

FH270



Heat Pump User Manual



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1. Safety Information & Pre-Installation

Follow:

- » Please install the unit in compliance with local codes, regulations, and standards.
- » Please use a solid base, such as 2 pieces of 16 in. x 16 in. x 4 in. concrete blocks, or an equipment base with a minimum size of 16 in. x 32 in.
- » Confirm power voltage and frequency are as follows: 220-245 volts, 60 Hz. 20 Amps.
- » If the heat pump is within 50 ft. (15 m) of the breaker box, use 2 Hot Leads and 1 Ground. No Neutral needed, non-GFCI. For 20 Amps breakers, use 12 AWG gauge wire (12-2 + Ground).
- » FH270 heat pumps may trigger GFCI protection during normal operation. It is not recommended to install this unit on a GFCI-protected circuit. Refer to NEC 2023 section 210.8 for exemptions addressing this issue.
- » The heat pump must be BONDED to a ground rod using #8 AWG bare copper wire, or according to local regulations.
- » An external timer should not be used unless the pool pump is run continuously without a timer. The heat pump will stop and start automatically with the pool pump's timer, and an additional timer can affect correct operation.
- » Included unions are designed for 1.5 in. Schedule 40 PVC. For larger pipe connections, reducer bushings may be required
- » WATER AND ELECTRICITY DO NOT MIX. PLEASE USE ALL PRECAUTIONS. IF THE UNIT BECOMES FLOODED, IT MUST BE INSPECTED BY A COMPETENT PERSON BEFORE BEING REINTRODUCED INTO SERVICE.
- » This heat pump is made of mostly metal alloys and may have sharp edges. Please use gloves while handling it.
- » Keep a minimum of 6 ft. (1.8 m) distance between the heat pump and the pool wall.
- » FibroPool FH270 is weatherproof and designed to be outdoors, but it is not splash-proof. Choose a location away from splashing from the pool.

Avoid:

- » Do NOT install this heat pump where there may be flammable gas.
- » Do NOT install this heat pump in an enclosed room. Without adequate air supply, performance will be severely limited.
- » Do NOT try to lift the unit by yourself. The FH270 weighs about 150 lb. (68 kg). Use two people to lift and move the unit.
- » Do NOT install below eaves of the roof where water can pour onto it.
- » **DO NOT SHORTCUT ANY SAFETY PROCEDURES.**

» 2. System Specifications

TABLE 1 - FH270 SPECIFICATIONS

82°F (28°C) Air, 82°F (28°C) Water, 82% Relative Humidity (RH)	Max Heating capacity (BTU/h)	70,000
	Max Power input (BTU/h)	12,280
	Coefficient of Performance (COP)	5.99
Power supply (Hz)		230-250V/60Hz
Max current (A)		17
Heating temperature setting range		60°F~99°F (15°C ~ 37°C)
Cooling temperature setting range		50°F~82°F (10°C ~ 28°C)
Air temperature range		55°F~115°F (13°C ~ 46°C)
Refrigerant type/quantity		R410A 40.6oz (1.15kg)
Air side heat exchanger		Hydrophilic fin exchanger
Water side heat exchanger		Titanium tube heat exchanger
Water flow minimum		33 GPM (124 LPM)
Unit dimensions (LxWxH)		39 × 13 × 27 in. (99 × 33 × 69 cm)
Packaging dimensions (LxWxH)		42 × 16 × 32 in. (106 × 40 × 81 cm)
Net weight		132 lb. (60 kg)
Packaging weight		182 lb. (82.7 kg)
Noise level		47 dB(A)
Waterproof level		IPX4
Water pipe connection		PVC Sch 40 (1½ in.)
Inlet/Outlet		

Performance varies greatly depending on the weather conditions. The technical specifications of FibroPool heat pumps are provided for informational purposes only. We reserve the right to make changes without advanced notice.

NOTE: The FH270 is engineered and optimized based on U.S. Department of Energy recommendations. The recommended pool temperature range is between 78 – 82 °F (25 – 28 °C). We do not calibrate or size the heat pumps above the 82 °F (28 °C) pool water temperature threshold. This unit complies with Directives EN ISO 3741 and EN ISO 354, producing 55 dB noise at 10 feet.

2.1 Unit Dimensions

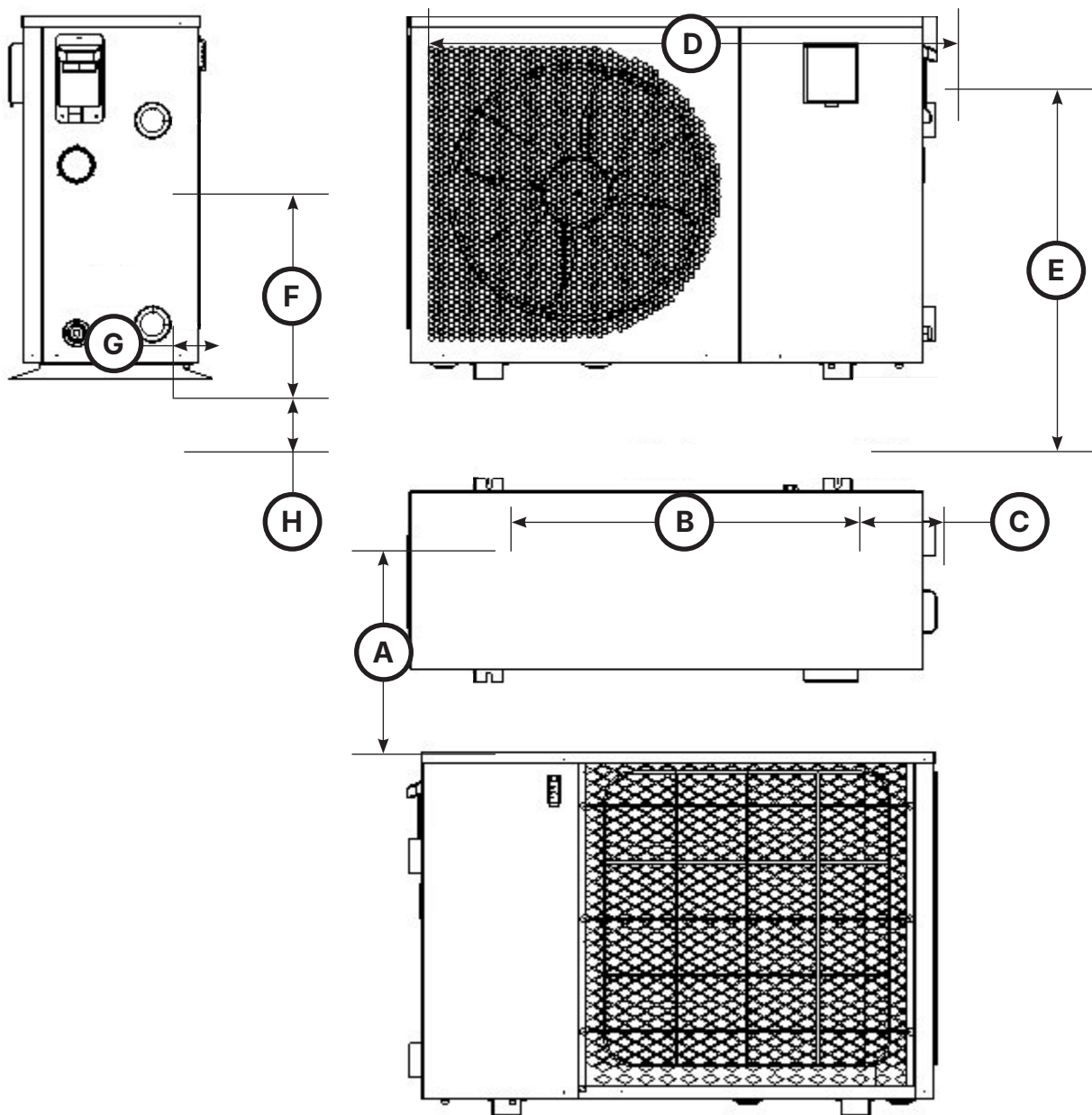


TABLE 2 - HEAT PUMP DIMENSIONS

A	B	C	D	E	F	G	H
15 in. (38 cm)	25.6 in. (65 cm)	6.3 in. (16 cm)	39 in. (99 cm)	27 in. (68.5 cm)	15 in. (38 cm)	3.4 in. (8.6 cm)	4 in. (10 cm)

