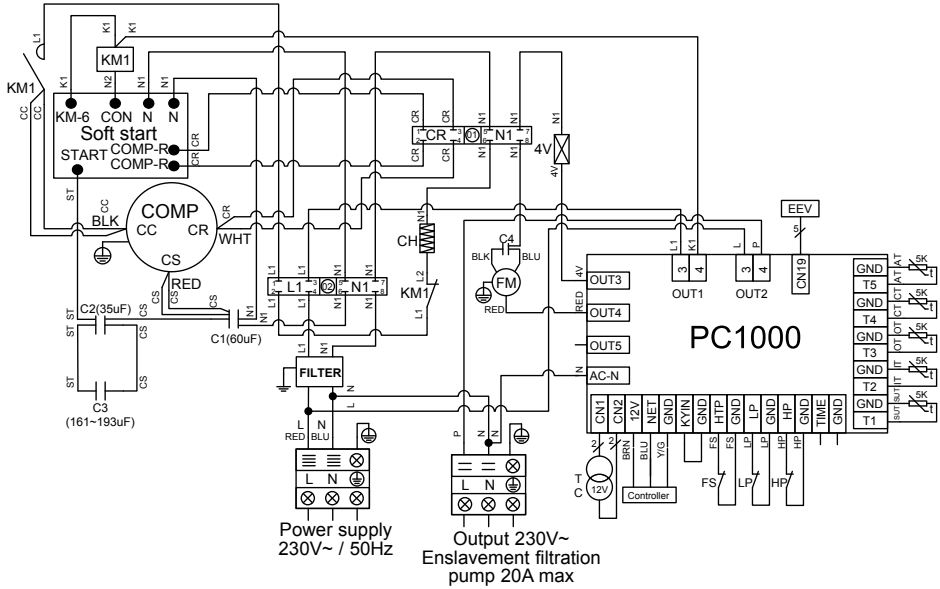


REMARKS:

- | | |
|--|--|
| <ul style="list-style-type: none"> 1. AT: AIR TEMPERATURE SENSOR 2. COMP: COMPRESSOR 3. CH: SUMP HEATER 4. CT: EVAPORATOR TEMPERATURE SENSOR 5. EEV: ELECTRONIC EXPANSION VALVE 6. FM: FAN MOTOR 7. FS: WATER PRESENCE DETECTOR 8. HP: HIGH PRESSURE SWITCH 9. IT: WATER INLET TEMPERATURE SENSOR | <ul style="list-style-type: none"> 10. KS: RELAY COIL FOR COMPRESSOR START-UP 11. LP: LOW PRESSURE SWITCH 12. OT: OUTLET WATER TEMPERATURE SENSOR 13. SUT: ASPIRATION TEMPERATURE SENSOR 14. TC: TRANSFORMER 230V~/ 12V~ 15. 4V: 4 WAYS VALVE 16. KM1: POWER CONTACTOR 17. C1: COMPRESSOR CAPACITOR 18. C2: FAN MOTOR CAPACITOR |
|--|--|

6. APPENDIX (continued)

ENP6M

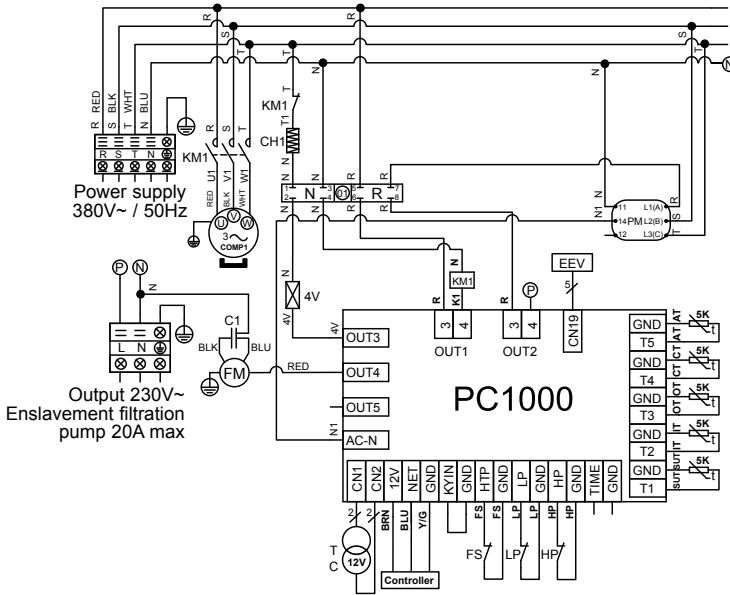


REMARKS:

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. AT: AIR TEMPERATURE SENSOR 2. COMP: COMPRESSOR 3. CH: SUMP HEATER 4. CT: EVAPORATOR TEMPERATURE SENSOR 5. EEV: ELECTRONIC EXPANSION VALVE 6. FM: FAN MOTOR 7. FS: WATER PRESENCE DETECTOR | <ol style="list-style-type: none"> 8. HP: HIGH PRESSURE SWITCH 9. IT: WATER INLET TEMPERATURE SENSOR 10. KM1: POWER CONTACTOR 11. LP: LOW PRESSURE SWITCH 12. OT: OUTLET WATER TEMPERATURE SENSOR 13. SUT: ASPIRATION TEMPERATURE SENSOR 14. 4V: 4 WAYS VALVE 15. SOFT START: ELECTRONIC STARTER |
|--|--|

6. APPENDIX (continued)

ENP6T

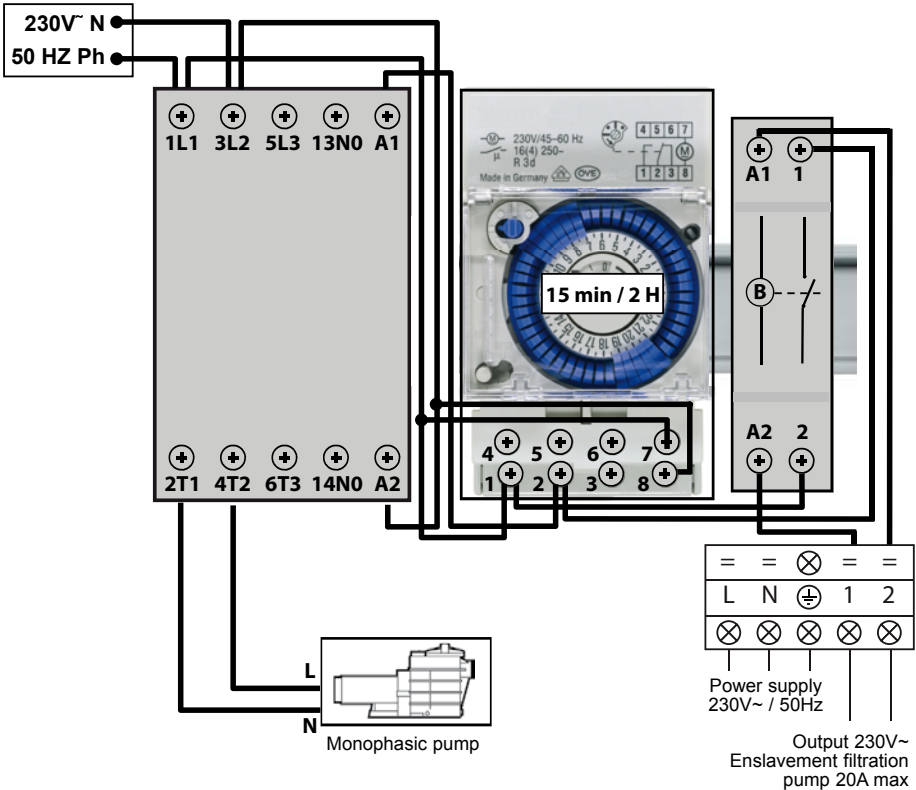


REMARKS:

