



INSTALLATION AND USER MANUAL

Thank you for choosing our product and trusting our company.
This manual is to provide you with necessary information for
optimal use and maintenance, please read carefully and keep it
for subsequent use.



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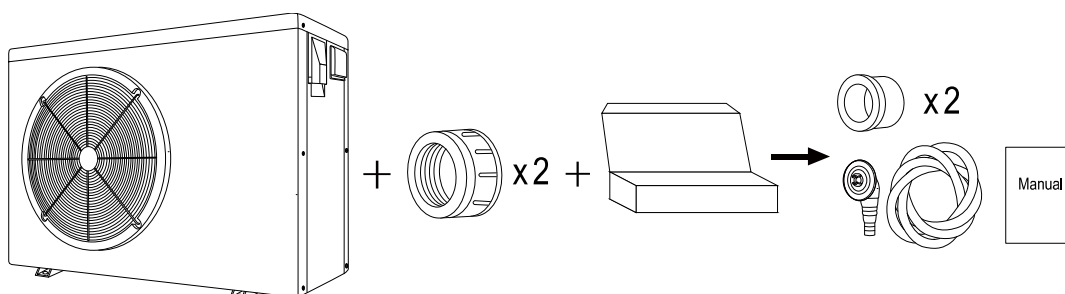
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> 1. General information

1.1. Contents


After unpacking, please check if you have all the following components.



1.2. Operating conditions and range

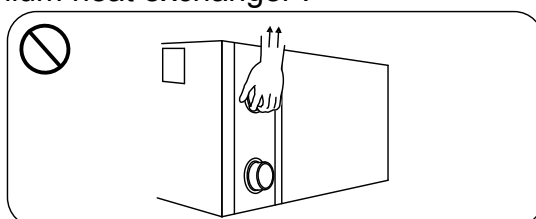
Condition	Range
Operating range (air temperature)	0°C~43°C
Ideal operating range (air temperature)	15°C~25°C
Temperature setting (heating)	18°C~35°C

1.3. Kind reminder

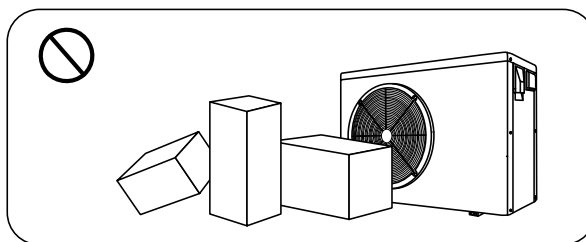
 This appliance has Power-off memory function. Upon restoration of power, the appliance will restart automatically.

1.3.1. The appliance can only be used to heat the pool water. It can NEVER be used to heat other flammable or turbid liquid.

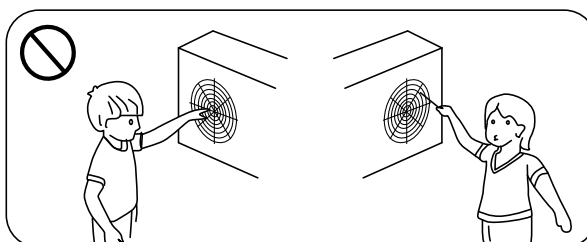
1.3.2. When moving the appliance, please do not lift the water unions to avoid possible damage to titanium heat exchanger .



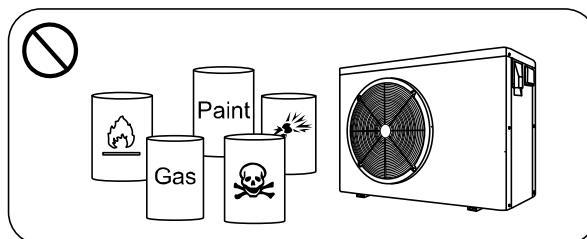
1.3.3. Do NOT put obstacles before air inlet and outlet of the appliance.



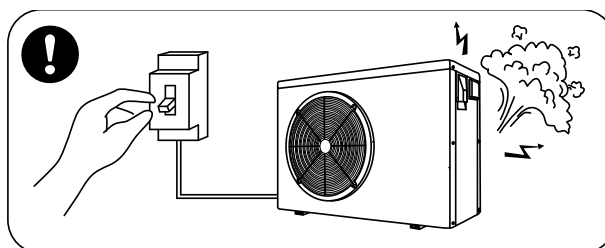
1.3.4. For safety concerns, please keep hands or fingers away from the fan grill, do not try stopping the fan with sticks, or the efficiency of the appliance will be reduced or get damaged.