2.2 Components

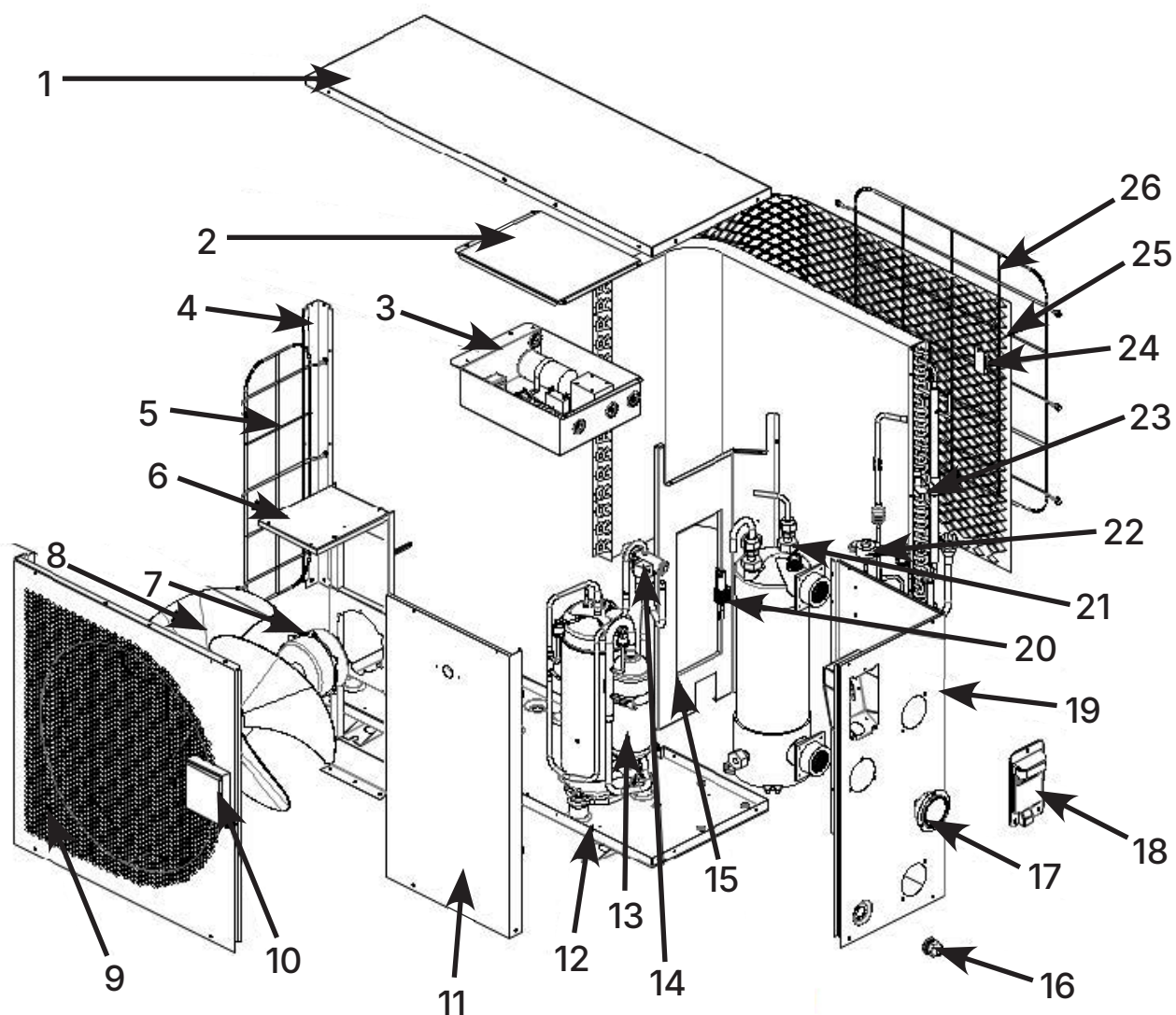


TABLE 3 - COMPONENTS

ITEM #	NAME	ITEM #	NAME	ITEM #	NAME
1	Top Cover	10	Wire Controller	19	Right Plate
2	Electrical Box Cover	11	Front Plate	20	Water Flow Switch
3	Electrical Box	12	Chassis	21	Titanium Heat Exchanger
4	Left Column	13	Compressor	22	Throttling Device Assembly
5	Left Plate	14	4-way Valve Assembly	23	Finned Heat Exchanger
6	Motor Support	15	Middle Partition	24	Ambient Temperature Sensor Holder

7	Fan Motor	16	Power Cord Collector	25	Plastic Net
8	Fan Blade	17	Pressure Gauge	26	Back Net
9	Fan Cover	18	Handle		

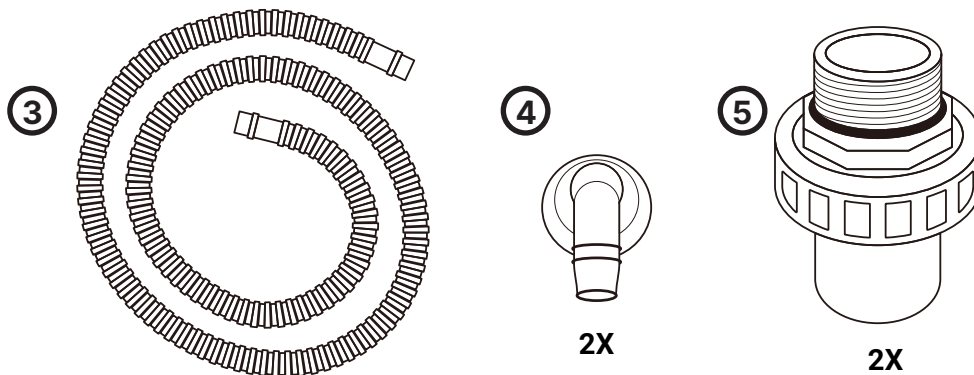


TABLE 4 - INCLUDED PARTS AND ACCESSORIES

ITEM #	NAME	QUANTITY	USE
1	User manual	1	Safety and installation guide
2	Heat pump unit	1	Pumps heated or cooled water to pool
3	Drain hose	1	Used to direct condensation away from the unit
4	Drain adapter	2	Connects the unit to the drain hose
5	1.5 in. union	2	Connects pool plumbing to heat pump

3. Installation Instructions

WARNING: Installation must be performed by a Qualified Person. Verify that the unit is properly grounded before operation. Improper grounding places both swimmers and technicians at risk of electric shock.

The instructions detailed in this chapter provide general guidance for installation. Some information might change depending on the site location, local regulations, and available space for installation.

3.1 Required Equipment

The following list provides a general inventory of the materials required for proper installation of the heat pump:

- » Suitable power supply cable (usually 12-2+Ground wire) to power the unit, fitted inside a flexible conduit. For lengths over 50 ft. (15 m), the supply cable needs to increase to 10 gauge and then step down to 12 gauge at a junction right before the unit.
- » A bypass kit (3-way valve); PVC pipe and fittings; Pipe cleaner/primer; Medium-bodied glue
- » Electrical tools, including a multi-meter
- » A service disconnect or timer within 6.0 ft. (1.8 m) of the heat pump
- » An equipment pad 16 x 32 x 4 in. (15 x 81 x 10 cm) thick, or 2 pieces of concrete blocks, 16 x 16 x 4 in. (40 x 40 x 10 cm) each

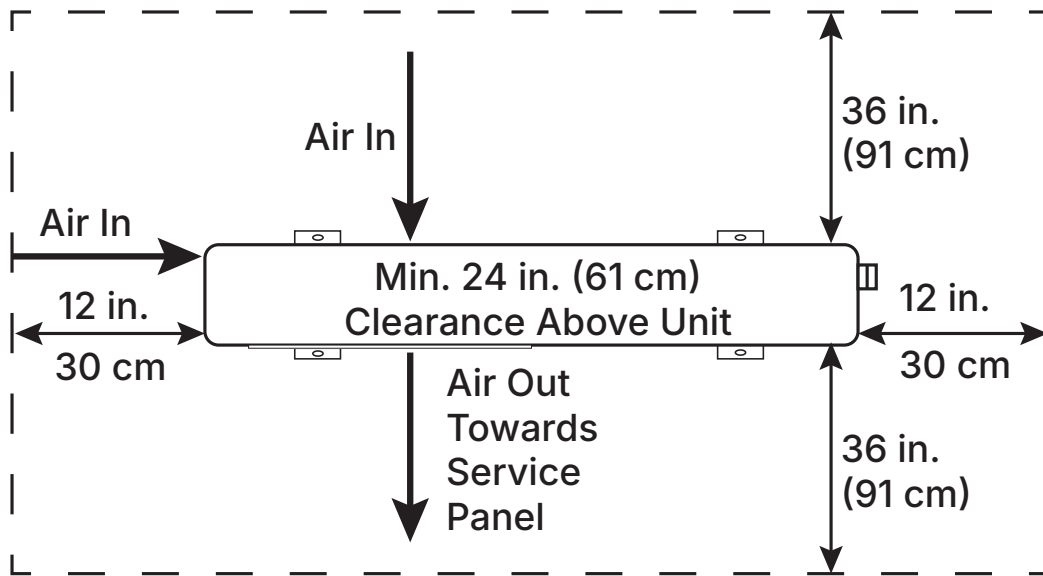
3.2 Location

Please consider the following criteria when selecting the location for the heat pump:

1. Ensure the heat pump is not directly below roof drains, such as a gutter drain, or eaves.
2. Avoid areas that may submerge the heat pump in water during heavy rain.
3. Be sure to install the drain adapters into the heat pump and attach a suitable 5/8" hose to direct the condensation water away from the unit. The heat pump will produce gallons of water from condensation daily.
4. FibroPool heat pumps are not designed to be installed in closets, equipment rooms, or in enclosed pools. A lack of circulating outdoor air will result in dry conditions at the heat pump that can significantly reduce performance and may cause damage to the unit over time.
5. Keep at least 12 in. (30.5 cm) of clearance on the two short sides.

