

# ***Ultra-Thin Hydronic Fan Coil***

## **Metal Face**

### **User's Information Manual**

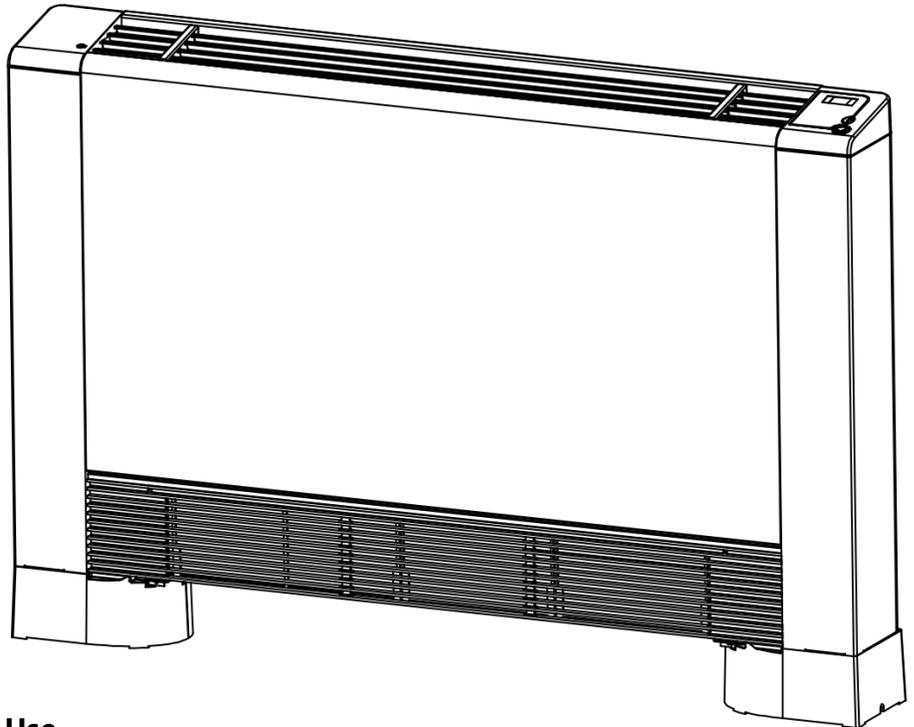
### **Installation**

### **Start-Up**

### **Maintenance**

### **Parts**

### **Warranty**



### **For Residential and Commercial Use**

#### **VFC-\*P\*\* Models**

\* Denotes Model Size

\*\* "WV" Denotes White Models with Valve; "B" Denotes Black Models without Valve

#### **▲ WARNING**

This manual must only be used by a qualified installer / service technician. Read all instructions in this manual before installing. Perform steps in the given order. Failure to do so could result in substantial property damage, severe personal injury, or death.

#### **NOTICE**

The manufacturer reserves the right to make product changes or updates without notice and will not be held liable for typographical errors in literature.

**NOTE TO CONSUMER: PLEASE KEEP ALL INSTRUCTIONS FOR FUTURE REFERENCE.**

<b>SPECIAL ATTENTION BOXES</b>
The following defined terms are used throughout this manual to bring attention to the presence of hazards of various risk levels or to important product information.
 <b>DANGER</b>
<b>DANGER</b> indicates an imminently hazardous situation which, if not avoided, will result in serious personal injury or death.
 <b>WARNING</b>
<b>WARNING</b> indicates a potentially hazardous situation which, if not avoided, could result in personal injury or death.
 <b>CAUTION</b>
<b>CAUTION</b> indicates a potentially hazardous situation which, if not avoided, may result in moderate or minor personal injury.
<b>CAUTION</b>
<b>CAUTION used without the safety alert symbol</b> indicates a potentially hazardous situation which, if not avoided, may result in property damage.
<b>NOTICE</b>
<b>NOTICE</b> is used to address practices not related to personal injury.

### Foreword

This manual is intended to be used in conjunction with other literature provided with the fan coil. This includes all related control information. It is important that this manual, all other documents included in this system, and additional publications including the *Code for the Installation of Heat Producing Appliances* (latest version), be reviewed in their entirety before beginning any work.