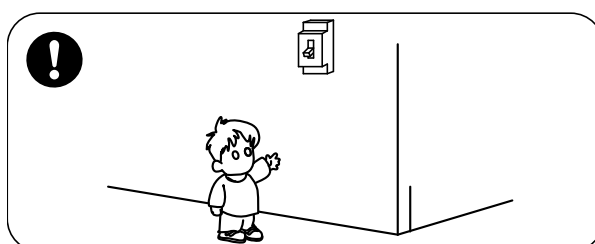
1.3.5. Do not use or stock combustible gas or liquid such as thinners, paint and fuel to avoid fire.



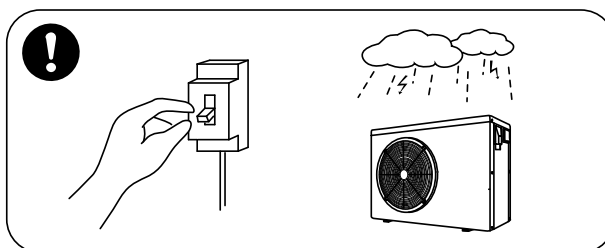
1.3.6. If any abnormal circumstances discovered, e.g. abnormal noise, smell, smoke or leakage of electricity, turn off immediately the main power and contact your local dealer. Do NOT try to repair the heat pump yourself.



1.3.7. Keep main power switch out of reach of Children.



1.3.8. Cut off the power in the lightning stormy weather please.

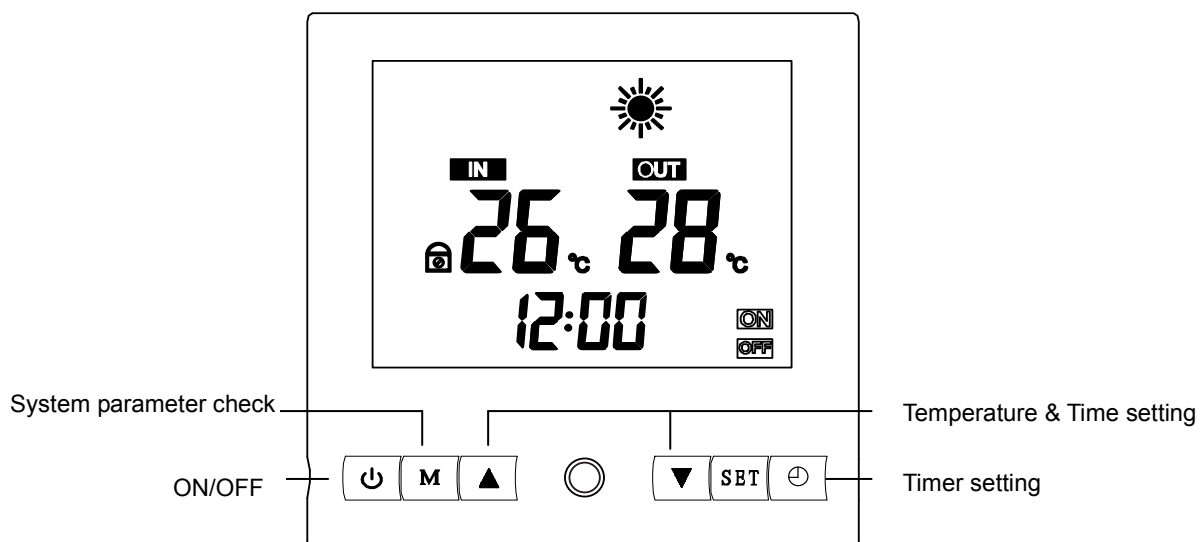


> 2. Operation

2.1. Notice before using

- ① Start the water pump before starting the appliance please, turn off the appliance before turning off water pump to avoid possible damage to the appliance.
- ② Check for hydraulic leakage before starting water pump to ensure a correct amount of water flowing through system.(refer to technical table for advised water flux)

2.2. Operation instructions



2.2.1 Water temperature setting

Use “▲” or “▼” to adjust water temperature.

2.2.2 Local time setting

Hold “SET” for 5 seconds to enter time setting.

Use “▲” or “▼” to adjust to local hour, press “SET” to confirm. Follow the same steps to set “minute”. Wait 10 seconds to confirm and complete local time setting.

2.2.3 Timer setting

Hold “⌚” for 5 seconds to enter timer setting.

Use “▲” or “▼” to set the hour for timer on, press ⌚ to confirm hour setting;
use “▲” or “▼” to set ‘minute’ for timer on, press ⌚ to confirm minute setting;

Repeat above steps to complete timer off setting. Wait 10 seconds to complete timer on/off setting and back to main page. When timer on/off successfully set, “ON/OFF” icon will appear on display.