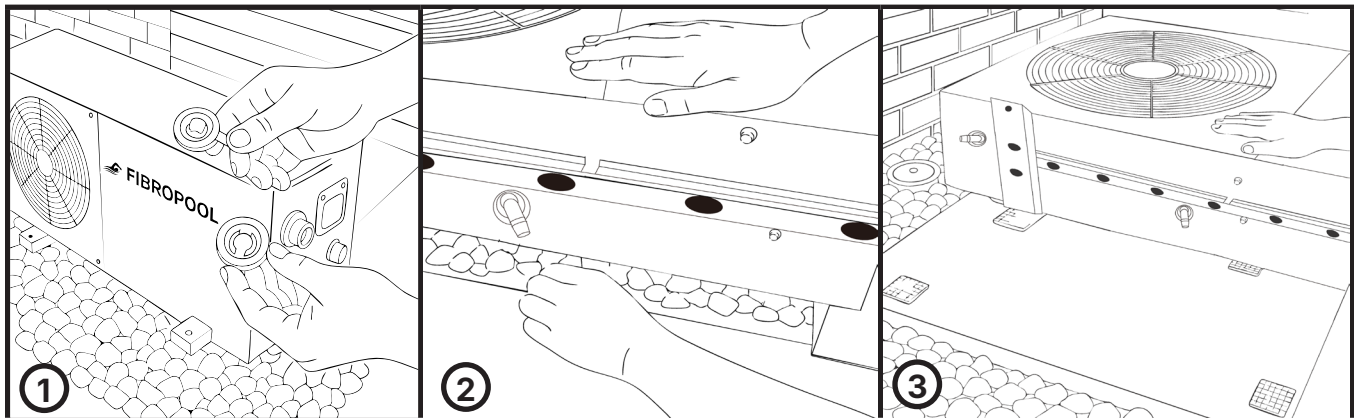
6. Keep at least 3 ft. (91 cm) of clearance on the long fan side and radiator side of the heat pump.
7. Install the unit as far out of reach of children as possible but within 25 ft. (7.6 m) of the pool.
The greater the distance from the pool, the greater the heat loss from the piping.

Minimum Perimeter Required Around Heat Pump



3.3 Drain Adapters

Please install the drain adapters beneath the heat pump prior to installation. You can then attach $\frac{5}{8}$ in. hose to the adapters to direct the condensation water away from the unit.



3.4 Plumbing Installation

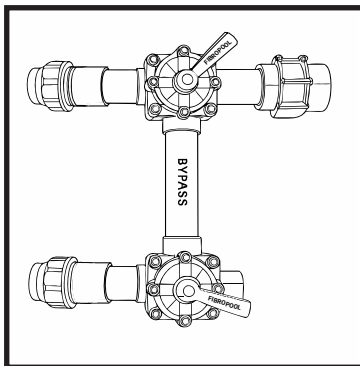
Before Install:

- » On a typical installation for a pool with a small pump, such as ½, ¾ hp pump with 1 ½ in. PVC or flexible hoses, only the plumbing IN from the BOTTOM and OUT from the TOP pipe connection is necessary.
- » For stronger systems, such as a 1.5 hp or larger pump with 2 in. PVC plumbing connections, a bypass system should be installed.
- » If the heat pump is connected to a filtration circuit with a bypass valve, open the bypass halfway, then adjust down to achieve the lowest flow rate into the pump without triggering error messages (EE-3, PL, EE1). This will provide enough water to the heat pump without restricting the flow. The IN and OUT temperature difference should be between 1–5°F (1–3°C). If the difference is too great, increase the water flow through the heat pump for optimal heating.
- » In areas that experience low temperatures and hard freezes, a bypass is also recommended to allow removal of the unit for winterization without disruption to the pool's circulation.

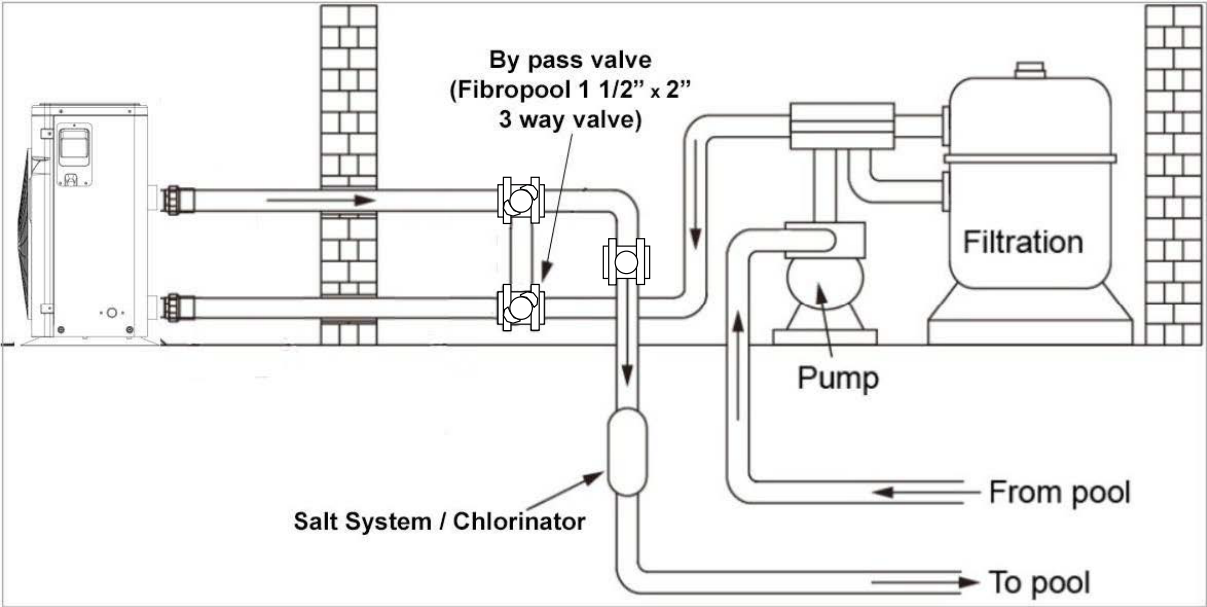
WARNING: When using automatic chlorine and PH dosage systems, it is of utmost importance to protect the heat pump from high concentrations of these chemicals that could corrode the internal components. Therefore, such systems should add the chemicals downstream of the heat pump and use a check-valve to prevent backflow when there is no water circulation.

If installing an inline chlorine dispenser, be sure the inlet of the chlorinator is lower than the return line for the heat pump. This will prevent gravity feed of concentrated chlorine back into the unit.

