

HYDRO FROST

SOLUTION CHILLERS

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Thank you for your purchase. Please read the manual in its entirety before using the product. If you have questions please contact: tech@cch2o.com

Please keep for future reference.

This water chiller is suitable for hydroponics applications (hydroponic systems, nutrient reservoirs, and water storage tanks), & fresh/saltwater aquariums.

Product Features

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1. High-performance rotary compressor - internationally recognized and exclusively used in all units.
2. Titanium coaxial heat exchanger - ensures high performance with low energy consumption.
3. Efficient - designed to achieve the highest COP (coefficient of performance), contributing to significant energy savings.
4. Thoughtful construction – all components are designed to provide oxidation protection, perfect for use with nutrient solution or salt water.
5. Intuitive and accurate settings - easy to operate, with real-time water temperature control and accurate temperature readings.
6. Computer intelligent – The LCD controller has a power-off memory function.
7. Decreased noise levels - high air volume and low noise design allow for quiet operation.

Technical Data

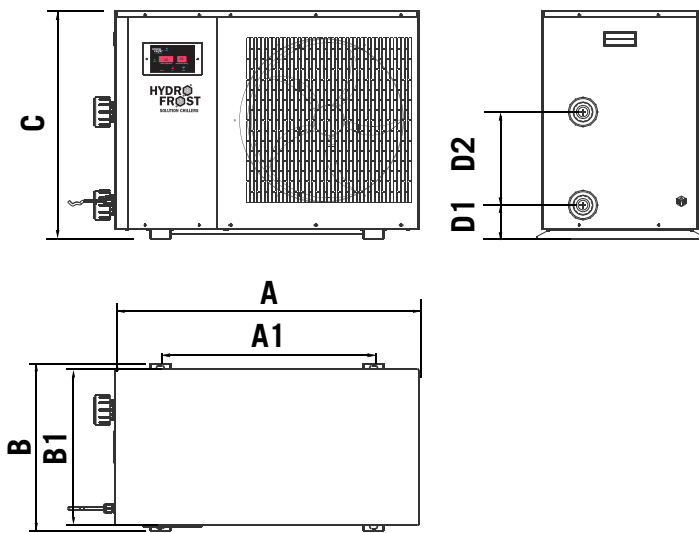
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Hydro Frost Chiller Specifications			
Model No.	HF-2 HP	HF-3 HP	HF-5 HP
Unit Dimensions	31 x 16 x 23 in.	31 x 16 x 27 in.	36 x 20 x 41 in.
Maximum Tank Size	400 gal. / 1514 Lt.	600 gal. / 2271 Lt.	1000 gal. / 3785 Lt.
Cooling Capacity	5,200W	7,200W	17,400W
Rated Voltage	208-230v /60HZ	208-230v /60HZ	208-230v /60HZ/3-Phase
Rated Power	2 HP (1550w)	3 HP (2400w)	5 HP(3700w)
Current	7.5A - 8.2A	11.2A - 12.5A	17.5A - 18.3A/Ph
Refrigerant	R410A	R410A	R410A
Recommended Flow Rate	>1189 Gal./H / 4,500 Lt.	>1320 Gal./H / 5,500 Lt.	>1717 Gal./H / 6,500 Lt.
Outlet / Inlet Size	1" in. (25.4 mm)	1.5" in. (38.1 mm)	2" in. (50 mm)
Weight	121 lbs. (55kg)	132 lbs. (60kg)	275 lbs. (125kg)
Maximum Operating Pressure	25 psi	25 psi	25 psi