Hold “⌚” for 5 seconds to enter timer setting, press “SET” to cancel timer setting.

2.2.4 Lock/ Unlock keypad

Hold “▲” and “▼” at the same time for 5 seconds to lock or unlock keypad.

2.3. Maintenance and winterizing

2.3.1. Annual Maintenance.

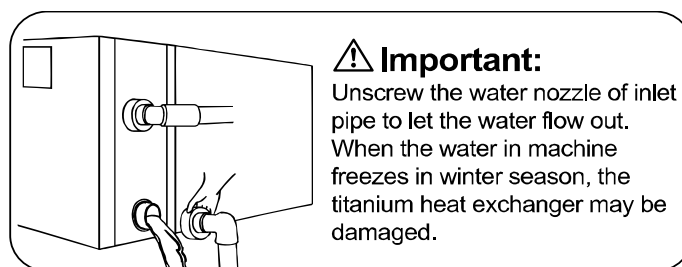


Cut off power supply before working on the appliance.

- ① Please clean the evaporator with household detergents or clean water, NEVER use gasoline, thinners or any similar fuel.
- ② Check for loosen bolts, cables and connections regularly.

2.3.2. Winterizing

When the ambient temperature is below 0 degree, switch off the main power, disconnect water pipes to let out of water .



> 3. Technical specification

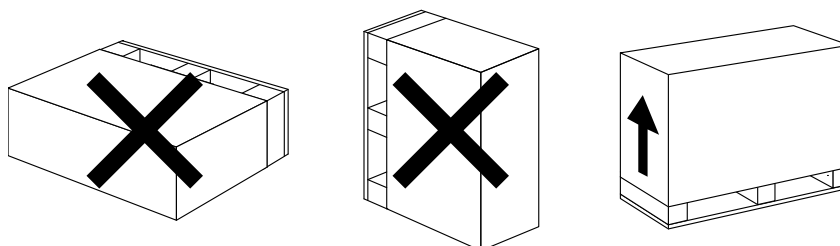
Model	GHD-150 -0183	GHD-150 -0157	GHD-150 -0158	GHD-150 -0159	GHD-150 -0160	GHD-150 -0161*	GHD-150 -0162	GHD-150 -0163	GHD-150 -0164	GHD-150 -0165
Working air temp (°C)	0-43	0-43	0-43	0-43	0-43	0-43	0-43	0-43	-7-43	-7-43
Air 26°C ,Water 26°C, Humidity 80%										
Heating capacity (kW)	5.0	7.5	10	13.5	17.5	25*	25	33	45	60
C.O.P	5.5	6.7	6.6	7.0	6.7	6.9	6.9	6.8	7.0	6.8
Air 15°C ,Water 26°C, Humidity 70%-NF standard										
Heating capacity (kW)	3.3	5.0	6.5	9.5	11.5	16.0	16.0	22.0	29.5	40.0
C.O.P	4.2	4.5	4.6	4.7	4.6	4.5	4.6	5.1	5.0	5.0
Sound pressure 10m dB(A)	28.5	27.1	27.8	31.7	34.4	35.8	35.8	35.5	37.4	44
Rated input power (kW)	0.8	1.1	1.4	2.1	2.4	3.5	3.5	4.3	5.8	7.9
Rated input current (A)	3.5	5.0	6.5	9.5	11.4	16.0	5.5	9.2	11.4	15.2
Power supply (V/Ph/Hz)	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	400/3/50	400/3/50	400/3/50	400/3/50
Advised water flux (m³/h)	2-3	3-4	4-6	5-7	6.5-8.5	7-9	7-9	10-12	15-20	20-25
NT/GT (Kgs)	38/45	42/49	55/63	70/80	72/82	105/117	105/117	123/138	215/236	225/246
Water pipe spec. (mm)	50	50	50	50	50	50	50	50	63	63

*For 25kW goes with built in soft start, model number is GHD-150-0166

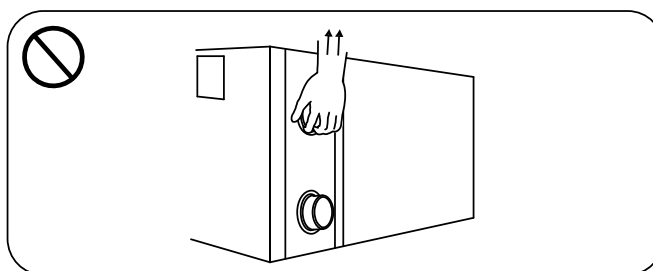
1. The values indicated are valid under ideal conditions: Pool covered with an isothermal cover, filtration system running at least 15 hours a day.
2. Related parameters are subject to adjustment periodically for technical improvement without further notice. For details please refer to nameplate.