1. AT: AIR TEMPERATURE SENSOR
2. COMP: COMPRESSOR
3. CH: SUMP HEATER
4. CT: EVAPORATOR TEMPERATURE SENSOR
5. FM: FAN MOTOR
6. FS: WATER PRESENCE DETECTOR
7. HP: HIGH PRESSURE SWITCH
8. IT: WATER INLET TEMPERATURE SENSOR
9. KM1: POWER CONTACTOR
10. LP: LOW PRESSURE SWITCH
11. OT: OUTLET WATER TEMPERATURE SENSOR
12. PM: PHASE SWITCH
13. 4V: 4 WAYS VALVE
14. EEV: ELECTRONIC EXPANSION VALVE

6. APPENDIX (continued)

6.2 Heating priority wiring

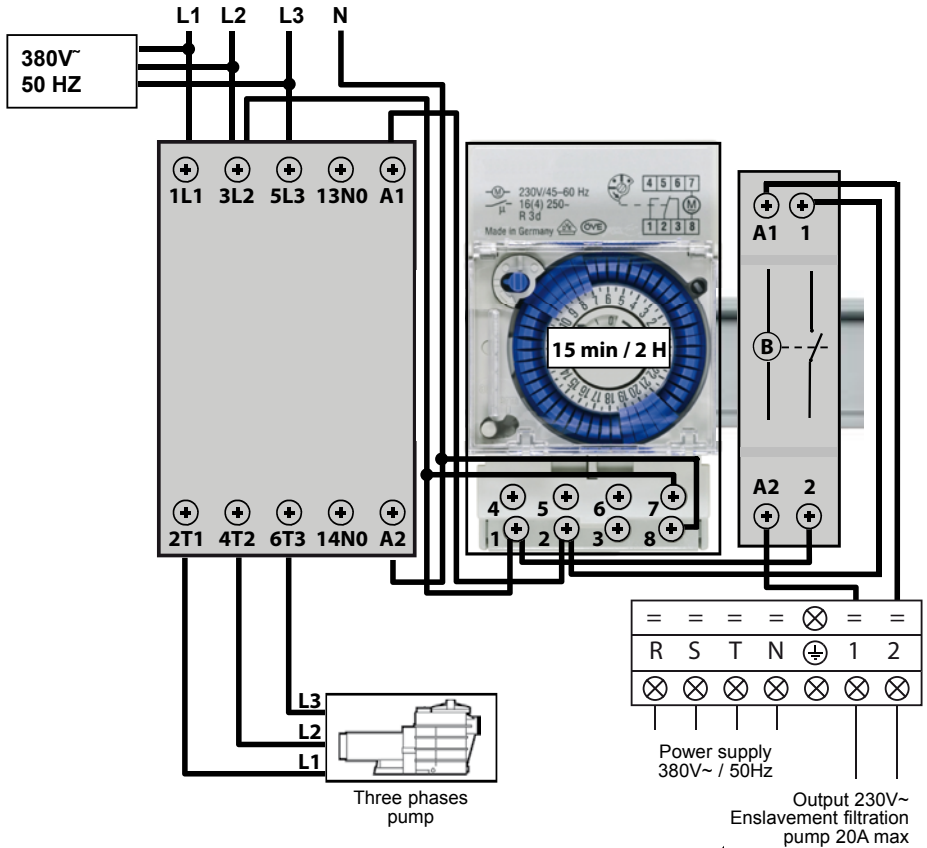


Outside of the filtration range, it is necessary to start a check of the water temperature by regularly starting the filtration pump (15 minutes every 2 hours). If during this check period the heating pump is needed, it will start and maintain the heating priority.



6. APPENDIX (continued)

6.3 Heating priority wiring for three phases pump



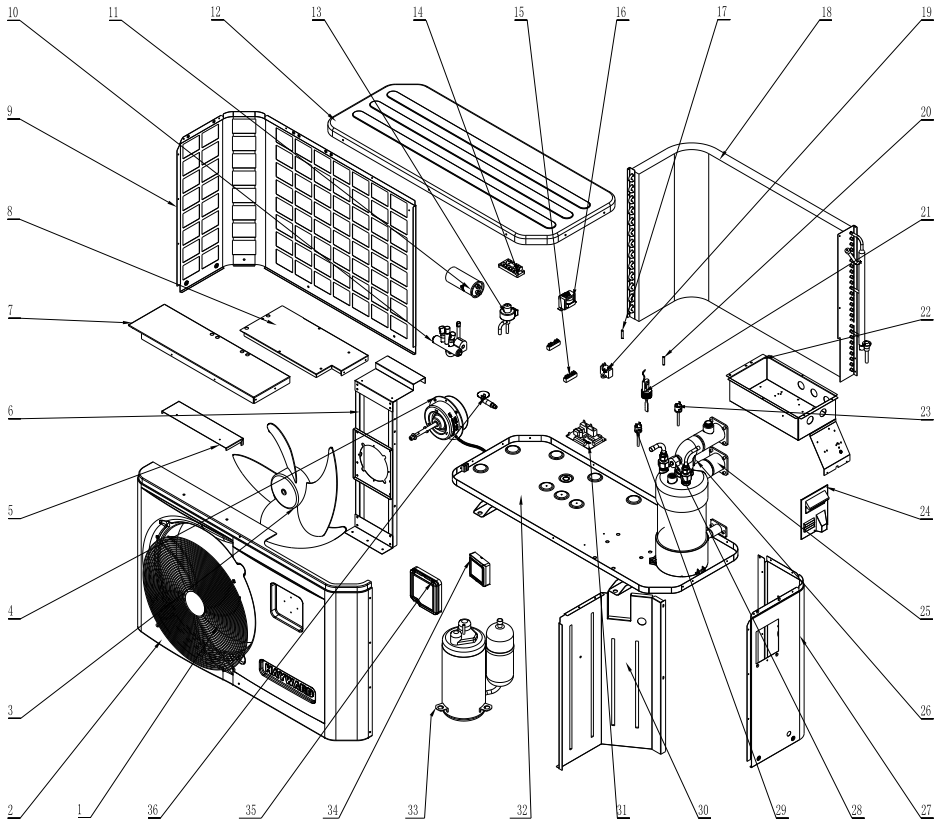
Outside of the filtration range, it is necessary to start a check of the water temperature by regularly starting the filtration pump (15 minutes every 2 hours). If during this check period the heating pump is needed, it will start and maintain the heating priority.