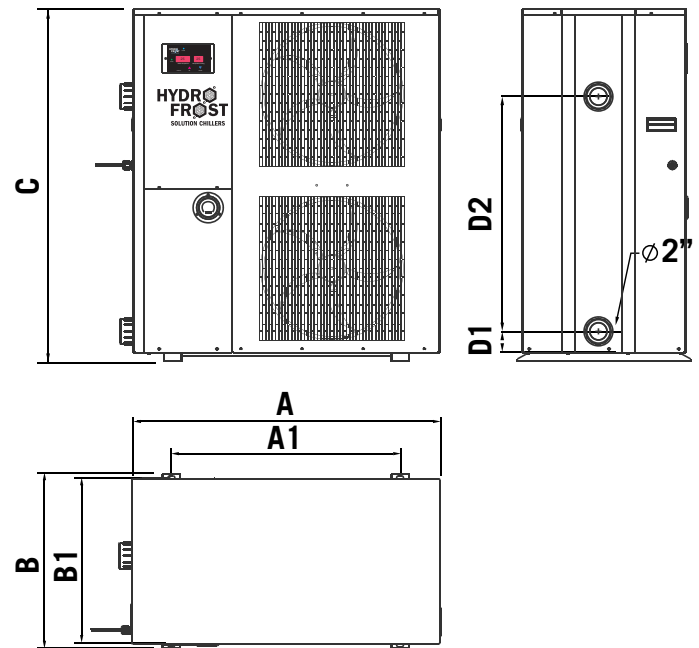
Dimensions Diagram

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HF-1.0 HP to HF-3.0 HP



HF-5.0 HP

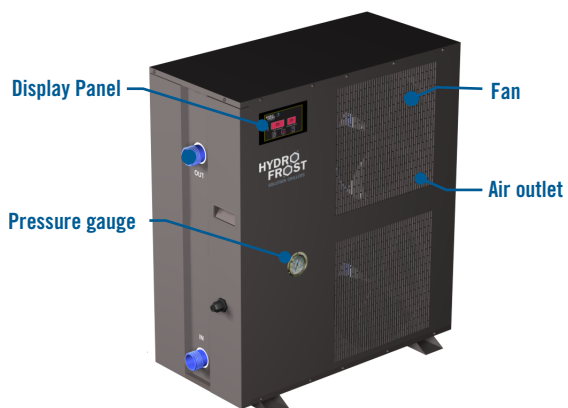


KEY

Model	A	B	C	A1	B1	D1	D2	Pipe Dia.
HF-1.0HP	26"	13¼"	18"	19"	13"	2.5"	6.75"	ø1"
HF-1.5HP	31"	15¼"	20"	22"	13"	2.5"	8.25"	ø1"
HF-2.0HP	31"	16¼"	23"	22"	16"	2.5"	9.5"	ø1"
HF-3.0HP	31"	16¼"	27"	22"	16"	2.5"	11.5"	ø1.5"
HF-5.0HP	36"	20¼"	41"	26"	19"	2.5"	27"	ø2"

Parts Info

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Installation Precautions

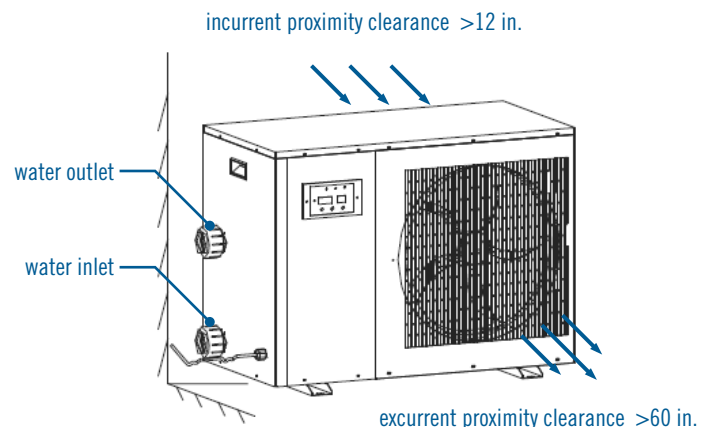
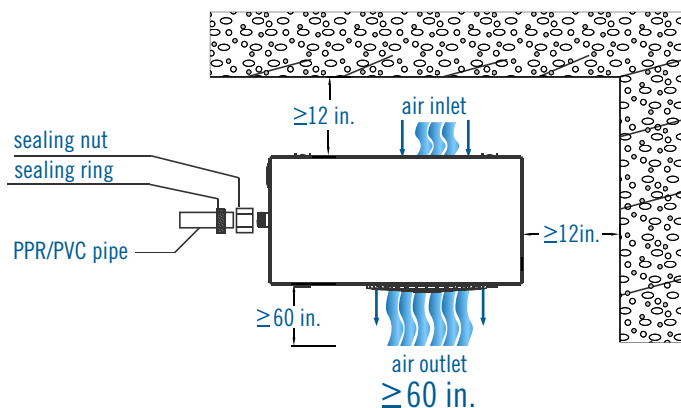
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1. **Before starting, verify the power supply voltage meets the requirements of machine parameters.**
2. To ensure safety, keep the chiller away from aquatic animals (i.e. fisheries, aquariums, farms, etc.) or other equipment (such as lasers) to avoid possible moisture leakage.
3. Keep the chiller out of reach of children to avoid accidental injury.
4. Install the chiller in a well-ventilated, dry, covered area. Maintain a minimum space of 12 inches around the chiller and keep the exhaust area clear within 5 feet.
5. To prevent the water inlet from clogging, we recommend installing an in-line filter ahead of the chiller inlet. Regularly check the working operation of the pump to avoid waterless operation.
6. Use Schedule 40 or 80 PVC or similar pipe with adequate wall thickness. This will prevent warping around inlet and water obstruction that could result in failure of chiller cooling capacity.
7. Double check the power and cable connections for abnormal behavior or foul smell of electrical components, replace or repair prior to operation.
8. The water tank in this chiller has a maximum water pressure of 30psi (0.2MPS - 2KGF / CM²). Excessive water pressure can cause the water tank to rupture. The water pipe and pump should be matched reasonably.