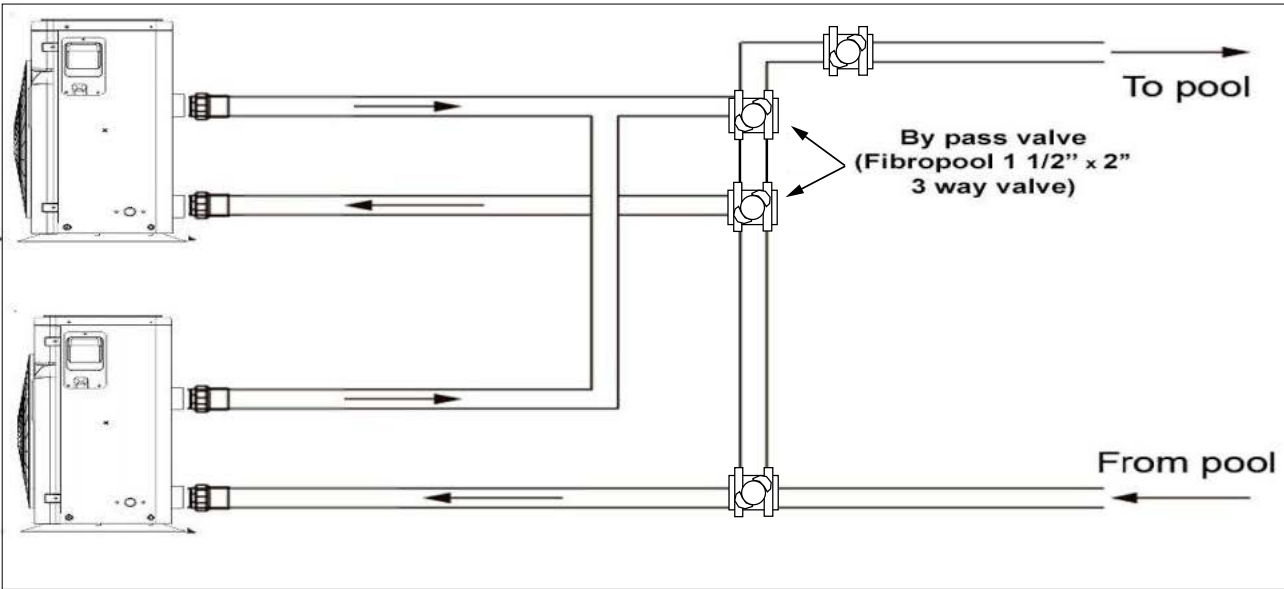
Damage to the heat pump caused by chemical contamination will void the warranty.



Installation of a Single Heat Pump



Parallel Installation for 2 Units



3.5 Pipe Connections

1. FH270 features 1 1/2 in. SAE machine threads. They are NOT the typical pipe threads such as NPS/NPT. You can use the included unionized fittings with O-rings without thread tape, or you can use the conical hose adapters with thread tape.
2. All fittings and pipes used must be 1 1/2 in. Sch 40 (Schedule 40) PVC pipe.
3. Tighten all fittings by hand only. If using the threaded hose adapters, give a 1/4 turn with pliers after hand tightening. Excessive tightening will crack the fittings.
4. A minimum of 6 in. (15 cm) of straight pipe must be used before adding any elbows/fittings.
5. Please add support to horizontal pipes. Gravity and the weight of the water flowing through the pipes will eventually bend and break the fittings.
6. If using flexible hoses, ensure the clamps are tightened securely.
7. Inspect all fittings for deformities and/or cracks before using. Glue all fittings properly using pipe cleaner and a high bond medium-bodied PVC cement.

NOTE: The heat pump has heat exchanger coils, which increase back pressure. For optimal performance, regularly clean the heat exchanger to remove dirt, debris, and other buildup.

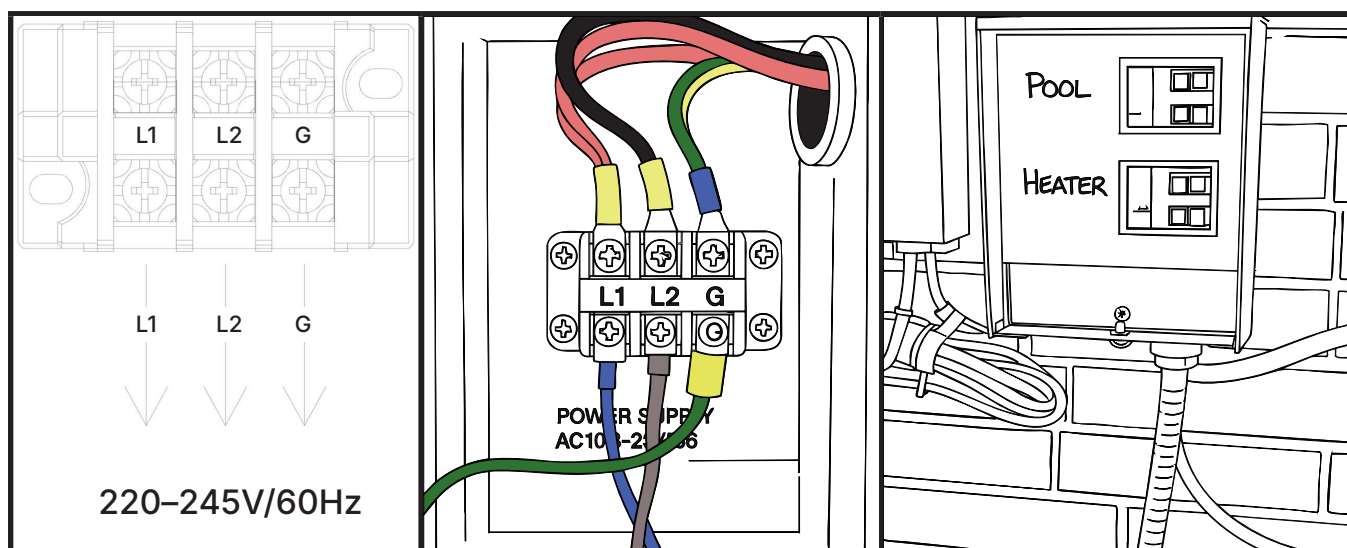
8. If your pool pump is larger than 1 horsepower, we recommend installing a bypass assembly in front of the unit. This can be used to adjust water flow through the heat pump as needed for optimal heating, and will allow pool circulation to continue as normal if the unit is disconnected from the plumbing. You will only need two valves, which are included in the premade bypass kits available on our website. Refer to the installation diagrams for the bypass set up.
9. If you have 2 inch plumbing, use our 2 in. bypass valve and a 2 in. Tee, then use reducers to configure a 1 1/2 in. pipe to connect to the heat pump. This way you will not compromise the water flow.
10. Be sure that the WATER IN pipe is connected to the bottom outlet of the heat pump, and the WATER OUT pipe is on the top outlet of the pump. Reversal will result in flow error code PL. See installation diagrams for reference.

3.6 Electrical Connections

TABLE 5 - ELECTRICAL CONNECTIONS			
MODEL	POWER SUPPLY WIRES		
	POWER SUPPLY	BREAKER SIZE	WIRE SPECIFICATION
FH270	220-245V/60Hz	20 Amps	AWG 12

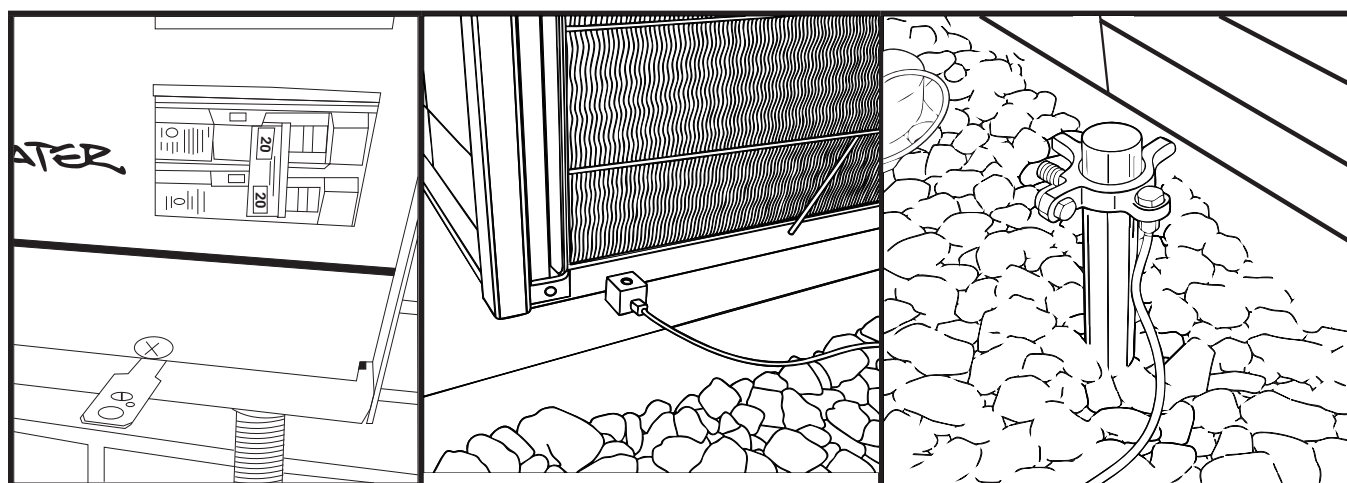
WARNING: Disconnect the power supply before performing maintenance on the unit. Failure to do so may result in serious injury or death.