6. APPENDIX (continued)

6.3 Exploded view and spare parts

ENP1M



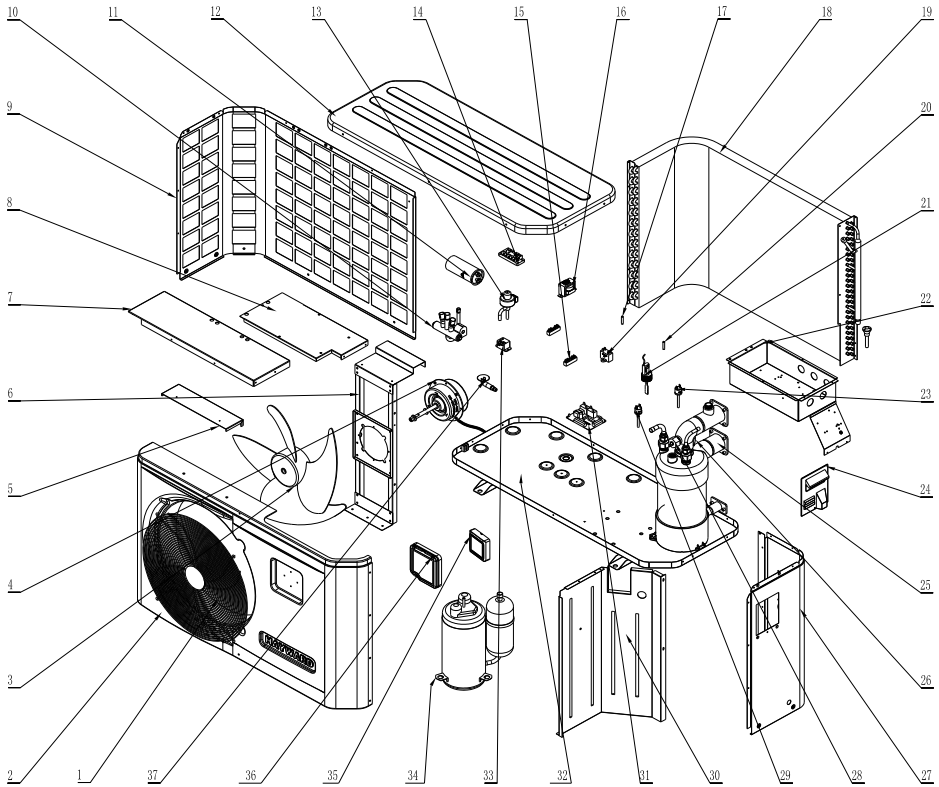
6. APPENDIX (continued)

ENP1M

| Mark | Ref. | Description | Mark | Ref. | Description |
|------|--------------|-----------------------------------|------|--------------|----------------------------------|
| 1 | HWX321221008 | Fan protection grille | 19 | HWX20003501 | Compressor capacitor (3 μ F) |
| 2 | HWX320822002 | Front panel | 20 | HWX20003242 | Coil temperature sensor |
| 3 | HWX35002701 | Fan blade | 21 | HWX200036005 | Flow switch |
| 4 | HWX34043301 | Fan motor | 22 | HWX321221078 | Electrical box cover |
| 5 | HWX320821069 | Protection panel | 23 | HWX20013605 | High pressure switch |
| 6 | HWX321221108 | Fan motor bracket | 24 | HWX320822008 | Protection cover |
| 7 | HWX321221077 | Support panel | 25 | HWX322512005 | PVC-Titanium condenser |
| 8 | HWX321221079 | Electrical box cover | 26 | HWX20003242 | Water outlet sensor |
| 9 | HWX320821072 | Back panel | 27 | HWX320821071 | Right panel |
| 10 | HWX20011418 | 4 ways valve | 28 | HWX20003242 | Water inlet sensor |
| 11 | HWX20003504 | Compressor capacitor (35 μ F) | 29 | HWX20003603 | Low pressure switch |
| 12 | HWX320822021 | Top cover | 30 | HWX321221076 | Center wall |
| 13 | HWX20031402 | Electronic expansion valve | 31 | HWX950531145 | PCB board |
| 14 | HWX40003901 | Terminal block 5 connections | 32 | HWX320821007 | Bottom panel |
| 15 | HWX20003909 | Terminal block 2 connections | 33 | HWX200011077 | Compressor |
| 16 | HWX200037003 | Transformer 230V~ 12V~ | 34 | HWX950531152 | LCD controller |
| 17 | HWX20003242 | Air temperature sensor | 35 | HWX200022068 | Waterproof cover |
| 18 | HWX34061204 | Fin coil | 36 | HWX34002203 | Drain connector |

6. APPENDIX (continued)

ENP2M



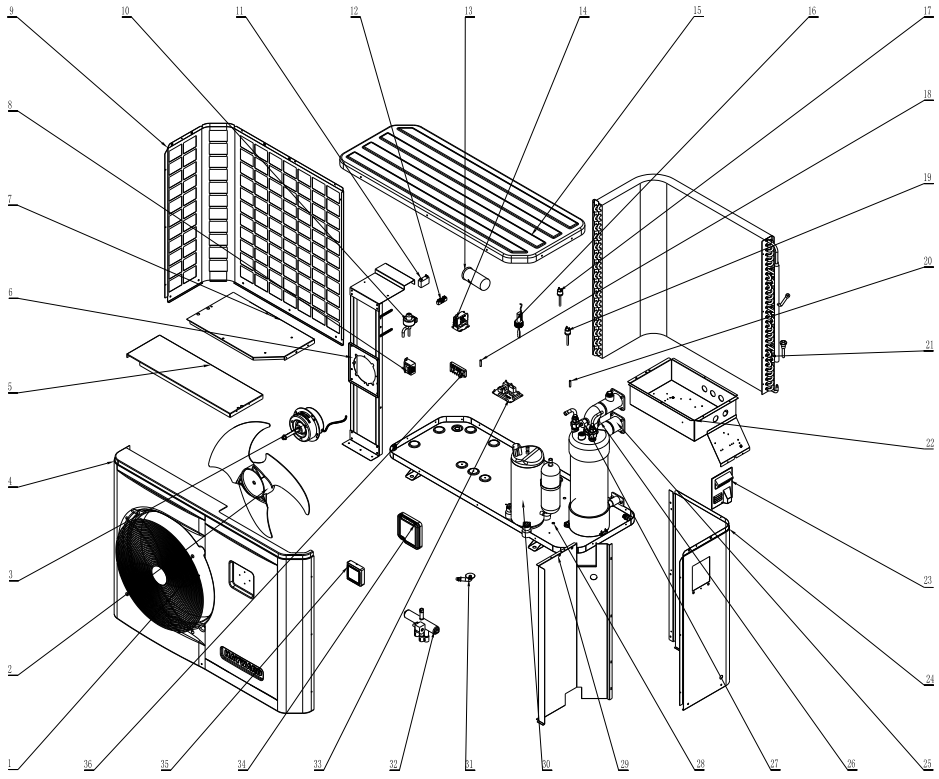
6. APPENDIX (continued)