****If the chiller has not been utilized for a long time, turn off power supply. Ensure the north region inside the barrel of pure titanium evaporator through the bottom of pump is dry to prevent cracking.**

Clearance Diagram

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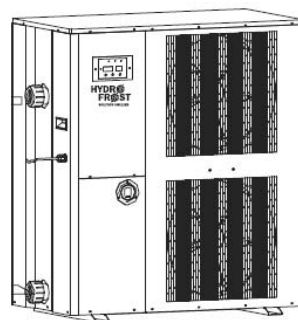
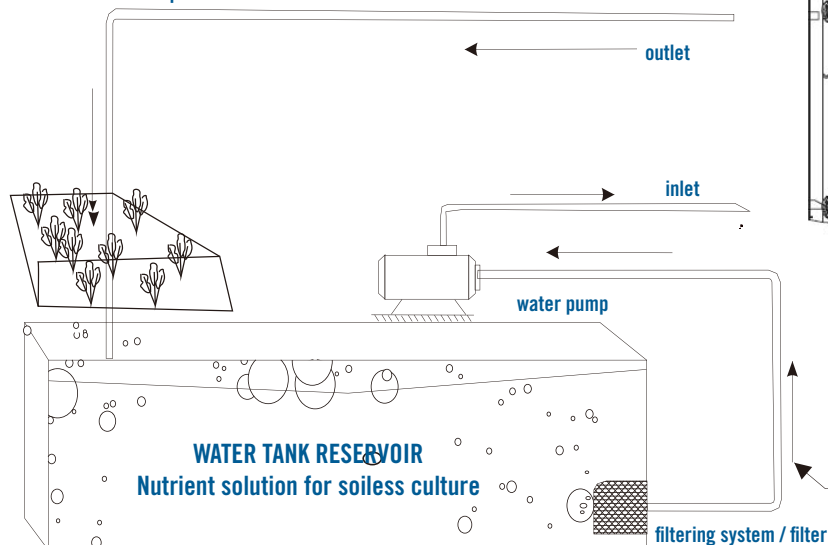
Installation Diagram

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Installation of the chiller must comply with all safety precautions and warnings.