1. Detach front panel with a screwdriver.
2. Insert cable into the heat pump electrical connector port. This port is designed for outdoor SO cords (waterproof flexible cords.) If using a flexible conduit, simply remove the adapter and install a conduit adapter (not included).
3. Connect the power supply cable to the terminal block according to the diagram below.



IMPORTANT: The FH270 does NOT have a NEUTRAL connection.

IMPORTANT: The FH270 requires equipotential bonding. Please connect a #8 AWG bare copper wire onto the chassis and terminate at a ground rod. This is required for safety and corrosion prevention of the heat pump's metal chassis.



4. Heat Pump Testing

4.1 Inspection Steps

1. Check all electrical connectors and terminal screws. Ensure all are in working condition and secured.
2. Check voltage at the power supply. A reading of 220–245 volts must be observed.
3. Check that one end of the bonding wire is snugly attached to the ground rod and that the other end is firmly touching the heat pump.
4. Check all plumbing connections. Ensure all fittings are glued and tight. Double check that the Water IN pipe enters the heat pump from the bottom outlet and that the WATER OUT pipe exits the unit from the top outlet.

4.2 Running Test

1. **Turn on the filter pump.** Wait about 1 minute for all the air to purge from the system. Check for leaks and verify flow to and from the pool.

NOTE: The filter pump must be running so that the water can circulate through the heat pump. Without this circulation, the heat pump will not start and a no water flow error will be triggered.

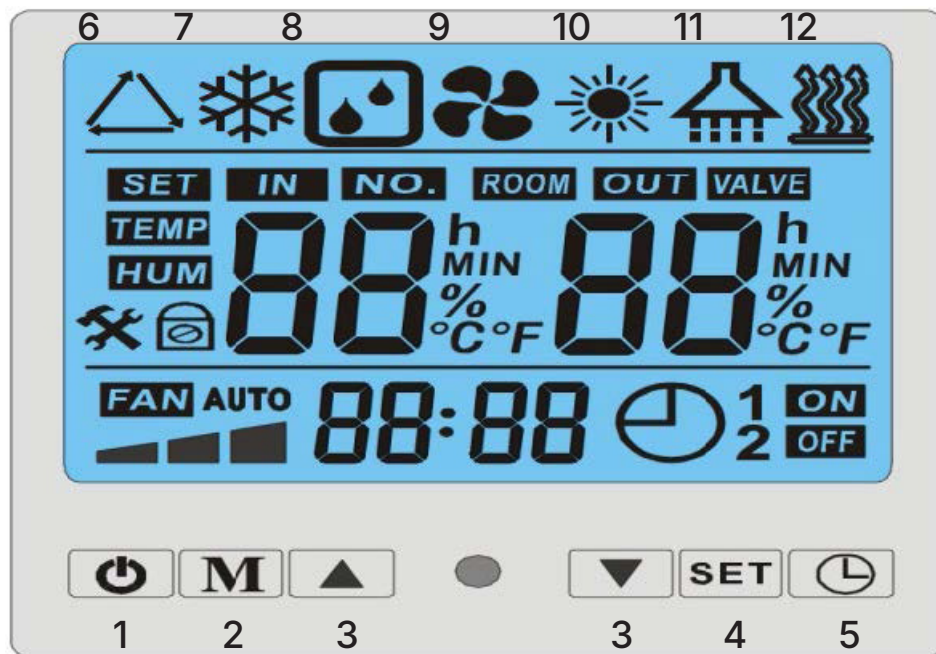
2. **Turn on the heat pump.** Push the ON/OFF button on the heat pump, making sure the SUNSHINE sign is on top. Allow up to 5 minutes for the fan to start blowing cold air and condensation to start dripping.

NOTE: If the heat pump turns on and is running well, leave it running. The heat pump will turn off automatically when the filter pump turns off and turn on again once the water temperature falls 2°F below the desired setting.

3. **Turn off the heat pump.** Wait up to a minute and observe PL error code.
 - » To verify that the flow switch is working properly, turn the filter pump off while the unit is running. The heat pump should switch off automatically. If not, the flow switch needs to be repaired or replaced.
 - » In and out water temperature readings may be very close or even the same, but this depends on many factors, including a strong pump pushing the water too fast to register a clear reading.
 - » The primary indicators of heating are cold air and condensation.
 - » The pressure gauge is filled with oil and may contain an air bubble at the top. This oil is included to reduce corrosion of the gauge needle and may be released on occasion through a relief valve. This is normal and will not affect the operation of the heat pump.

5. Control Panel Functions

Please refer to the callouts below for a description of the various control panel functions.



1. **Power Button:** Turns the heat pump on and off.
2. **Mode Button:** While the heat pump is running, press the Mode button to toggle between the three modes: AUTO, COOLING, and HEATING.
3. **Up and Down Buttons:** Increases or decreases the numerical values of the selected setting.

NOTE: Before adjusting the temperature, make sure the heat pump is on, then use the UP and DOWN arrows to adjust the temperature. The temperature value needs to be set individually for AUTO, COOLING, and HEATING modes.

4. **Set Button:** Press and hold the SET button to enter the value parameters for the selected setting, then press the MODE button to confirm the setting.

NOTE: You can change the parameter values by pressing the UP and DOWN buttons. Press the SET button to toggle through the other setting parameters. The SET menu will automatically close out if there is no operation within 5 seconds.

5. **Clock Button:** Press the CLOCK button, then SET to configure the clock to your local time. Use the MODE button to toggle between hours and minutes. The time setting is **not** available on most models and is not required for the heat pump to function properly. This function is for time only; it is not a countdown timer.

6. **Triangle symbol:** AUTO Mode. The heat pump will maintain pool temperature within the desired parameters and will turn on and off automatically.
7. **Snowflake symbol:** COOLING mode. The heat pump will work to cool the pool water.
8. **Raindrops symbol:** DEFROST mode. The heat pump coils are too cold to operate and need to be warmed up. This setting will disappear from the screen once the heat pump is at the correct operating temperature.
9. **Fan symbol:** Indicates that the fan is currently running.
10. **Sunshine symbol:** HEATING mode. The heat pump will work to heat the pool water.
11. Unused function for this model.
12. Unused function for this model.

NOTE: For homeowners, only the HEATING and COOLING temperatures need to be adjusted. Simply press MODE to go to HEATING, and use the UP and DOWN arrows to adjust. Modifying other settings can affect the performance and operation of the heat pump. We do not recommend that homeowners change any other operational settings.

NOTE: To lock the control panel menu, press and hold the Up and Down buttons while the unit is ON for 3 seconds until the lock icon appears. Repeat the same procedure to unlock the menu.

TABLE 6 - SYSTEM PARAMETERS

CODE	DEFINITION	RANGE	DEFAULT	REMARKS
0	Memory Function	0 (NA) / 1 (I/A)	1	Factory Set
1	Daily Cycle Mark	0 (NA) / 1 (I/A)	1	Factory Set
2	X (Temp. difference between compressor start and desired setting)	3–10°C	3°C (5°F)	Factory Set
3	Y (Temp. difference between compressor stop and desired temperature)	0–5°C	0°C (0°F)	Factory Set
4	Defrosting cycle	30–90Min	40 minutes	Factory Set
5	Defrosting trigger coil temperature	0–30°C (32–86°F)	-7°C (19°F)	Factory Set
6	Defrosting – off coil temp.	2–30°C (35–86°F)	15°C (59°F)	Factory Set
7	Max. defrost duration	0–15 minutes	8 minutes	Factory Set
8	Compressor exhaust gas protection	90–120°C (194–248°F)	110°C (230°F)	Factory Set
9	Max. desired water temperature	40~65°C (104–149°F)	40°C (104°F)	Factory Set
10	Filter pump mode	0 (Special) / 1 (Common)	1	Factory Set