ENP2M

| Mark | Ref. | Description | Mark | Ref. | Description |
|------|--------------|-----------------------------------|------|--------------|----------------------------------|
| 1 | HWX321221008 | Fan protection grille | 19 | HWX20003501 | Compressor capacitor (3 μ F) |
| 2 | HWX320822002 | Front panel | 20 | HWX20003242 | Coil temperature sensor |
| 3 | HWX35002701 | Fan blade | 21 | HWX200036005 | Flow switch |
| 4 | HWX34043301 | Fan motor | 22 | HWX321221078 | Electrical box cover |
| 5 | HWX320821069 | Protection panel | 23 | HWX20013605 | High pressure switch |
| 6 | HWX321221108 | Fan motor bracket | 24 | HWX320822008 | Protection cover |
| 7 | HWX321221077 | Support panel | 25 | HWX320812008 | PVC-Titanium condenser |
| 8 | HWX321221079 | Electrical box cover | 26 | HWX20003242 | Water outlet sensor |
| 9 | HWX320821072 | Back panel | 27 | HWX320821071 | Right panel |
| 10 | HWX20041437 | 4 ways valve | 28 | HWX20003242 | Water inlet sensor |
| 11 | HWX20003510 | Compressor capacitor (60 μ F) | 29 | HWX20003603 | Low pressure switch |
| 12 | HWX320822021 | Top cover | 30 | HWX321221076 | Center wall |
| 13 | HWX20021451 | Electronic expansion valve | 31 | HWX950531145 | PCB board |
| 14 | HWX40003901 | Terminal block 5 connections | 32 | HWX320821007 | Bottom panel |
| 15 | HWX20003909 | Terminal block 2 connections | 33 | HWX20003619 | Relay |
| 16 | HWX200037003 | Transformer 230V~ 12V~ | 34 | HWX20011163 | Compressor |
| 17 | HWX20003242 | Air temperature sensor | 35 | HWX950531152 | LCD controller |
| 18 | HWX320812009 | Fin coil | 36 | HWX200022068 | Waterproof cover |
| | | | 37 | HWX34002203 | Drain connector |

6. APPENDIX (continued)

ENP3M



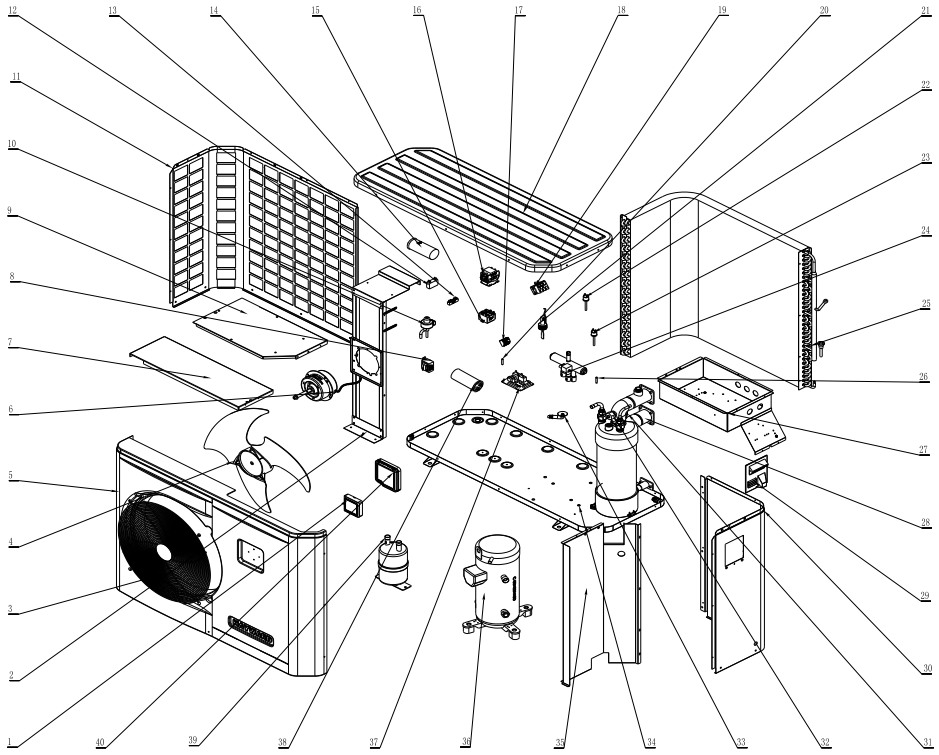
6. APPENDIX (continued)

ENP3M

| Mark | Ref. | Description | Mark | Ref. | Description |
|------|--------------|-----------------------------------|------|--------------|------------------------------|
| 1 | HWX340621049 | Fan protection grille | 19 | HWX20003603 | Low pressure switch |
| 2 | HWX20002705 | Fan blade | 20 | HWX20003242 | Air temperature sensor |
| 3 | HWX20013328 | Fan motor | 21 | HWX351212001 | Fin coil |
| 4 | HWX320922015 | Front panel | 22 | HWX320921021 | Electrical box cover |
| 5 | HWX320921025 | Support panel | 23 | HWX320822008 | Protection cover |
| 6 | HWX320921092 | Fan motor bracket | 24 | HWX320921089 | Right panel |
| 7 | HWX320921024 | Electrical box cover | 25 | HWX320912013 | PVC-Titanium condenser |
| 8 | HWX200037003 | Transformer 230V~ 12V~ | 26 | HWX20003242 | Water outlet sensor |
| 9 | HWX320921009 | Back panel | 27 | HWX20003242 | Water inlet sensor |
| 10 | HWX20021451 | Electronic expansion valve | 28 | HWX320921091 | Bottom panel |
| 11 | HWX20003508 | Fan motor capacitor (4 μ F) | 29 | HWX320921023 | Center wall |
| 12 | HWX20003909 | Terminal block 2 connections | 30 | HWX200011027 | Compressor |
| 13 | HWX20003510 | Compressor capacitor (60 μ F) | 31 | HWX34002203 | Drain connector |
| 14 | HWX200036006 | Compressor contactor | 32 | HWX20041437 | 4 ways valve |
| 15 | HWX320922016 | Top cover | 33 | HWX950531145 | PCB board |
| 16 | HWX200036005 | Flow switch | 34 | HWX200022068 | Waterproof cover |
| 17 | HWX20013605 | High pressure switch | 35 | HWX950531152 | LCD controller |
| 18 | HWX20003242 | Coil temperature sensor | 36 | HWX40003901 | Terminal block 5 connections |