HF-5.0 HP

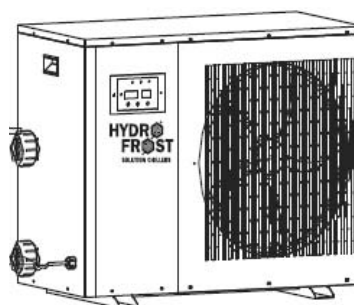
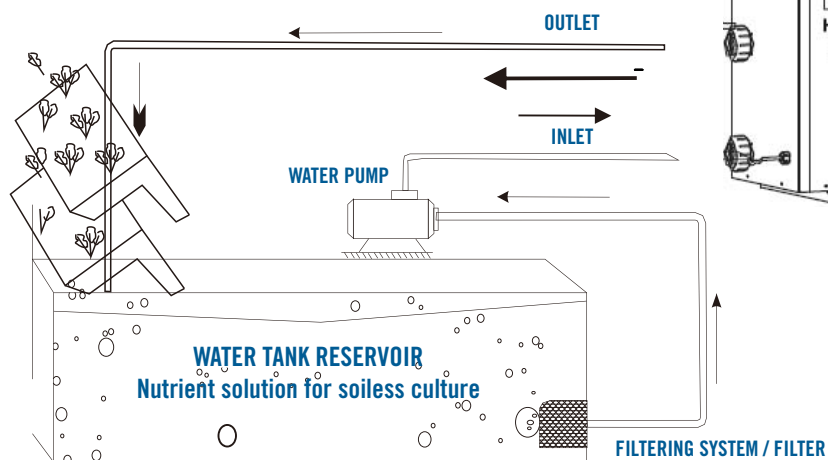
Seperate chiller pump configuration:
Pump head must be installed within 24 ft.



Installation of the chiller must comply with all safety precautions and warnings. Unit must be used with a pre-filter and circulation pump as shown:

HF-1.0 HP to HF-3.0 HP

Seperate chiller pump configuration:
Pump head must be installed within 24 ft.



The ground frame of the chiller must be firm and flat, free from uneven or sloping surfaces.
Power must be grounded and plug must be clean without water, chiller can not be placed in wet locations.

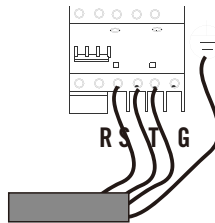
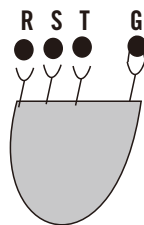
Installation Notes

1. The installation of the chiller must comply with the safety precautions and warnings. The unit must be used with a circulating pump and filtering system as outlined below:
hydroponic system or reservoir > filtering system or filter > water pump > chiller inlet > chiller outlet > hydroponic system or reservoir.

Installation Procedure

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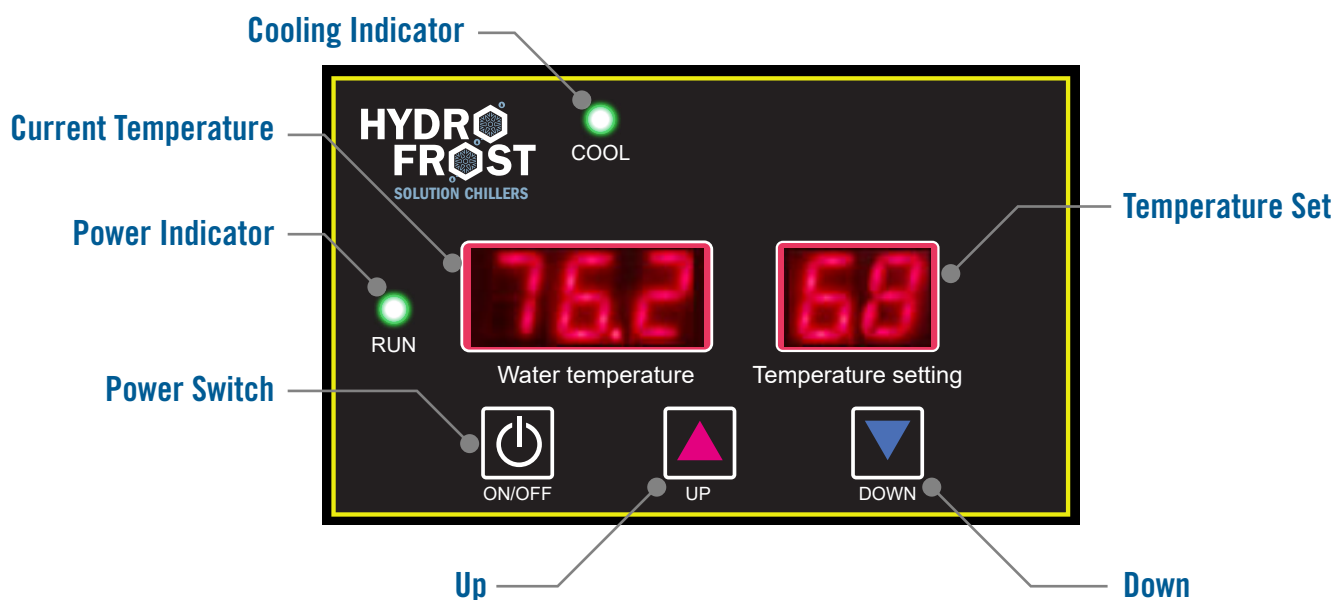
1. Users do not install or repair the machine, please contact the dealer or professional to avoid injury or electrocution.
2. Device not to be installed near flammable or explosive environments.
3. Power cord must have dedicated ground.
4. Ensure adequate water flow prior to operation. Inadequate water supply will result in damage after prolonged use.
5. Device not to be used for heating or cooling an electroplating pool. For use in chemical equipment, Please contact manufacturer.
6. When connecting to three-phase power (208V/230V), Gray—R, Black—S, Brown—T, Yellow—Green ground must be tightly connected (Only suitable for HF-5HP).