Installation should be made in accordance with the regulations of the Authority Having Jurisdiction, local code authorities, and utility companies which pertain to this type of water heating equipment.

Authority Having Jurisdiction (AHJ) – The AHJ may be a federal, state, local government, or individual such as a fire chief, fire marshal, chief of a fire prevention bureau, labor department or health department, building official or electrical inspector, or others having statutory authority. In some circumstances, the property owner or his/her agent assumes the role, and at government installations, the commanding officer or departmental official may be the AHJ.

**NOTE:** The manufacturer reserves the right to modify product technical specifications and components without prior notice.

### For the Installer

This fan coil must be installed by qualified and licensed personnel. The installer should be guided by the instructions furnished with the fan coil, and by local codes and utility company requirements.

#### Installations Must Comply With:

Local, state, provincial, and national codes, laws, regulations, and ordinances.

*Code for the Installation of Heat Producing Appliances* (latest version) from American Insurance Association, 85 John Street, New York, NY 11038.

The latest version of the *National Electrical Code, NFPA No. 70*.

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### Part 1 - General Safety Information

This fan coil is approved for indoor installations only. Clearances: 6" top, 3.54" bottom, 1" sides, 16" front, and 0" back. This fan coil has been approved for installation on combustible flooring. Install the fan coil in a location where a leak will not result in damage to the surrounding area. If such a location is not available, install an auxiliary catch pan.

 <b>WARNING</b>
<b>Installer</b> - Read all instructions in this manual before installing. Perform steps in the given order.
<b>User</b> - This manual is for use only by a qualified heating installer / service technician. Have this fan coil serviced / inspected annually by a qualified service technician.
<b>NOTE:</b> Obey all local codes. Obtain all applicable permits before installing the fan coil.
<b>NOTE:</b> Install all system components and piping in such a manner that does not reduce the performance of any fire rated assembly. Ensure the fan coil is properly grounded.
<b>NOTE:</b> If the fan coil is exposed to the following, do not operate. Immediately call a qualified service technician. <ul style="list-style-type: none"> <li>1. Fire</li> <li>2. Damage</li> <li>3. Water</li> </ul>
Failure to adhere to these guidelines can result in substantial property damage, electric shock, severe personal injury, or death.

 <b>WARNING</b>
Do not put your fingers or other appendages into the fans or heat exchanger of the fan coil.
If there is a strange smell emanating from the fan coil or it appears to be operating improperly, turn off power to the unit and call a qualified service technician to inspect it.
It is prohibited for the user to move, maintain, or repair the fan coil. Only a qualified service technician should do so.
Ensure the fan coil has a devoted circuit breaker.
Ensure suitable fuses are used in the fan coil.
Failure to adhere to these guidelines can result in substantial property damage, electric shock, severe personal injury, or death.
<b>CAUTION</b>
Do not use this fan coil for anything other than its intended purpose (as described in this manual). Doing so could result in property damage and WILL VOID product warranty.

**A. When Servicing the Water Heating System**

To avoid electric shock, disconnect electrical supply before performing maintenance or cleaning.

To avoid severe burns, allow fan coil and associated equipment to cool before servicing.

**B. System Water**

- If you have an old system with cast iron radiators, thoroughly flush the system (without fan coil connected) to remove sediment. The fan coil can be damaged by build-up or corrosion due to sediment. The manufacturer recommends a suction strainer in this type of system.
- Do not use petroleum-based cleaning or sealing compounds in the system. Gaskets and seals in the system may be damaged, possibly resulting in substantial property damage.
- Do not use "homemade cures" or "patent medicines". Substantial property damage, damage to the fan coil, and/or serious personal injury may result.
- Addition of oxygen from make-up water can cause internal corrosion in system components. Leaks in the fan coil or piping must be repaired at once.

**C. Freeze Protection**

**NOTE:** Consider piping and installation when determining fan coil location. Place the fan coil as close to the hot water source as possible in a location not prone to freezing.