TABLE 6 - SYSTEM PARAMETERS

CODE	DEFINITION	RANGE	DEFAULT	REMARKS
11	Filter pump stop time when reaching the target temp.	10–20 minutes	15	Factory Set
12	Second anti-freezing mode	0 (Heat Pump) / 1 (Electric Heater)	1	Invalid
13	Unit mode selection	0 (Single Cooling) 1 (Heating & Cooling) 2 (Single Heating)	1	Adjustable
14	High pressure switch	0: Alarm when closed 1: Alarm when open 2: Invalid	1	Adjustable
15	Low pressure switch	0: Alarm when closed 1: Alarm when open 2: Invalid	2	Adjustable
16	Water flow switch	0: Open when abnormal 1: Close when abnormal 2: Invalid	1	Adjustable
17	Emergency switch	1: Enable 2: Disable	1	Adjustable
18	Electric heater over heat protection	1: Alarm when open 2: Invalid	0	Adjustable
19	EEV action cycle setting	20s~90s	30 seconds	Adjustable
20	Cooling and heating target superheat setting	-8°C~15°C (17.6–59°F)	2°C (4°F)	Adjustable
21	Allowable exhaust temperature for EEV adjustment	60°C~115°C (140–239°F)	100°C (212°F)	Adjustable
22	Defrost EEV opening setting	2~45	40	The number of steps is the displayed value*10
23	Minimum EEV opening setting	6~15	6	The number of steps is the displayed value*10
24	EEV manual/automatic selection	0 (Manual) \ 1 (Auto)	1	Adjustable
25	EEV opening for manual mode	2~45	30	The number of steps is the displayed value*10
26	Inlet water temperature	-9~99°C (16–210°F)	--	Measured
27	Outlet water temperature	-9~99°C (16–210°F)	--	Measured
28	Coil temperature	-9~99°C (16–210°F)	--	Measured
29	Exhaust gas temperature	0~125°C (0–257°F)	--	Measured

TABLE 6 - SYSTEM PARAMETERS

CODE	DEFINITION	RANGE	DEFAULT	REMARKS
30	Ambient temperature	-9~99°C (16~210°F)	--	Measured
31	Suction temperature	-9~99°C (16~210°F)	--	Measured
32	Cooling inner coil temperature	-9~99°C (16~210°F)	--	Measured
33	EEV steps	0~48	--	The number of steps is the displayed value*10

NOTE: We do not recommend changing factory settings. There is no factory settings RESET button. The only option is to reprogram these functions individually or replace the controller. In most cases, the error/problem will go away by restarting the system. Turn off the breaker for 45 seconds and turn it back on. This will erase the sensors' memory.

TABLE 7 - ERROR CODES AND TROUBLESHOOTING

CODE	DESCRIPTION	POSSIBLE CAUSE	ACTION
PL	Water flow switch failure	Insufficient water flow / Plumbing connected backwards / Flow switch failure / Motherboard failure	1) Ensure the water is circulating back to pool. 2) Check the plumbing lines, making sure the water IN from the filter is connected to the bottom port.
PC	Level 1 anti-freeze protection in winter	The air temperature is too low and the unit is on standby.	Wait for outside air temperatures to increase.
PC	Level 2 anti-freeze protection in winter	The air temperature is too low and the unit is on standby.	Wait for outside air temperatures to increase.
P1	Coil temp. sensor failure	Software crash / Sensor failure	Turn the heat pump off at the breaker for 45 seconds and restart. If error is not resolved, replace the sensor.
P2	Compressor exhaust gas temp. sensor failure	Software crash / Sensor failure	Turn the heat pump off at the breaker for 45 seconds and restart. If error is not resolved, replace the sensor.
P3	Inlet water temp. sensor failure	Software crash / Sensor failure / Open circuit	1) Turn the heat pump off at the breaker for 45 seconds and restart. 2) Check the wire and connection. 3) Replace the sensor. 4) Replace the motherboard.

TABLE 7 - ERROR CODES AND TROUBLESHOOTING

CODE	DESCRIPTION	POSSIBLE CAUSE	ACTION
P4	Outlet water temp. sensor failure	Software crash / Sensor failure / Open circuit	1) Turn the heat pump off at the breaker for 45 seconds and restart. 2) Check the wire and connection. 3) Replace the sensor. 4) Replace the motherboard.
P6	Excessive temperature difference for IN and OUT sensors	Low water flow / Motherboard failure	1) Check water circulation and water temperature. 2) Replace the motherboard.
P7	Ambient temp. sensor failure	Software crash / Sensor failure	Turn the heat pump off at the breaker for 45 seconds and restart. If error is not resolved, replace the sensor.
P8	Excessively LOW outlet water temp. in cooling mode	Low water flow rate / Water inlet water temp. too low / Motherboard failure	1) Turn the heat pump off at the breaker for 45 seconds and restart. 2) Check the water flow through the heat pump. 3) Adjust the set temp. to a higher level. 4) Replace the motherboard.
P9	Low Freon pressure	Low refrigerant / Capillary block / Pressure switch connections / Pressure switch failure / Motherboard failure	1) Add refrigerant. 2) Replace the capillary. 3) Repair the switch wires. 4) Replace the pressure switch. 5) Replace the motherboard.
E2	Excessive temperature difference for IN and OUT sensors	Low water flow / Inlet water temp. is too low / Motherboard failure	1) Check water circulation. 2) Check water temperature. 3) Replace the motherboard.
E3	Excessively high compressor temperature	Low water flow rate / Low refrigerant / Water temp. is set too high / Pressure switch wiring failure / Pressure switch failure / Motherboard failure	1) Check pool water circulation. 2) If using a bypass valve, increase the flow to the heat pump. 3) Drain and recharge the refrigerant. 4) Reduce desired temp. setting. 5) Check the wiring of the switch. 6) Replace the pressure switch. 7) Replace the motherboard.

TABLE 7 - ERROR CODES AND TROUBLESHOOTING

CODE	DESCRIPTION	POSSIBLE CAUSE	ACTION
E4	High Freon pressure	Low water flow rate / Overcharged refrigerant / Water temp. is set too high / Pressure switch wiring failure / Pressure switch failure / Motherboard failure	1) Check pool water circulation. 2) If using a bypass valve, increase the flow to the heat pump. 3) Drain and recharge the refrigerant. 4) Reduce desired temp. setting. 5) Check the wiring of the switch. 6) Replace the pressure switch. 7) Replace the motherboard.
E8	Communication failure	Digital controller failure / Communication line is disconnected, damaged or unplugged from the motherboard / Motherboard failure	1) Replace the Digital Controller 2) Repair / reinstall / plug in the wire. 3) Replace the motherboard.

6. Frequently Asked Questions

Please refer to the table below for common mechanical and performance issues and their solutions.

NOTE: When contacting FibroPool customer service, it is helpful to share the error code message that is displayed on the controller, as well as any parameter values, at the moment the issue occurred.

TABLE 8 - FAQ		
SYMPTOM	POSSIBLE PROBLEM	SOLUTION
In and out temperature difference is too small	Either the air humidity is too low, or the pool pump is pushing too hard.	Difference of 0–4°F is acceptable. Higher humidity (80% or higher) equates to a higher difference.
Initial heating takes time	Allow a few days for the water to heat up, leaving the pool pump and heat pump on 24/7.	Covering the pool can significantly speed up heating.
Heat pump is not working	There are 3 basic indicators of the heat pump's operation: 1. Heat pump is blowing cold air. 2. Compressor pressure goes up by about 0.5 MPa. 3. Heat pump is dripping water from the condensation lines after 10–15 minutes.	If all of these conditions are observed, the heat pump is working.
Heat pump is not leaking water from the bottom	Heat pumps will create quite a bit condensation, which will drain from the bottom of the unit.	Check for any obstructions that may be preventing water from draining properly.
The air is too dry	Pool heat pumps are optimized for 80% humidity. If the humidity is significantly lower, we recommend installing a set of micron misters, which can be found at your local hardware store. These sets typically screw into a garden hose and spray mist.	Place the micron misters near the coils in order to increase the available moisture for the system, thus boosting performance.
Pool pump's timer setting is too short	Pool heat pumps are fed by the filter pump's circulation. A shorter pump timer will result in a shorter heating period.	Please adjust the timer settings on your filter pump or remove the timer when heating.
The fan is not coming on and the pressure is not going up on the pressure gauge	When the thermostat calls for heat, the fan will come on within 4 minutes, and within 45 seconds the compressor will kick in. If this doesn't happen, and the pool water temperature is much lower than the desired temperature, there is a mechanical issue or an error message on the screen.	Be sure that there are no error messages on the screen. If so, resolve the error messages. If there is no error message, please contact FibroPool technical support.

TABLE 8 - FAQ

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
Pool is too cold	Your pool is likely too big for the heat pump, or for your climate zone.	Add a second heat pump into the system to supplement heating.
The air is too cold	Heat pumps absorb heat from the air. If the air temp. is too cold, (i.e., 60°F or more temp. difference compared to pool temp.) the heat pump performance will be extremely weak.	This is often a sign that the swimming season in your area is over. Alternatively, you can also install an enclosure around the pool to keep the ambient air temperature warmer during colder months.
Heat pump is giving waterflow error (PL)	• Pool pump is OFF • Pool pump is very weak • Pool filter is dirty • Plumbing is connected backwards with the cold water connected to the top of heat pump • Bypass valve is set incorrectly, and water is not being allowed through the heat pump • Flow switch is malfunctioning	Check all of the listed possible problems and eliminate them until the error is resolved.
Heat pump is shaking and vibrating loudly	Loose or broken fan blade.	Replace the heat pump's fan blade.
No display	• Digital display is damaged. This happens most frequently if the protective cover is broken or missing, making the controller NOT weatherproof. • The incoming power is not 220 volts. Reading between L1 and L2 should be between 220–245 volts. • Motherboard's fuse is blown.	Check the voltage and fuse problems first and eliminate them as possibilities. If the voltage and fuse are in working order, replace the digital display.