7. **ATTENTION! For 5HP models:** If device does not run after connection to power supply, or makes an abnormal sound, or phase sequence is not adequate, the appropriate adjustments must be made for three-phase power. The power switch must be a three-phase, 4-wire leakage switch. A 3-phase, 3-wire leakage switch will trip.
8. **ATTENTION! For 5HP models:** The power supply must utilize a leakage protection switch (not provided). The leakage protection switch must be connected to the front of the device and must not be operated while the hand is wet.

Control Panel

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Function Set

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1. With water flowing, press the “on/off” button to turn the chiller on. Adjust the temperature with “up/down” keys.
There is a slight delay prior to operation. Circulating water from the pump will begin to reach the desired temperature.
2. Above is for normal operation.

For advanced features, see administrator parameters and/or troubleshooting on page 7.

A) Parameter Settings:

When chiller power is OFF, press the “up & down” keys for six seconds. After displaying the PD, enter the correct password (i.e. 95) Press the “ON/OFF ” button again to set the parameter code. Then press the “up & down ”key to adjust the setting.

B) To restore setting to factory default,when in shutdown state, press (Power Switch & Down) key for ten seconds. The LED will begin blinking and a BEEP will sound and temperature controller will return to factory default state.

Function Setting Table

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Parameters of the code	Name of Parameter	Setting Range	Factory Default
	Setting Temperature	0°F ~ 99°F	60°F
F1	Temperature Return Difference	1°F ~ 15°F	2°F
F2	Temperature Correction	-10°F ~ 10°F	0°F
F3	Start-Up Delay	1 – 5 MIN	3 MIN
F4	Max. Temperature Limit	Setting Temperature = 158°F	104.0°F
F5	Min. Temperature Limit	Setting Temperature = -1°F	37.4°F
F6	Password Setting	0 - 255 Min..	95