6. APPENDIX (continued)

ENP4M



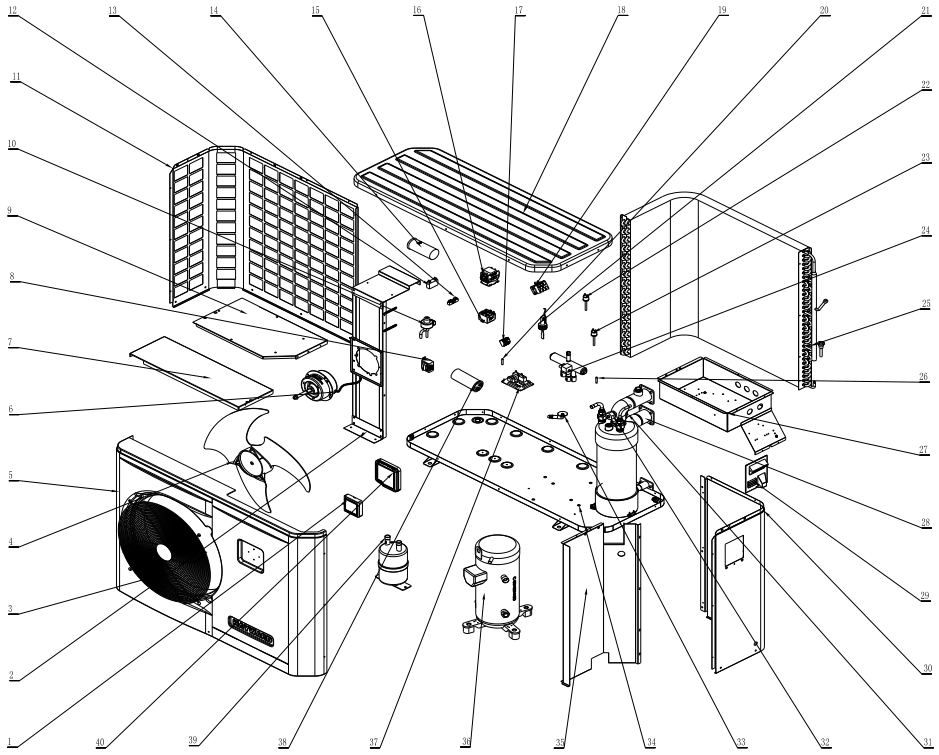
6. APPENDIX (continued)

ENP4M

| Mark | Ref. | Description | Mark | Ref. | Description |
|------|--------------|--------------------------------------|------|--------------|--------------------------------------|
| 1 | HWX950531152 | LCD controller | 21 | HWX200036005 | Flow switch |
| 2 | HWX320921092 | Fan motor bracket | 22 | HWX20013605 | High pressure switch |
| 3 | HWX340621049 | Fan protection grille | 23 | HWX20003603 | Low pressure switch |
| 4 | HWX20002705 | Fan blade | 24 | HWX20011491 | 4 ways valve |
| 5 | HWX320922015 | Front panel | 25 | HWX351212001 | Fin coil |
| 6 | HWX20013328 | Fan motor | 26 | HWX20003242 | Air temperature sensor |
| 7 | HWX320921025 | Support panel | 27 | HWX320921021 | Electrical box cover |
| 8 | HWX200037003 | Transformer 230V~ 12V~ | 28 | HWX320912013 | PVC-Titanium condenser |
| 9 | HWX320921024 | Electrical box cover | 29 | HWX320822008 | Protection cover |
| 10 | HWX20021451 | Electronic expansion valve | 30 | HWX320921089 | Right panel |
| 11 | HWX320921009 | Back panel | 31 | HWX20003242 | Water outlet sensor |
| 12 | HWX20003508 | Fan motor capacitor (4 μ F) | 32 | HWX20003242 | Water inlet sensor |
| 13 | HWX20003909 | Terminal block 2 connections | 33 | HWX34002203 | Drain connector |
| 14 | HWX20003524 | Compressor capacitor (98 μ F) | 34 | HWX320921091 | Bottom panel |
| 15 | HWX20003676 | Relay | 35 | HWX320921023 | Center wall |
| 16 | HWX200036007 | Compressor contactor | 36 | HWX200011081 | Compressor |
| 17 | HWX20003933 | Terminal block 3 connections | 37 | HWX950531145 | PCB board |
| 18 | HWX320922016 | Top cover | 38 | HWX20003527 | Compressor capacitor (70 μ F) |
| 19 | HWX20003920 | Terminal block 3 connections | 39 | HWX35001401 | Liquid tank |
| 20 | HWX20003242 | Coil temperature sensor | 40 | HWX200022068 | Waterproof cover |

6. APPENDIX (continued)

ENP5M



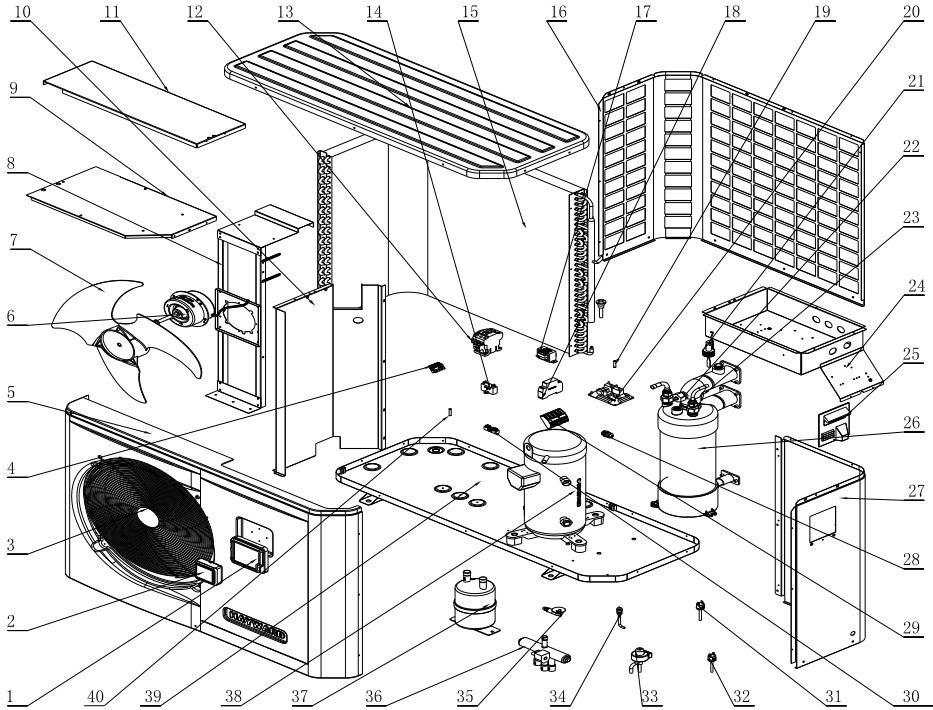
6. APPENDIX (continued)