> 1. Transport


1.1. Please keep it upright when storing or moving the appliance.



1.2. When moving the appliance, do not lift the water unions to avoid damage to the PVC part connected to titanium heat exchanger.

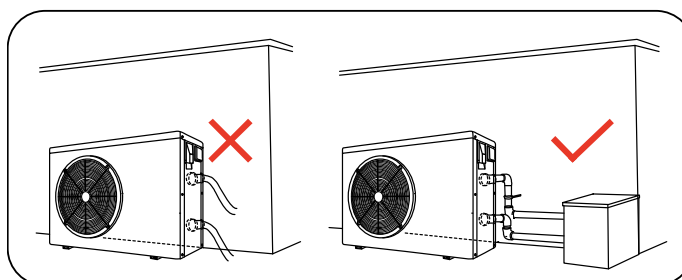


> 2. Installation and maintenance

 The appliance must be installed by professionals to avoid possible damage to the appliance and safety concerns to people caused by improper handling and installation.

2.1. Notice before installation

2.1.1. Solid pipe requested for installation to avoid pressure or damage imposed on water unions by weight of soft pipes in the long run.



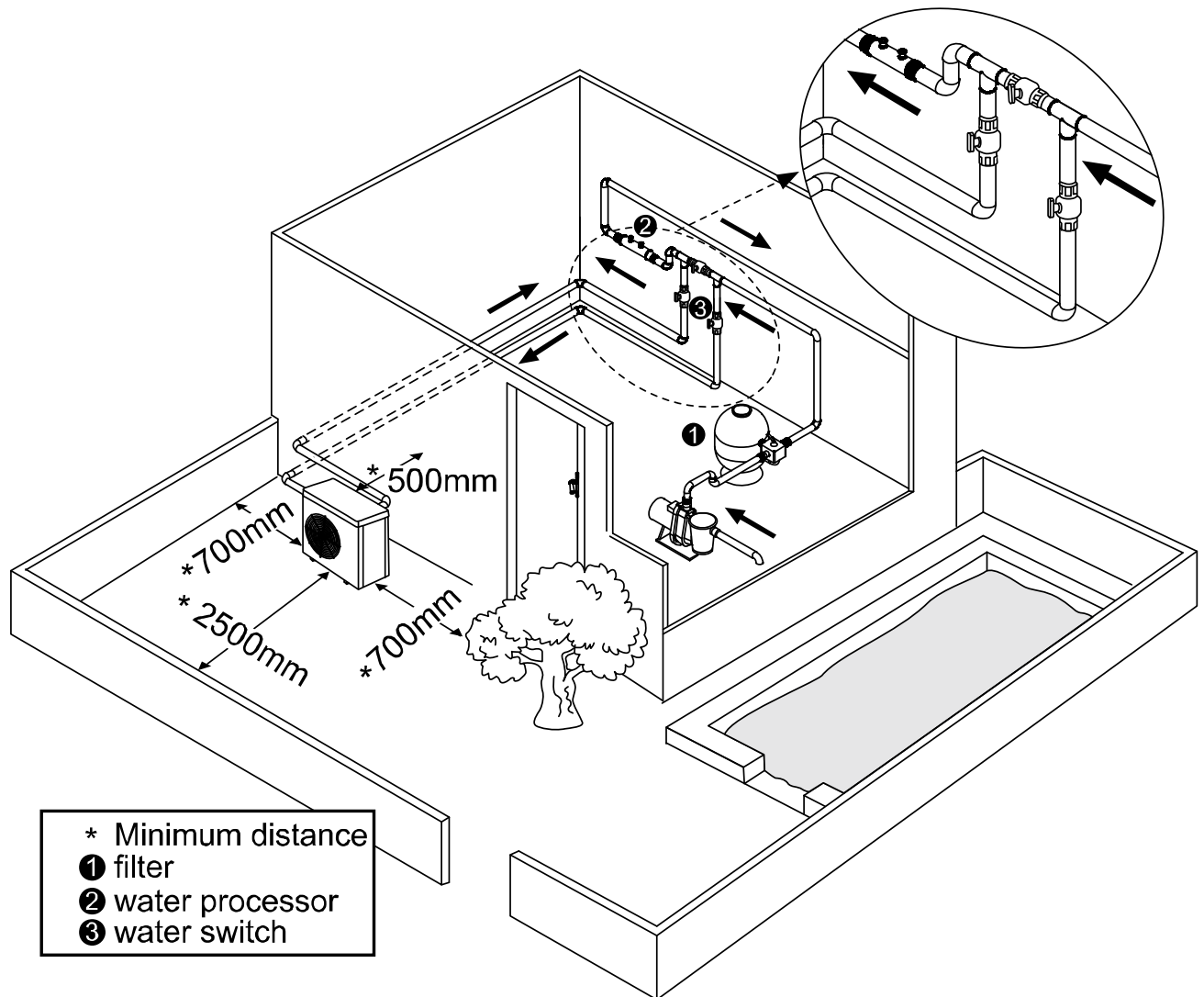
2.1.2. In order to guarantee the heating efficiency, the water pipe length needs to be $\leq 10\text{m}$ between the pool and the appliance.