Fault Code

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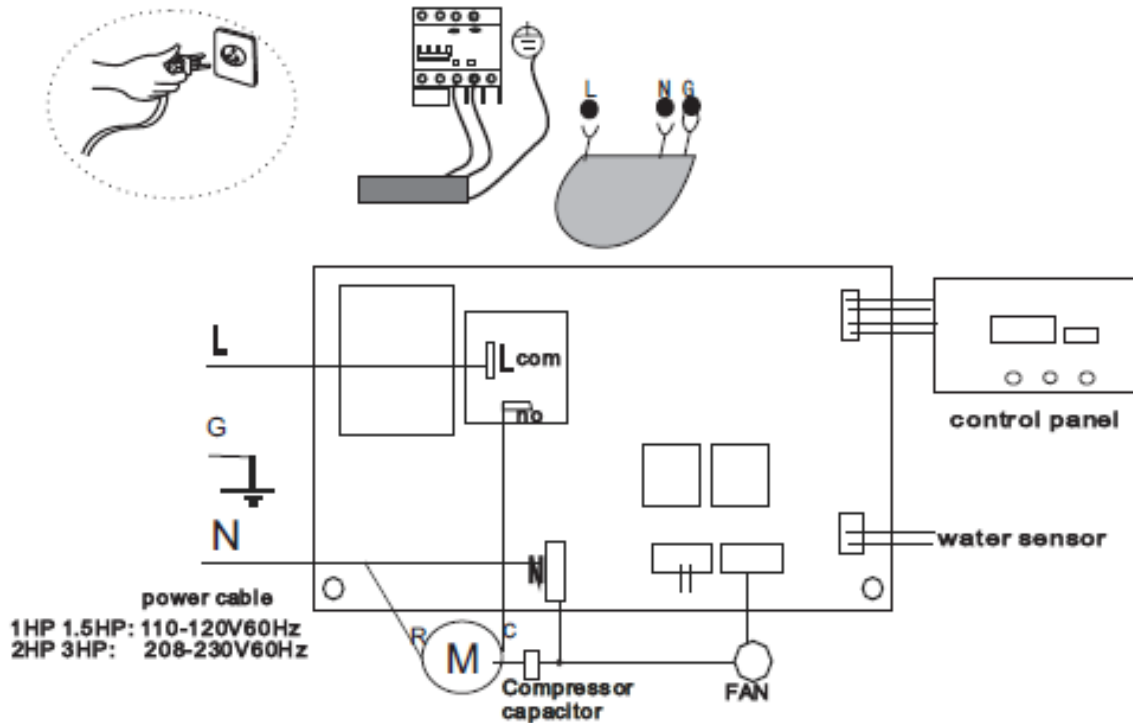
Fault Code	Failure Cause	Troubleshooting Methods
E1	Temperature Sensor Failure	Exclude poor contact or replace
E2	High Voltage Switch Failure	Contact professional maintenance personnel
E3	Low Voltage Switch Failure	Contact professional maintenance personnel
E4	Water Flow Switch Failure	Contact professional maintenance personnel
EH	Ultra-High Temperature Failure	Adjust water temperature or reset temperature maximum
EL	Ultra-Low Temperature Failure	Adjust water temperature or reset temperature minimum valve

Circuit Diagram - HF-1HP to 3HP

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WARNING

ELECTRICAL PARTS MUST BE OPERATED BY PROFESSIONALS.
ILLEGAL USE OF ELECTRICITY IS STRICTLY PROHIBITED.
FAILURE TO DO SO MAY RESULT IN ELECTRIC SHOCK.