ENP5M

| Mark | Ref. | Description | Mark | Ref. | Description |
|------|--------------|--------------------------------------|------|--------------|--------------------------------------|
| 1 | HWX950531152 | LCD controller | 21 | HWX200036005 | Flow switch |
| 2 | HWX320921092 | Fan motor bracket | 22 | HWX20013605 | High pressure switch |
| 3 | HWX340621049 | Fan protection grille | 23 | HWX20003603 | Low pressure switch |
| 4 | HWX20002705 | Fan blade | 24 | HWX20011491 | 4 ways valve |
| 5 | HWX320922015 | Front panel | 25 | HWX351212001 | Fin coil |
| 6 | HWX20013328 | Fan motor | 26 | HWX20003242 | Air temperature sensor |
| 7 | HWX320921025 | Support panel | 27 | HWX320921021 | Electrical box cover |
| 8 | HWX200037003 | Transformer 230V~ 12V~ | 28 | HWX320912013 | PVC-Titanium condenser |
| 9 | HWX320921024 | Electrical box cover | 29 | HWX320822008 | Protection cover |
| 10 | HWX200014151 | Electronic expansion valve | 30 | HWX320921089 | Right panel |
| 11 | HWX320921009 | Back panel | 31 | HWX20003242 | Water outlet sensor |
| 12 | HWX20003508 | Fan motor capacitor (4 μ F) | 32 | HWX20003242 | Water inlet sensor |
| 13 | HWX20003909 | Terminal block 2 connections | 33 | HWX34002203 | Drain connector |
| 14 | HWX20003524 | Compressor capacitor (98 μ F) | 34 | HWX320921091 | Bottom panel |
| 15 | HWX20003676 | Relay | 35 | HWX320921023 | Center wall |
| 16 | HWX200036007 | Compressor contactor | 36 | HWX200011053 | Compressor |
| 17 | HWX20003933 | Terminal block 3 connections | 37 | HWX950531145 | PCB board |
| 18 | HWX320922016 | Top cover | 38 | HWX200035004 | Compressor capacitor (80 μ F) |
| 19 | HWX20003920 | Terminal block 3 connections | 39 | HWX35001401 | Liquid tank |
| 20 | HWX20003242 | Coil temperature sensor | 40 | HWX200022068 | Waterproof cover |

6. APPENDIX (continued)

ENP4T



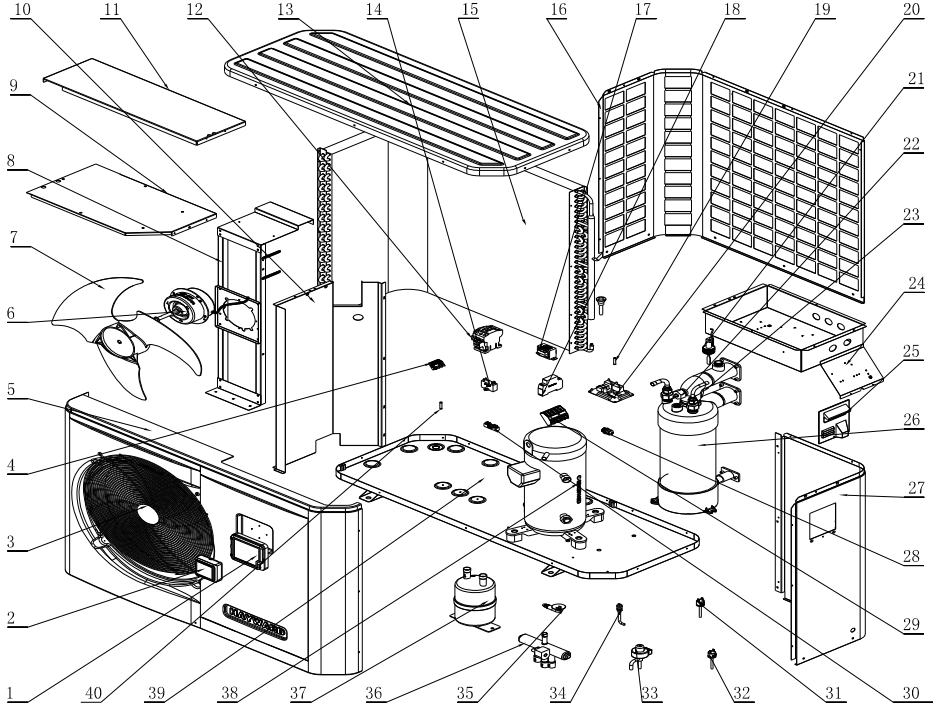
6. APPENDIX (continued)

ENP4T

| Mark | Ref. | Description | Mark | Ref. | Description |
|------|--------------|---------------------------------|------|--------------|----------------------------------|
| 1 | HWX200022068 | Protection cover | 20 | HWX950531145 | PCB Board |
| 2 | HWX950531152 | LCD Controller | 21 | HWX200036005 | Flow switch |
| 3 | HWX340621049 | Fan protection grille | 22 | HWX20003242 | Water inlet Sensor |
| 4 | HWX20003933 | Terminal block 3 connections | 23 | HWX20003242 | Water outlet sensor |
| 5 | HWX320922015 | Front panel | 24 | HWX320921021 | Electrical box |
| 6 | HWX20013328 | Fan motor | 25 | HWX320822008 | Protection cover |
| 7 | HWX20002705 | Fan blade | 26 | HWX320912013 | PVC-Titanium Condenser |
| 8 | HWX320921092 | Fan motor bracket | 27 | HWX320921089 | Right panel |
| 9 | HWX320921024 | Electrical box cover | 29 | HWX20003902 | Terminal block 5 connections Tri |
| 10 | HWX320921023 | Center Wall | 30 | HWX20003909 | Terminal block 2 connections |
| 11 | HWX320921025 | Support panel | 31 | HWX20003603 | Low pressure switch |
| 12 | HWX20003653 | Compressor contactor Tri | 32 | HWX20013605 | High pressure switch |
| 13 | HWX320922016 | Top cover | 33 | HWX200014151 | Electronic expansion valve |
| 14 | HWX20003508 | Fan motor capacitor (4 μ F) | 35 | HWX34002203 | Drain connector |
| 15 | HWX351212001 | Fin coil | 36 | HWX20011491 | 4 ways valve |
| 16 | HWX320921009 | Back panel | 37 | HWX35001401 | Liquid tank |
| 17 | HWX200037003 | Transformer 230V~-12V~ | 38 | HWX200011019 | Compressor |
| 18 | HWX200036023 | Phase controller | 39 | HWX320921091 | Bottom panel |
| 19 | HWX20003242 | Coil Temperature sensor | 40 | HWX20003242 | Ambient sensor |