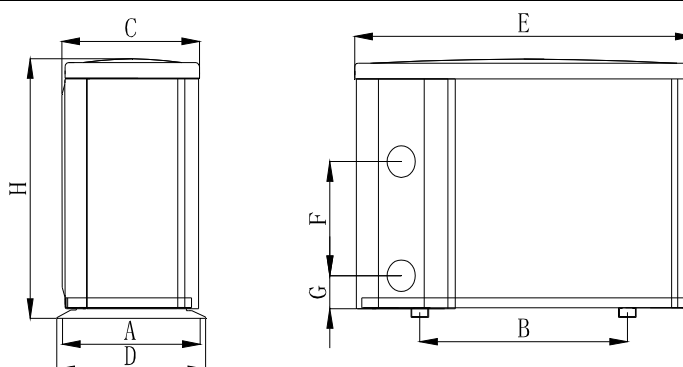
2.2. Installation instruction

2.2.1. Location and Size



The appliance should be installed in a place with good ventilation.





Size(mm) Name Model	A	B	C	D	E	F	G	H
GHD-150-0183	315	429	312	340	800	250	76	558
GHD-150-0157	315	429	312	340	800	220	76	558
GHD-150-0158	315	590	312	340	961	280	77	658
GHD-150-0159	395	590	392	420	961	310	77	658
GHD-150-0160	395	590	392	420	961	310	77	658
GHD-150-0161	395	720	391	420	1092	600	77	958
GHD-150-0162	395	720	391	420	1092	600	77	958
GHD-150-0163	505	790	496	530	1161	620	77	958
GHD-150-0164	505	1012	488	530	1384	780	84	1388
GHD-150-0165	505	1012	488	530	1384	780	84	1388
GHD-150-0166	395	720	391	420	1092	600	77	958

※ above data is subject to modification without notice.

2.2.2. Appliance installation

- ① The appliance must be installed in a place with good ventilation, for a minimum open space needed surrounding the appliance, refer to the diagram above please. Failure to meet this request may results in poor performance or malfunction of the appliance.
- ②The appliance can be fixed onto solid ground or concrete foundation through its foot stand, with bolts (M10) suggested.
- ③ For recommendation on water flux (water pump not supplied),refer to technical parameter please, Max. lift $\geq 10\text{m}$.
- ④With the appliance running, its normal to have condensation water discharged from the bottom, a drainage hose is supplied, install it please when necessary.

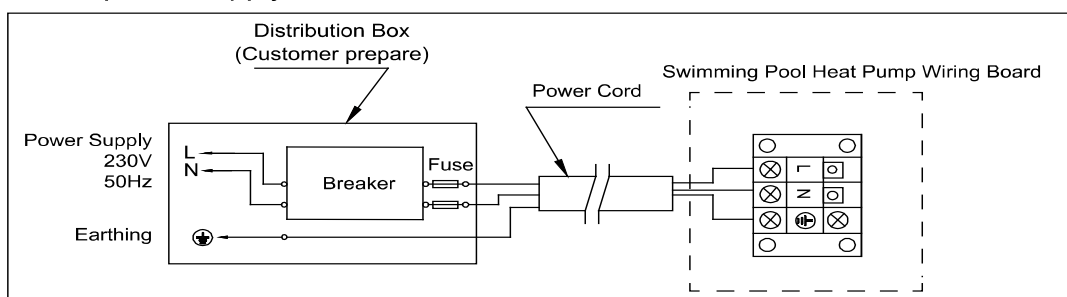
2.2.3. Wiring and protecting devices and cable specification

- ① Connect to appropriate power supply, the voltage should comply with the rated voltage of the products.
- ② Earth the appliance well.
- ③ Wiring must be done by professional technician according to the circuit diagram.
- ④ Set leakage protector according to the local code for wiring (leakage operating current $\leq 30\text{mA}$).
- ⑤ The layout of power cable and signal cable should be placed in order and not affecting each other.