7. Maintenance

The following list provides pointers and recommendations for maintaining your heat pump both during and after the pool season.

- » Clean your pool's filtration system regularly to avoid damage to the heat pump due to a dirty or clogged filter. Check the water inlet and drainage often. The water and air inflow into the system should be free of obstructions to ensure consistent heat pump performance.
- » For best performance, we recommend setting the temperature and allowing your heat pump to run as much as possible.
- » Winterize properly by making sure no water remains in the heat pump's tank. If possible, bring the unit inside during winter to minimize risk of component damage.
- » After the unit is winterized, it is ideal to cover the unit with the dedicated winter heat pump cover.
- » Please keep the coils clean by using "foaming air conditioner coil cleaner" (available at hardware stores) annually on the sides of the heat pump, or pressurized air from an air compressor or air duster.
- » Aftermarket replacement parts are not recommended and cannot be supported by FibroPool. Visit our [website](#) for replacement parts or contact technical support for assistance.

7.1 Pool Water Chemistry

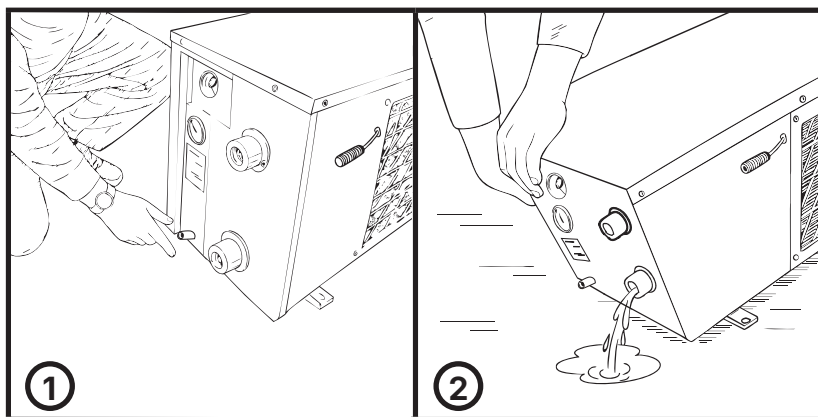
Regular testing is required to maintain the proper chemical balance of the pool water. The pool water values should always stay within the following limits:

	MINIMUM	MAXIMUM
pH	7.0	7.4
Free chlorine (ppm)	0.5	3
TAC (mg/l)	80	120
Salt (ppm)		3000

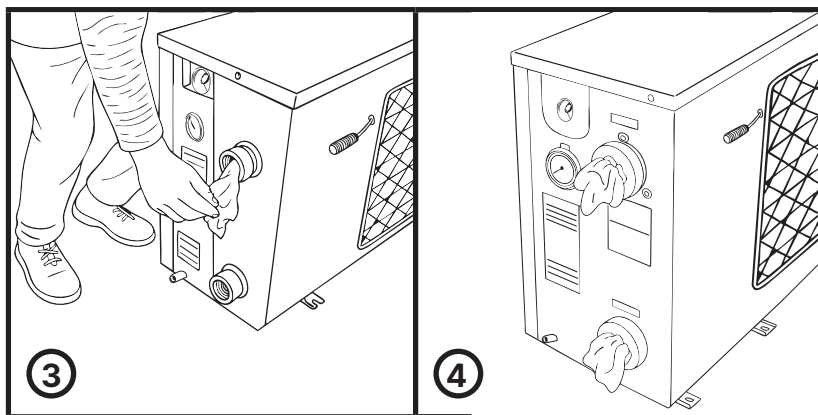
WARNING: Failure to comply with these limits will invalidate the warranty and may damage the heat pump beyond repair. Always install water treatment equipment downstream of the heat pump's water outlet. A check valve should also be installed between the outlet of the heat pump and the water treatment equipment in order to prevent any chemicals from flowing back into the heat pump if the filter pump stops.

8. Winterization

To winterize your heat pump, first disconnect the plumbing connections. Then lift the opposite end and tilt the heat pump for about 30–45 seconds to let the water drain from the bottom connection until there is no water left to drain.



Next, plug up the plumbing connections with rubber plugs or rags to prevent vermin and rain/snow from entering the heat exchanger. If any amount of water is left in the heat exchanger, it will cause a crack (freeze expansion) and cause a very costly repair, which is not covered by the warranty.



WINTERIZATION: If the unit is not running during winter months, please disconnect the power supply and pipes, and let out drain water from the unit by tilting the heat pump toward the water inlet side by 45 degrees. A shop vac can also be used for this winterization step.

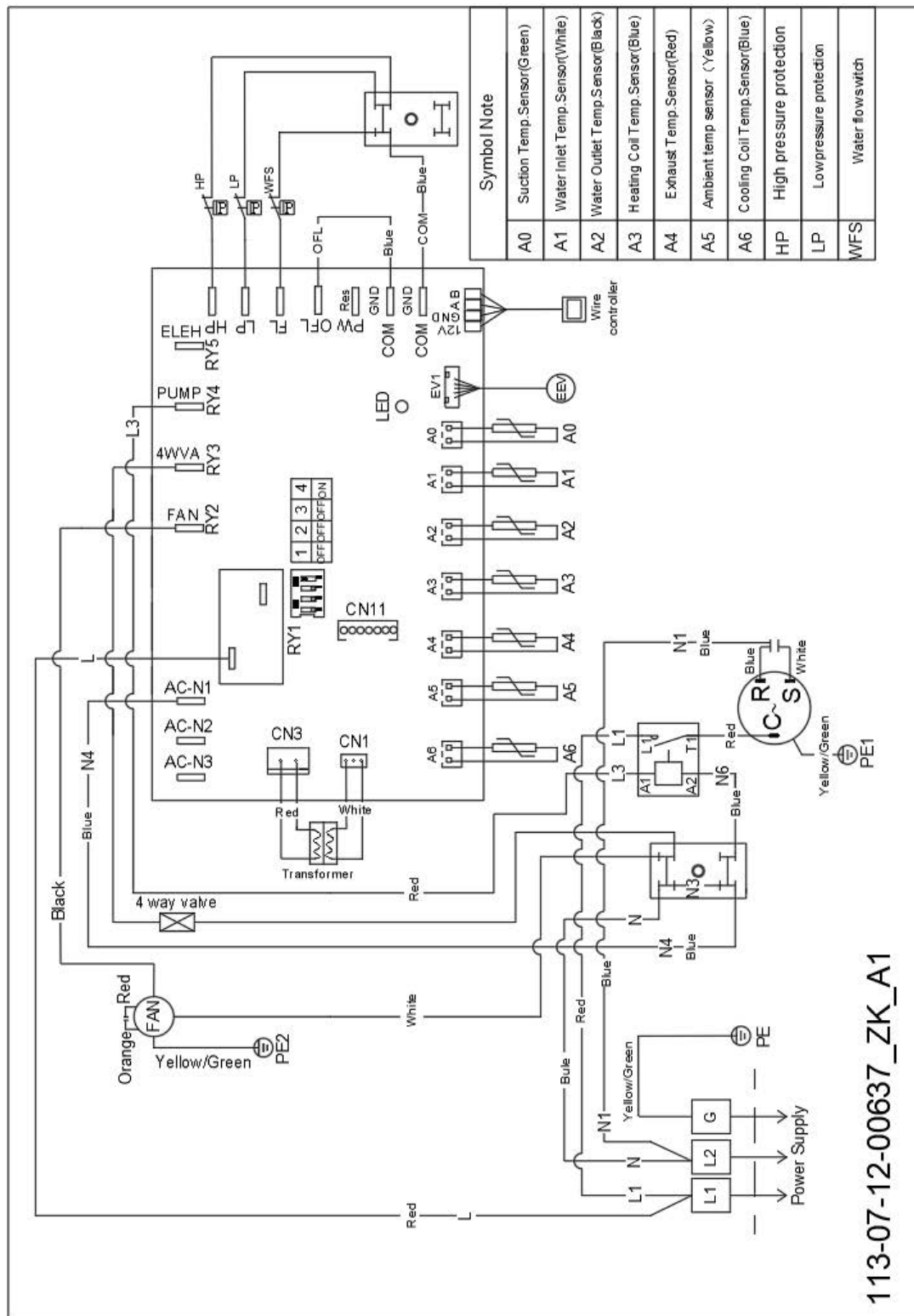
WINTERIZATION: If you want to move the unit indoors, simply disconnect the pipe fittings and electrical connection and take it into your garage.