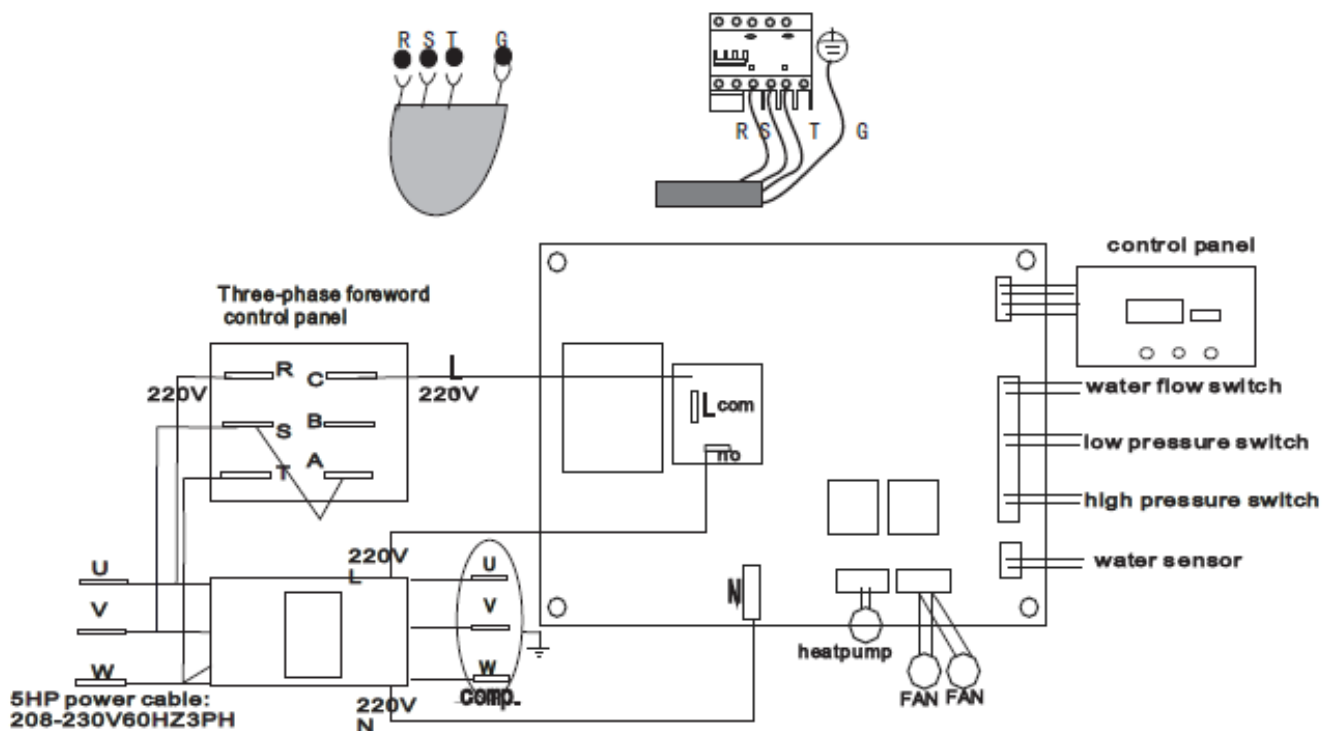


Circuit Diagram - HF-5HP

(208-230V3PH50/60HZ)

WARNING

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Troubleshooting

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1. If the ambient temperature or water temperature is too high this can lead to an increase in system pressure. Increase in pressure may cause compressor to cut out to protect the chiller. If this happens, ensure appropriate ventilation and/or cooling, then chiller will restart.
2. After prolonged normal use (2-3 years), refrigeration capacity may be significantly reduced. Please contact a qualified HVAC technician for maintenance to recharge refrigerant.
3. If the display board is dim, or the machine does not operate correctly, check to ensure the power plug is not loose and check fuse. For insurance, replace fuse.
4. If the digital display shows an error between the actual temperature and display temperature, perform the following procedure to rectify.
 - a) Press the "SET" button for 10 seconds until the display reads "F1".
Press SET" again to correct temperature function "F2" (F2 is plus or minus 59°F degrees)
 - b) Press the "+" key (to increase) or "-" (to reduce) to confirm to eliminate error of digital display.
Numbers indicate error value (F2=actual temperature – display temperature)
 - c) Stop any operation, wait after 10 seconds for digital display to show actual temperature.
5. If display still displays incorrect value after procedure, contact dealer for professional maintenance. Do not perform maintenance without professional analysis.

Troubleshooting Table

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TROUBLESHOOTING		
SYMPTOM	CAUSE	SOLUTION
The unit doesn't run, and display is blank	Power is not turned on	Turn on the power
	Not plugged in correctly	Be sure the power cord is fully plugged in
	Wrong voltage and/or frequency	
The unit cycles on and off	Chiller protection mode	A. Check the water circulation is normal B. If the fan and the chiller are cooling normally, wait for 3-min and the unit will automatically turn on again
Performance is decreased or there is no refrigeration	Fan is not working	Return to place of purchase
	The set temperature is higher than the system water temperature	Reset desired temperature
	The air inlet or outlet are clogged	Clean the air inlet/outlet with a brush or a vacuum cleaner
Loud operation	Not installed on a flat surface	Re-Install correctly

Common Maintenance Schedule

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1. With normal prolonged use (2-3 years) the chiller capacity may diminish or refrigeration decreases, check to ensure that refrigerant level is adequate. If refrigerant is low contact an HVAC professional to recharge refrigerant (R410a) to appropriate level.
2. With normal prolonged use, air or water temperature might become too high due to restriction of air flow. If temperature exceeds normal operating temperature, power off the chiller, clean dust accumulation on compressor to increase ventilation and heat dissipation to restore normal operation.

INSTRUCTIONS FOR SAFE OPERATION:

1. All external components must be kept dry.
2. Ensure the chiller's power supply is correctly grounded.
3. Installation surface must be level and firm.
4. **If the chiller is upside down or on it's side, it may damage internal components and prevent the unit from running properly. Unit must be installed level and upright and remain level for at least 30 minutes prior to start up.**
5. Chiller must be installed on an upright and level surface for at least 4 hours after delivery before start up to allow compressor fluid to normalize.