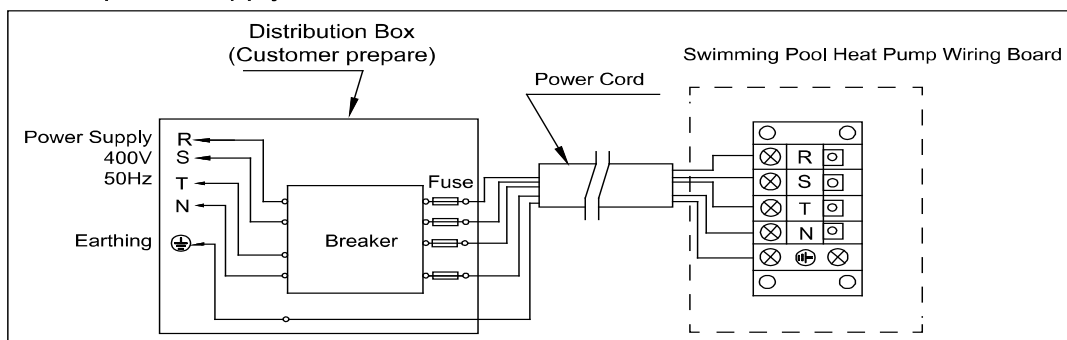


1. Wiring diagram

A. For power supply: 230V 50Hz



B. For power supply: 400V 50Hz



2. Options for protecting devices and cable specification

MODEL		GHD-150 -0183	GHD-150 -0157	GHD-150 -0158	GHD-150 -0159	GHD-150 -0160	GHD-150 -0161*	GHD-150 -0162	GHD-150 -0163	GHD-150 -0164	GHD-150 -0165
Breaker	Rated Current A	6	15	15	20	25	32	15	20	25	30
	Rated Residual Action Current mA	30	30	30	30	30	30	30	30	30	30
Fuse A		6	15	15	20	25	32	15	20	25	30
Power Cord (mm ²)		3x1.5	3x2.5	3x2.5	3x2.5	3x4	3x6	5x2.5	5x4	5x6	5x6
Signal cable (mm ²)		3x0.5	3x0.5	3x0.5	3x0.5	3x0.5	3x0.5	3x0.5	3x0.5	3x0.5	3x0.5

*Protecting devices and cable specification for GHD-150-0166 is same as GHD-150-0161.

NOTE: The above data is adapted to power cord $\leq 10\text{ m}$. If power cord is $>10\text{ m}$, wire diameter must be increased. If supplied with a signal cable, it can be extended to maximum 50 m.

2.3. Trial after installation

 Please check all the wirings carefully before switching on the appliance.

2.3.1. Inspection before use

- ① Check installation of the appliance and the pipe connections according to the pipe connecting drawing;
- ② Check electric wiring according to the electric wiring diagram; and grounding;
- ③ Make sure that the breaker is well connected;
- ④ Check if there is any obstacle before the air inlet and outlet of the appliance

2.3.2. Trial

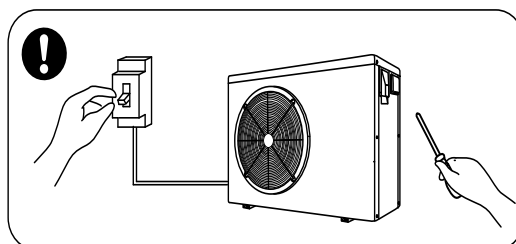
- ① Start water pump before the starting the appliance to ensure water flowing through the system; Turn off the appliance before the water pump to avoid possible damage to the appliance;
- ② Before starting water pump, check for hydraulic leakage;
- ③ The appliance is equipped with a 3-minute starting delay function. When starting the appliance, fan starts in 3 minutes upon switching on the appliance, in another 30 seconds starts compressor;
- ④ Check for any abnormal noise from the appliance after switching on the appliance;
- ⑤ Check if water temperature setting is in the operation range.

2.4. Maintenance and winterizing

2.4.1 Maintenance

 Annual maintenance by qualified professionals is recommended .