6. APPENDIX (continued)

ENP5T



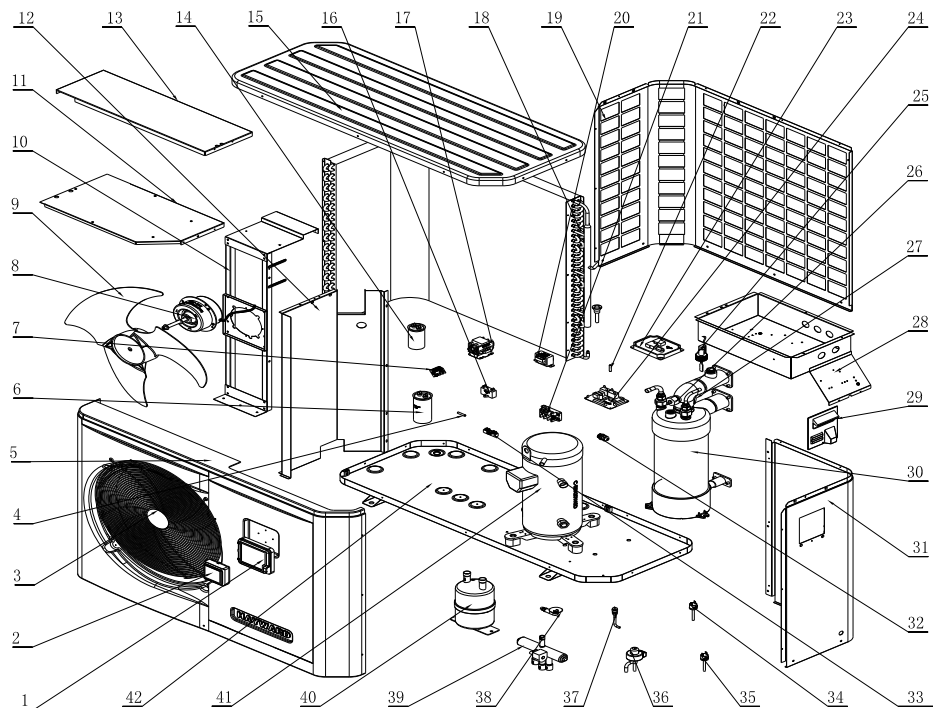
6. APPENDIX (continued)

ENP5T

| Mark | Ref. | Description | Mark | Ref. | Description |
|------|--------------|---------------------------------|------|--------------|----------------------------------|
| 1 | HWX200022068 | Protection cover | 20 | HWX950531145 | PCB Board |
| 2 | HWX950531152 | LCD Controller | 21 | HWX200036005 | Flow switch |
| 3 | HWX340621049 | Fan protection grille | 22 | HWX20003242 | Water inlet Sensor |
| 4 | HWX20003933 | Terminal block 3 connections | 23 | HWX20003242 | Water outlet sensor |
| 5 | HWX320922015 | Front panel | 24 | HWX320921021 | Electrical box |
| 6 | HWX20013328 | Fan motor | 25 | HWX320822008 | Protection cover |
| 7 | HWX20002705 | Fan blade | 26 | HWX320912013 | PVC-Titanium Condenser |
| 8 | HWX320921092 | Fan motor bracket | 27 | HWX320921089 | Right panel |
| 9 | HWX320921024 | Electrical box cover | 29 | HWX20003902 | Terminal block 5 connections Tri |
| 10 | HWX320921023 | Center Wall | 30 | HWX20003909 | Terminal block 2 connections |
| 11 | HWX320921025 | Support panel | 31 | HWX20003603 | Low pressure switch |
| 12 | HWX20003653 | Compressor contactor Tri | 32 | HWX20013605 | High pressure switch |
| 13 | HWX320922016 | Top cover | 33 | HWX200014151 | Electronic expansion valve |
| 14 | HWX20003508 | Fan motor capacitor (4 μ F) | 35 | HWX34002203 | Drain connector |
| 15 | HWX351212001 | Fin coil | 36 | HWX20011491 | 4 ways valve |
| 16 | HWX320921009 | Back panel | 37 | HWX35001401 | Liquid tank |
| 17 | HWX200037003 | Transformer 230V~ 12V~ | 38 | HWX200011054 | Compressor |
| 18 | HWX200036023 | Phase controller | 39 | HWX320921091 | Bottom panel |
| 19 | HWX20003242 | Coil Temperature sensor | 40 | HWX20003242 | Ambient sensor |

6. APPENDIX (continued)

ENP6M



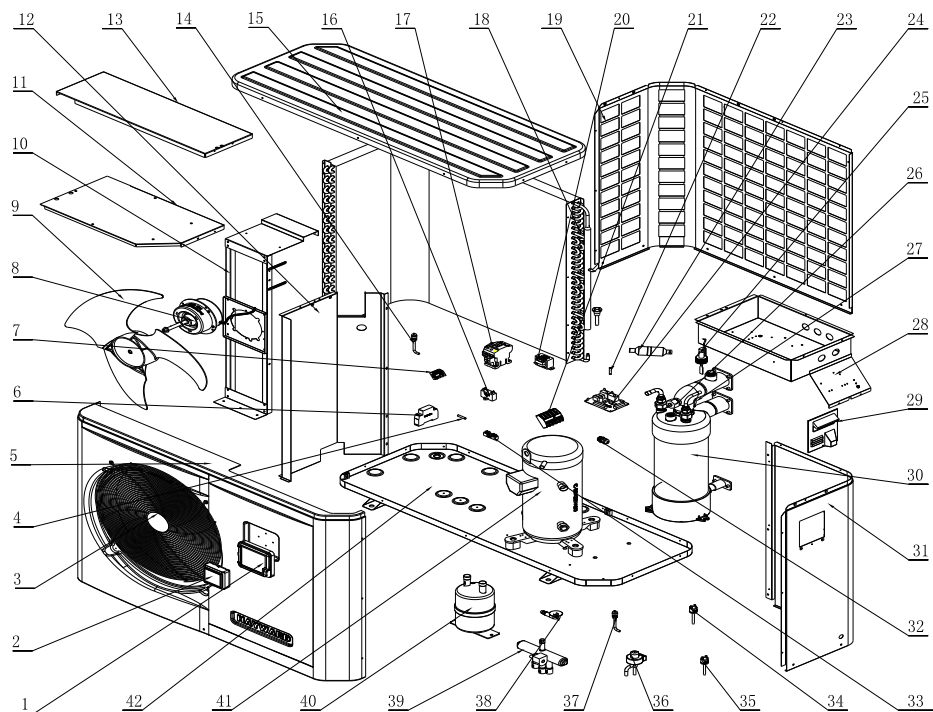
6. APPENDIX (continued)