Cleaning Instructions

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For safe, efficient operation and long service life, it is essential to regularly clean the chiller condenser and all hoses, connections and other components in the system. Thorough cleaning is recommended every 3-6 months, including:

1. Remove dust from the condenser with a brush or compressed air.
2. Rinse collected debris from external reservoir pump, all inlet and outlet connections, hoses, etc., with clear, lukewarm water. Soap, detergent or bleach is NOT recommended because any remaining residues can contaminate the nutrient solution. The chiller housing, digital control panel, power switch and other external surfaces must be cleaned with a soft, dry cloth. **NEVER immerse the chiller in water or spray it down with a hose!**

How to clean the water chiller condenser?

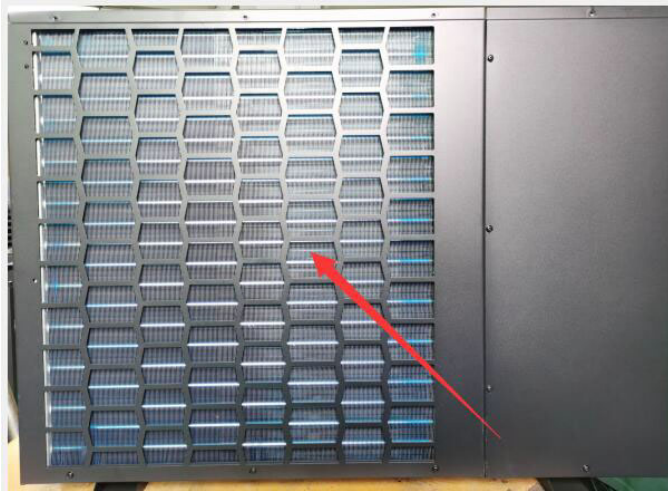
The following are two options.

1. If the chiller is installed in a relatively clean place, you can remove the dust from the condenser directly with a brush or compressed air, typically every six - twelve months. No need to remove chiller case.
2. If the chiller is installed in a dusty area, it is recommended to clean the condenser once every 3 to 6 months.

Cleaning Instructions

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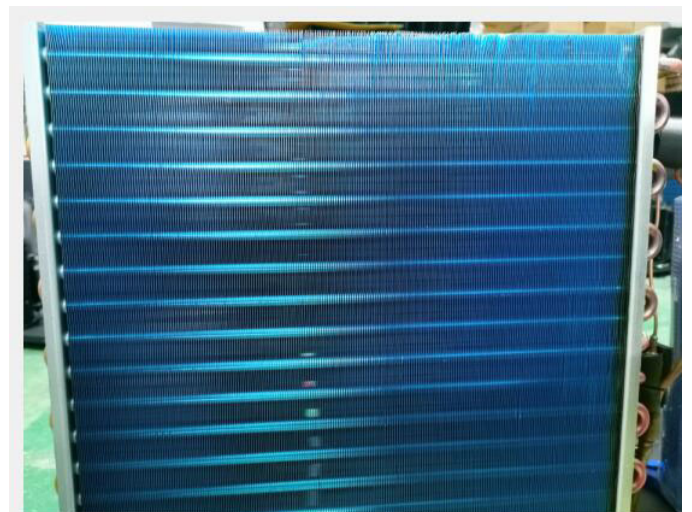
1. Loosen screw on cover, turning counterclockwise.



2. Loosen screws on the back side of condenser and remove.



3. Remove dust with a brush, compressed air or wipe clean with a damp cloth.



Warranty

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Hydro Frost warrants the Chiller to be free from defects in materials and workmanship. The warranty term is under normal use for one year beginning on the date of purchase.

Compressor and consumable parts (such as the copper pipe) are not included.

Misuse, abuse, or failure to follow instructions is not covered under this warranty.

Hydro Frost will not be liable for any consequential, indirect, or incidental damages of any kind, including lost revenues, lost profits, or other losses in connection with the product. CCH2O will not be responsible for how the product is installed or used.

Hydro Frost will repair or replace the parts of the Chiller covered under this warranty if it is returned to the original place of purchase.

For tech support, please contact Hydro Frost at tech@cch2o.com