<b>CAUTION</b>
Failure of the fan coil due to freeze related damage IS NOT covered by product warranty.
 <b>WARNING</b>
NEVER use any toxic chemical, including automotive, standard glycol antifreeze, or ethylene glycol made for hydronic (non-potable) systems. These chemicals can attack gaskets and seals in water systems, are poisonous if consumed, and can cause personal injury or death.

**D. Notes**

- Power off the unit if it is not to be used for a prolonged period of time. Drain the unit of water if there is no freeze protection and a chance of freezing exists.
- Avoid setting cooling temperatures too low. Doing so is inefficient.
- Avoid prolonged contact with direct air flow.

- Do not leave the room closed for prolonged periods. Periodically open doors or windows to allow fresh air to circulate within the space.
- If water leaks from the fan coil, turn the fan coil "OFF" and, if possible, valve the unit off from the system. DO NOT attempt to service. Call for service as soon as possible.
- When replacing components, use only genuine replacement parts from the manufacturer.

**E. Fundamental Safety Rules**

 <b>WARNING</b>
Some fundamental safety rules that should be followed when using a product that uses electricity and water are:
<ul style="list-style-type: none"> <li>• DO NOT allow people to operate the fan coil unless they have been educated in its operation.</li> <li>• DO NOT allow children to operate the fan coil.</li> <li>• DO NOT touch the fan coil with wet hands or body when barefoot.</li> <li>• DO NOT carry out any cleaning on the fan coil before turning off the electricity at the circuit breaker.</li> <li>• DO NOT modify the safety or adjustment devices without explicit authorization from the manufacturer.</li> <li>• DO NOT cut or knot the electrical cables coming out of the fan coil.</li> <li>• DO NOT poke fingers, appendages, or objects through the inlet or outlet grills of the fan coil.</li> <li>• DO NOT leave packing materials within the reach of children. Immediately and properly dispose of packing materials.</li> <li>• DO NOT climb onto the fan coil or rest any object on it.</li> <li>• DO NOT touch the fan coil while it is operating, as the external parts can reach temperatures greater than 158°F.</li> </ul>
Failure to adhere to these guidelines can result in substantial property damage, electric shock, severe personal injury, or death.

**Part 2 - Prepare the Fan Coil**

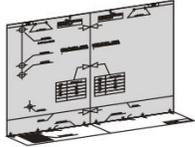
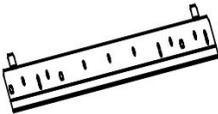
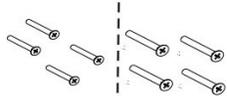
Remove all sides of the shipping crate to allow the fan coil to be moved into its installation location.

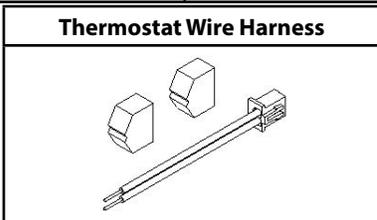
**NOTICE**

**UNCRATING THE FAN COIL** - Any claims for damage or shortage in shipment must be filed immediately against the transportation company by the consignee.

**A. Included with the Fan Coil**

The following items are included with the fan coil. Ensure all parts ordered with the fan coil are received in good condition before proceeding with installation.

Fan Coil 	Installation Template 
Brackets 	Toggle bolts 
Manual 	Drain Pipe 
Screw 	Screw cap 
electrothermal 3-way valve 	Remote controller 
Feet 	Flex Pipe 



**Figure 1 - Included Parts - NOTE: Not all components are required for the installation. For example, if the fan coil is wall mounted, the feet are decorative and optional.**

**B. Locating the Fan Coil**

This fan coil is certified for indoor use only. **DO NOT INSTALL OUTDOORS.** Outdoor installations ARE NOT covered by warranty.

Choose a location for the fan coil as centralized to the piping system as possible. Also, locate the fan coil and piping where it will not be exposed to freezing temperatures. All piping should be insulated. Additionally, place the fan coil so that the drain, controls, and inlets/outlets are easily accessible.

**WARNING**

This fan coil must be installed upright in the vertical position as described in this manual. **DO NOT** attempt to install this fan coil in any other orientation. Doing so will result in improper fan coil operation and property damage, and could result in serious personal injury or death.