- ① Cut off power supply before working on the appliance. Do not touch any electronic components until the power supply is cut off;

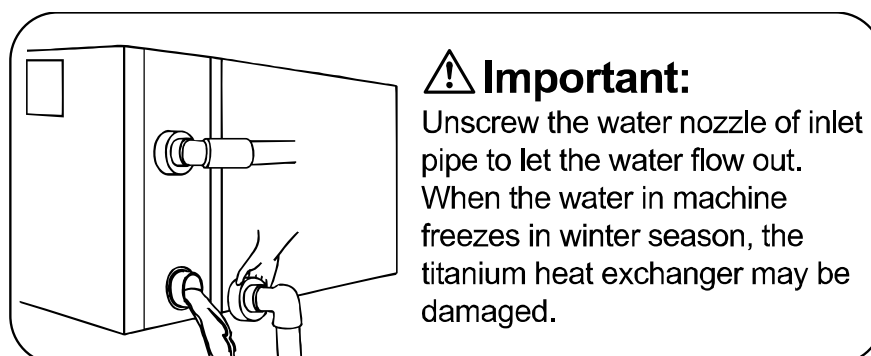


② Clean the evaporator with household detergents or clean water, NEVER use gasoline, thinners or any similar fuel;

③ Check for loose bolts, cables and connections .

2.4.2 Winterizing

Cut off power supply and disconnect water pipe to let out water for winterizing please.




> 3 . Trouble shooting for common faults

	Phenomenon	Analysis
Recheck	Heat pump dose not run	A. 3-minute waiting time upon switching on HP; B. Power supply failure; C. Check manual power supply switch to make sure it is on; D. Fuse burnt; E. Set timer on.
	Running but no heating	Check if the intake or outlet air vent blocked
Not a failure	A. Noticeable White vaporous cold air or water B. Gurgling sound	A. Fan stops automatically for defrost; B. Sound from the solenoid valve when defrost starts/ends; C. Throughout operation, a sound like water flowing, usually in 2~3 minutes of starting the machine. this Sound comes from flowing refrigerant; D.A gurgling sound occurs by expansion on heating and contraction on cooling of heat exchanger when the temperature changes .
	Automatic start or stop	Check if it's because of timer setting.

ATTENTION! Please don't try to repair the appliance yourself to avoid any risk.

> 4. Error code

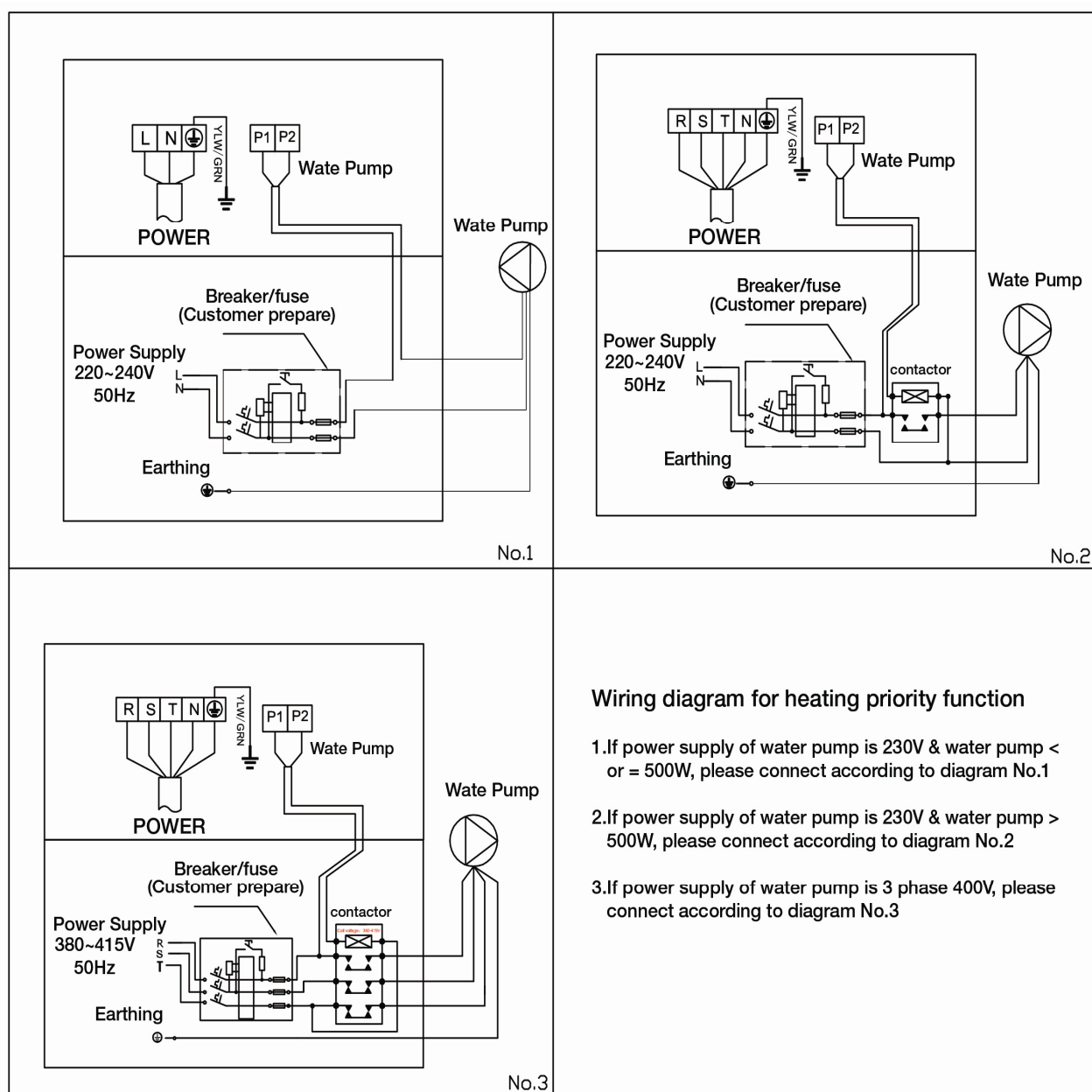
Sequence	Code	Description
1	PP 01	Intake pool water temperature sensor error
2	PP 02	Outlet pool temperature sensor error
3	PP 03	Evaporator coil temperature sensor error
4	PP 04	Input gas temperature sensor error
5	PP 05	Ambient air temperature sensor error
6	PP 07	First or Second degree protection for anti-frosting in winter
7	EE 01	High pressure protection
8	EE 02	Low pressure protection
9	EE 03	Inappropriate water flow
10	EE 04	A. Single phase model without soft start: Loose connection of PROT2 terminal on the PC board B. Single phase model with soft start: over current protection caused by low voltage supply or bad installation. C. Three phase model: 3 phase sequence protection
11	EE 06	Protection at ambient temperature below zero
12	EE 08	Signal communication failure
13	 flashing	Defrost