WARNING: A cracked heat exchanger due to freezing is not covered under the warranty for this product. It is the homeowner's responsibility to observe proper winterization procedures.

8.1 Restarting Unit After Winterization

1. Check all plumbing connections. Ensure there is no debris in the fittings or physical damage.
2. Reconnect plumbing connections and make sure that the water inlet and outlet coupler fittings are securely fastened to the heat pump to prevent leaks.
3. Turn on the filter pump to start the waterflow to the heat pump. Set the bypass valve for optimal flow. (See "3.4 Plumbing Installation" for more information.)
4. Reconnect the electrical power supply to the heat pump and turn it ON.

Appendix A. Electrical Wiring Diagram



FibroPool Heat Pump Limited Factory Warranty

Covered Models: FH270

This FibroPool Heat Pump Limited Factory Warranty (the "Limited Warranty") applies only to FibroPool brand electric heat pumps which are owned by the original purchaser of the FibroPool brand electric heat pump according to the terms and conditions set forth below:

FibroPool LLC ("FibroPool") warrants that only the FibroPool brand electric heat pump to be free of material and workmanship defects for up to a TEN (10) year term to only the original owner under the terms and conditions set forth below.

This Limited Warranty applies only to the original purchaser of the FibroPool brand electric heat pump. This Limited Warranty is non-transferable.

This Limited Warranty will begin on the day of purchase by the original owner which is verified by the proof of purchase documents. The full Limited Warranty of the FibroPool brand electric heat pump includes parts and labor charges to remove, repair or replace defective components or failure due to workmanship unless otherwise stated in this Limited Warranty.

Small damages and blemishes which include, but are not limited to: (1) Bent radiator fins that will not affect the performance of the unit; and (2) Scratches and small dents to the feet of the unit that occur during shipping are to be expected with shipping and are not covered by this Limited Warranty. If FibroPool accepts the warranty claim, then the original purchaser will be offered a replacement fan blade for the unit if there are any broken fan blades during shipping. Broken fan blades do not warrant a full replacement unit and a full replacement unit will not be provided under this circumstance.

For damages to body panels during shipping which is sent to the original purchaser, FibroPool will offer replacement panels to any exterior body panel EXCEPT the body panel that attaches to the refrigerant system pressure gauge; however, FibroPool will not cover the shipping cost for the unit back to FibroPool's facility for repairs and FibroPool will not offer a full replacement unit.

FibroPool brand electric heat pumps bought by the original owner which utilize FibroPool titanium heat exchangers carry a lifetime warranty on only the titanium coil tubing.

CLAIMS FOR WARRANTY REIMBURSEMENT UNDER THIS LIMITED WARRANTY MUST HAVE PRIOR AUTHORIZATION BY FIBROPOOL and be performed by a qualified person per FibroPool's sole discretion. This Limited Warranty does not cover transportation charges for equipment or component parts to and from the factory.

PROOF OF PURCHASE SUBMITTED BY THE ORIGINAL OWNER IS REQUIRED FOR COVERAGE UNDER THIS LIMITED WARRANTY.

This Limited Warranty is applicable only if the installation and operation of the FibroPool brand electric heat pump is expressly and completely followed in accordance with the purchase model's Owner / Installation manual which are furnished with each FibroPool brand electric heat pump unit and are also available by contacting FibroPool.

The liability of FibroPool shall not exceed the cost of the repair or the replacement of defective parts under this Limited Warranty which amount includes the replacement of refrigerant in the FibroPool brand electric heat pump unit and/or the transportation of the FibroPool brand electric heat pump to or from the FIBROPOOL SERVICE CENTER as designated by FibroPool.

This Limited Warranty does not include any and all damage to any internal piping or components due to freezing conditions, negligence and abuse, installations in corrosive environments or atmospheres, or acts of God.

There are no implied warranties of any type or purpose that apply to this Limited Warranty for the FibroPool brand electric heat pump including, but not limited to the implied warranty of fitness for a particular purpose.

FibroPool, in FibroPool's sole discretion, will have the option to repair or replace the FibroPool brand electric heat pump if it is found to be defective after inspection by FibroPool.

Unless otherwise stated in this Limited Warranty, the original purchaser of the FibroPool brand electric heat pump is expressly and solely responsible for all shipping cost to and from the nearest warranty / repair center if, in FibroPool's sole discretion, the FibroPool brand electric heat pump needs to be returned to FibroPool.

FibroPool is not liable for any damages of any sort whatsoever, including, but not limited to incidental and consequential damages to the full extent of the law. Some states do not allow the exclusion of incidental and consequential damages. Some states have laws concerning how long implied warranties last. Therefore, the above conditions and limitations may be different under your state laws and/or they may not apply to the original purchaser of the FibroPool brand electric heat pump.

Warranty Schedule:

LIFETIME PARTS WARRANTY ONLY APPLIES TO THE TITANIUM TUBING HEAT EXCHANGER OF THE FIBROPOOL BRAND ELECTRIC HEAT PUMP (PLASTIC TANK IS EXCLUDED)
1 Year Labor warranty applies on the entire FibroPool brand electric heat pump unit unless otherwise stated in this Limited Warranty
1 Year full warranty on compressor, cabinet, motherboard and digital display of the FibroPool brand electric heat pump unless otherwise stated in this Limited Warranty
2-10 years PRORATED WARRANTY on the compressor, cabinet and digital display of the FibroPool brand electric heat pump unless otherwise stated in this Limited Warranty
1 Year full warranty on all other parts of the FibroPool brand electric heat pump unless otherwise stated in this Limited Warranty

WARRANTY COVERAGE IS AS FOLLOWS:
0 YEARS up to 1 YEAR: 100%
Over 1 YEAR up to 2 YEARS: 90%
Over 2 YEARS up to 5 YEARS: 50%
Over 5 YEARS up to 10 YEARS: 25%

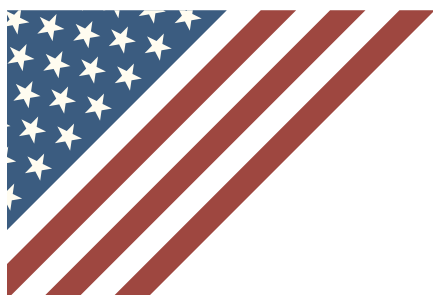
In addition to what is stated above, the original purchaser can return the FibroPool brand electric heat pump they purchased within 30 days of the receipt of the FibroPool brand electric heat pump they purchased ONLY if the FibroPool brand electric heat pump is unopened and in its original packaging. Prior to initiating a return, the original purchaser is responsible for providing images of the FibroPool brand electric heat pump unit and components to FibroPool to confirm the return qualifications for the FibroPool brand electric heat pump are met. The original purchaser in this case will solely bear the expense of shipping the FibroPool brand electric heat pump back to FibroPool's facility as directed by FibroPool and, if the return is accepted by FibroPool, the original purchaser will receive a refund NOT EXCEEDING the original purchase price of the FibroPool brand electric heat pump excluding any taxes, shipping, or additional fees.

It will be at the sole discretion of FibroPool to ensure the condition of the FibroPool brand electric heat pump meets the standards previously mentioned before determining the refund amount, if any is applicable and due to the original purchaser of the FibroPool brand electric heat pump. If the FibroPool brand electric heat pump has been found to be used, installed, opened, or tampered with in any fashion, then FibroPool reserves the right to refuse the return or to adjust the refund amount credited to the original purchaser to reflect the condition and value of the returned FibroPool brand electric heat pump.

If the original purchaser would like to exchange the FibroPool brand electric heat pump they purchased for a larger model, then the original purchaser must go through the standard return process as described in this Limited Warranty within 30 days of receiving the FibroPool brand electric heat pump they ordered and, if this claim is accepted by FibroPool, then the original purchaser will only receive credit from FibroPool to purchase a new FibroPool brand electric heat pump.

If FibroPool accepts the original purchaser's warranty claim and FibroPool determines that the warranty claim requires a full replacement of the FibroPool brand electric heat pump, then FibroPool WILL also cover the cost of shipping the FibroPool brand electric heat pump back to FibroPool's facility.

To obtain warranty authorization under this Limited Warranty, please contact us at:



Toll free: 1 (228) 313-7874
Email: support@fibropool.com





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