ENP6M

| Mark | Ref. | Description | Mark | Ref. | Description |
|------|--------------|----------------------------------|------|--------------|------------------------------|
| 1 | HWX200022068 | Protection cover | 21 | HWX20003920 | Terminal block 3 connections |
| 2 | HWX950531152 | LCD Controller | 22 | HWX20003242 | Coil Temperature sensor |
| 3 | HWX340621049 | Fan protection grille | 23 | HWX20003151 | Smart Starter |
| 4 | HWX20003242 | Ambient sensor | 24 | HWX950531145 | PCB Board |
| 5 | HWX320922015 | Front panel | 25 | HWX200036005 | Flow switch |
| 6 | HWX20003510 | Compressor capacitor(60 μ F) | 26 | HWX20003242 | Water inlet Sensor |
| 7 | HWX20003933 | Terminal block 3 connections | 27 | HWX20003242 | Water outlet sensor |
| 8 | HWX20013328 | Fan motor | 28 | HWX320921021 | Electrical box |
| 9 | HWX20002705 | Fan blade | 29 | HWX320822008 | Protection cover |
| 10 | HWX320921092 | Fan motor bracket | 30 | HWX320112003 | PVC-Titanium Condenser |
| 11 | HWX320921024 | Electrical box cover | 31 | HWX320921089 | Back panel |
| 12 | HWX320921023 | Center Wall | 33 | HWX20003909 | Terminal block 2 connections |
| 13 | HWX320921025 | Support panel | 34 | HWX20003603 | Low pressure switch |
| 14 | HWX20003504 | Capacitor (35 μ F) | 35 | HWX20013605 | High pressure switch |
| 15 | HWX320922016 | Top cover | 36 | HWX200014151 | Electronic expansion valve |
| 16 | HWX20003508 | Fan motor capacitor (4 μ F) | 38 | HWX34002203 | Drain connector |
| 17 | HWX200036007 | Compressor contactor | 39 | HWX20011491 | 4 ways valve |
| 18 | HWX320112002 | Fin coil | 40 | HWX35001401 | Liquid tank |
| 19 | HWX320921009 | Left and back panel | 41 | HWX200011112 | Compressor |
| 20 | HWX200037003 | Transformer 230V~ 12V~ | 42 | HWX320921091 | Bottom panel |

6. APPENDIX (continued)

ENP6T



6. APPENDIX (continued)

ENP6T


| Mark | Ref. | Description | Mark | Ref. | Description |
|------|--------------|---------------------------------|------|--------------|----------------------------------|
| 1 | HWX200022068 | Protection cover | 21 | HWX20003902 | Terminal block 5 connections Tri |
| 2 | HWX950531152 | LCD Controller | 22 | HWX20003242 | Coil Temperature sensor |
| 3 | HWX340621049 | Fan protection grille | 24 | HWX950531145 | PCB Board |
| 4 | HWX20003242 | Ambient sensor | 25 | HWX200036005 | Flow switch |
| 5 | HWX320922015 | Front panel | 26 | HWX20003242 | Water inlet Sensor |
| 6 | HWX200036023 | Phase controller | 27 | HWX20003242 | Water outlet sensor |
| 7 | HWX20003933 | Terminal block 3 connections | 28 | HWX320921021 | Electrical box |
| 8 | HWX20013328 | Fan motor | 29 | HWX320822008 | Protection cover |
| 9 | HWX20002705 | Fan blade | 30 | HWX320112003 | PVC-Titanium Condenser |
| 10 | HWX320921092 | Fan motor bracket | 31 | HWX320921089 | Right panel |
| 11 | HWX320921024 | Electrical box cover | 33 | HWX20003909 | Terminal block 2 connections |
| 12 | HWX320921023 | Center Wall | 34 | HWX20003603 | Low pressure switch |
| 13 | HWX320921025 | Support panel | 35 | HWX20013605 | High pressure switch |
| 15 | HWX320922016 | Top cover | 36 | HWX200014151 | Electronic expansion valve |
| 16 | HWX20003508 | Fan motor capacitor (4 μ F) | 38 | HWX34002203 | Drain connector |
| 17 | HWX20003653 | Compressor contactor Tri | 39 | HWX20011491 | 4 ways valve |
| 18 | HWX320112002 | Fin coil | 40 | HWX35051405 | Liquid tank |
| 19 | HWX320921009 | Back panel | 41 | HWX200011116 | Compressor |
| 20 | HWX200037003 | Transformer 230V~-12V~ | 42 | HWX320921091 | Bottom panel |

6. APPENDIX (continued)

6.4 Troubleshooting guide



Certain operations must be carried out by an authorized technician.

| Problem | Error codes | Description | Solution |
|---|---|---|---|
| Water inlet sensor defect. | P01 | The sensor is open or presents a short-circuit. | Verify or replace the sensor. |
| Water outlet sensor defect. | P02 | The sensor is open or presents a short-circuit. | Verify or replace the sensor. |
| De-icing sensor defect. | P05 | The sensor is open or presents a short-circuit. | Verify or replace the sensor. |
| Exterior temperature sensor defect. | P04 | The sensor is open or presents a short-circuit. | Verify or replace the sensor. |
| The inlet and outlet difference in water temperature is too high. | E06 | Water flow volume is insufficient, water pressure difference is too low/too high. | Verify the water flow, or system obstruction. |
| Antifreeze Protection Cold mode | E07 | Water outlet quantity is too weak. | Verify the water flow, or the outlet water temperature sensor. |
| Level 1 antifreeze protection | E19 | Air temperature or water inlet temperature is too weak. | |
| Level 2 antifreeze protection | E29 | Air temperature or water inlet temperature is still too weak. | |
| High pressure protection | E01 | Pressure of the refrigeration circuit is too high, or the water flow is too low, or the coil is obstructed or the air flow is too weak. | Verify the high pressure switch and the refrigeration circuit pressure. Verify the water or air flow. Verify that the flow switch is working correctly. Verify the water inlet/outlet valve openings. Verify the by-pass setting. |
| Low pressure protection | E02 | Refrigeration circuit pressure is too weak, or air flow is too weak or the coil is obstructed. | Verify the low pressure switch and the refrigeration circuit pressure to determine if there is a leak. Clean the coil surface. Verify the fan rotation speed. Verify that there is free air flow to the coil. |
| Flow detector defect | E03 | Water flow is insufficient or the detector is in short-circuit or defective. | Verify the water flow, verify the filtration pump and the flow detector to see if they have any possible problems. |
| Communication problem | EE8 | Problem with the LED controller or the PCB connection. | Verify the cable connection. |
| The compressor will not start |  | Phase missing or phase order incorrect | check that the 3 phases are present modify the phase order at the heat pump's electrical connection terminal block |

6. APPENDIX (continued)

6.5 Warranty

WARRANTY CONDITIONS

HAYWARD warrants its products free from defects in material and workmanship for a period of two years from the date of purchase. A purchase proof with its date must be enclosed for any request for warranty. We invite you to keep your receipt.

HAYWARD warranty is limited to the replacement or repair, at its option, of defective products that have been used in normal conditions and according to the instructions leaflet, with no change in the product and that have been working only with genuine HAYWARD parts. Frost and chemical reaction damages are excluded of the warranty.

HAYWARD will not be responsible for any other costs (removal, labor...), neither direct or indirect damages caused by malfunction of a product.

To initiate a warranty claim and ask for repair or replacement of a product, please contact your dealer. No shipment to our factory will be accept without our preliminary written acceptance.

Wear parts are excluded of the warranty.



HAYWARD POOL EUROPE

Parc Industriel de la Plaine de l'Ain
Allée des Chênes
01150 Saint-Vulbas
France
<http://www.hayward.fr>