Appendix I: Heating priority wiring diagram

Heating Priority Function

This function is used to force operation of the pump in order to achieve setting temperature.

1. Water pump runs 3 minutes ahead of heat pump and switches off 3 minutes after heat pump.
2. When reaching a setting temperature, water pump runs 3 minutes and switches off.
3. Water pump switches on once every hour and runs 3 minutes, when it senses a temperature drop down to 2 degrees, heat pump will switch on.



Appendix II : System technical parameter check

System Parameter check and setting

Hold “M” for 5 seconds to check system parameters. Press “M” to check for each setting. use “▲” or “▼” to adjust setting value. when heat pump is off. Wait 10 seconds to confirm and exit system parameter setting and back to main page

Code	Description	Range	Default setting	Remarks
0	Reserved	-	12℃	Not applicable
1	Intake pool temperature setting	18℃～35℃	26℃	Adjustable
2	Reserved	-	30℃	Not applicable
3	Defrost cycle	30Min～90Min	40Min	Adjustable
4	Temperature for starting defrost under heating mode	-30℃～0℃	-7℃	Adjustable
5	Temperature for exiting defrost under heating mode	2℃～30℃	13℃	Adjustable
6	Duration of defrost	1Min～12Min	12Min	Adjustable
7	Electronic expansion valve control	0(Manual)/1(Auto)	1	Adjustable
8	Power off memory	0(No)/1(Yes)	1	Adjustable
9	Model	0(Heating only)	0	Nonadjustable
10	Control on water pump	0(No)/1(Yes)	0	Adjustable
11	Electronic expansion valve steps	15～47	35	Adjustable
12	Temperature difference between evaporator coil & input gas (heating model)	-F(-15℃)～F(15℃)	3℃	Adjustable
13	Temperature difference between evaporator coil & input gas (cooling model)	-F(-15℃)～F(15℃)	10℃	Adjustable
14	Reserved	-	0	Not applicable
15	Temperature drop for resuming heating	1～15℃	1	Adjustable

System temperature check:

Press “SET” on the main page to enter system temperature check. Press “SET” to check for each item.

Item	Description	Range	Remarks
16	Intake water temperature	-9℃～99℃	Detected value
17	Outlet water temperature	-9℃～99℃	Detected value
18	Evaporator coil temperature	-9℃～99℃	Detected value
19	Input gas temperature	-9℃～99℃	Detected value
20	Ambient air temperature	-9℃～99℃	Detected value
21	Electronic expansion valve steps	150P～470P	Detected value