Ensure the installation location can support the entire filled weight of the fan coil. Failure to properly support the fan coil could result in property damage, severe personal injury, or death.

Regularly check that the installation location has not been damaged by the weight of the fan coil and that the fan coil has not begun to tip or lean and become unlevel. Failure to do so could result in property damage, severe personal injury, or death.

**CAUTION**

**COLD WEATHER HANDLING** - If the fan coil has been stored in a very cold location (BELOW 0°F) before installation, handle with care until the components come to room temperature. Failure to do so could result in damage to the fan coil.

Locate the fan coil where any leakage will not result in damage to surrounding areas or lower floors of the building. The fan coil should be located near a floor drain or installed in a drain pan. Leakage damages ARE NOT covered by warranty.

**NOTE:** To save on heating costs and improve energy efficiency keep the distance between the fan coil and heating or cooling source to a minimum to reduce temperature loss from excess piping and keep friction loss at a minimum. Ensure all piping between the heating or cooling source and fan coil is properly insulated to minimize heat loss.

The fan coil may be located some distance from the heating or cooling source provided the circulator meets flow requirements. The greater the distance from the source to the fan coil the longer the response will be to a call for heat or cooling.

This fan coil must be installed vertical on a level surface.

**NOTE:** In the State of California, the fan coil must be braced, anchored, or strapped to avoid moving during an earthquake. Contact local utilities for code requirements in your area. Visit <http://www.dsa.dgs.ca.gov> or call 1-916-445-8100 and request instructions.

However, applicable local codes shall govern installation. Consult the local building jurisdiction for acceptable bracing procedures.

**NOTE:** If you do not provide the minimum clearances shown in Figure 1, it might not be possible to service the fan coil without removing it from the space.

**DANGER**

This fan coil must not be located near flammable liquids such as gasoline, butane, liquefied propane, adhesives, solvents, paint thinners, etc., as the controls of this fan coil could ignite these vapors and cause an explosion resulting in property damage, severe personal injury, or death.

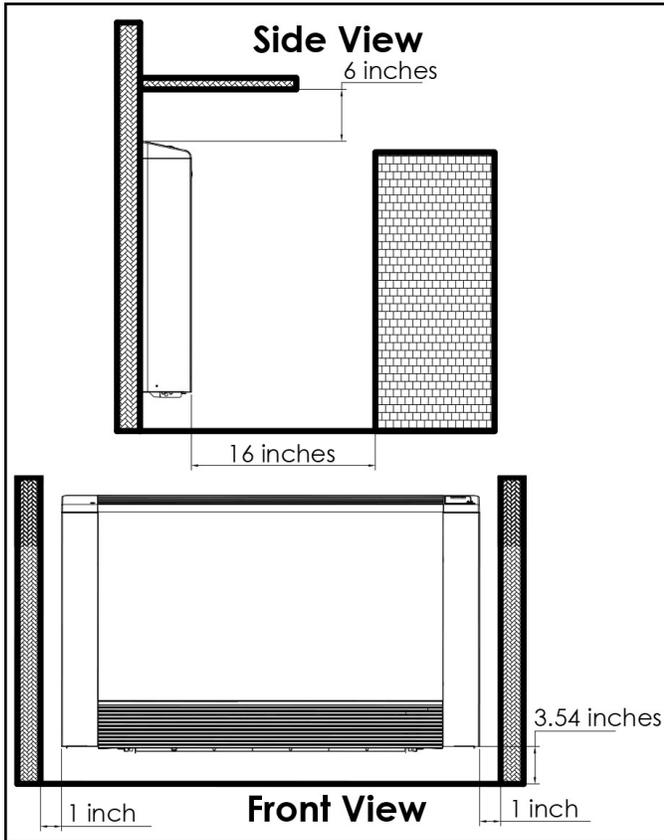


Figure 2 - Recommended Service Clearances

### C. Water Chemistry Requirements

#### CAUTION

Chemical imbalance of the water supply may affect efficiency and cause severe damage to the fan coil and associated equipment. The manufacturer recommends having water quality professionally analyzed to determine whether it is necessary to install a water softener. It is important that the water chemistry be checked before installing the fan coil, as water quality will affect the reliability of the system. Failure of a fan coil due to lime scale build-up, low pH, or other chemical imbalance IS NOT covered by the warranty.

- Sodium less than 20 mGL
- Water pH between 6.0 and 8.0
  - Maintain water pH between 6.0 and 8.0. Check with litmus paper or have it chemically analyzed by water treatment company.
  - If the pH differs from above, consult local water treatment for treatment needed.
- Hardness less than 7 grains
  - Consult local water treatment companies for unusually hard water areas (above 7 grains hardness).
- Chlorine concentration less than 100 ppm
  - Using chlorinated fresh water should be acceptable as levels are typically less than 5 ppm.
  - Do not fill fan coil or operate with water containing chlorine in excess of 100 ppm.

**\*NOTE:** It is recommended to clean the heat exchanger at least once a year to prevent lime scale buildup. To clean the heat exchanger, follow the maintenance procedure in this manual.

**Hardness:** Less than 7 grains

**Chloride levels:** Less than 100 ppm

**pH levels:** 6 - 8

**TDS:** Less than 2000 ppm

**Sodium:** Less than 20 mGL

### D. Information and Recommendations

The fan coil is equipped with:

- An integrated thermostat control.
- A "TT" or "remote on/off" which can be used to call for heating or cooling.
- A water control bypass valve for use in a continuously circulating (or forced) water system. The fan coil can be used with or without the bypass valve depending on the installation. If the fan coil is used in a single unit installation, it is recommended to remove the bypass valve.

In addition:

- The manufacturer primarily recommends the fan coil for use in heating applications paired with an HTP heating appliance.
- This fan coil is capable of heating or cooling when installed with other equipment not included with the fan coil (e.g. boiler for heating, a chiller for cooling, or a reversible heat pump for heating and cooling).
- This fan coil is not capable of switching a heat pump between heating and cooling.

Consult with an experienced, certified HVAC professional to discuss the many options available for integrating this product into your HVAC system.

## Part 3 - Technical Specifications

### A. Specifications

Model		VFC-9P**	VFC-14P**	VFC-20P**	VFC-25P**	VFC-32P**
Heating Capacity (1)	W	2550	3950	5750	7200	9400
	BTU/hr	8700	13500	19600	24600	32000
Water Flow Rate (1)	Gallons / Min	0.97	1.50	2.16	2.73	3.56
Pressure Drop (1)	psig	1.54	1.77	3.80	3.99	4.09
Heating Capacity (2)	W	1350	2500	3350	4300	5200
	BTU/hr	4600	8500	11400	14600	17800
Water Flow Rate (2)	Gallons / Min	1.01	1.89	2.55	3.26	3.92
Pressure Drop (2)	psig	1.57	1.90	3.99	4.05	4.13
Cooling Capacity (3)	W	1000	1900	2500	3500	4350
	BTU/hr	3400	6500	8500	12000	14800
Water Flow Rate (3)	Gallons / Min	0.75	1.45	1.89	2.64	3.30
Pressure Drop (3)	psig	1.61	1.93	4.02	4.10	4.44
Air Volume	CFM	94	188	270	340	381
Noise (4)	dB (A)	30	32	37	39	41
Power Supply	/	110 - 220V ~ /60 Hz				
Power Input	W	12	16	20	24	30
Water In / Out	NPT	3/4"				
Drain	inch	0.63				
Shipping Weight (est.)	lb	38	47	53	62	69

Table 1 - Fan Coil Technical Specifications (5) - \*\* "WV" Denotes White Models with Valve; "B" Denotes Black Models without Valve

#### Test Conditions

- (1) Heating test conditions based on input water temperature of 158°F, difference in temperature of 50°F, and entering air temperature of 68°F DB.
- (2) Heating test conditions based on input water temperature of 122°F, difference in temperature of 41°F, and entering air temperature of 68°F DB.
- (3) Cooling test conditions based on input water temperature of 44.6°F, difference in temperature of 41°F, and entering air temperature of 66.2 / 80.6°F DB.
- (4) Noise level is measured in the standard anechoic chamber <17dB(A).
- (5) Above data is subject to change without notification.

#### Working Conditions

Heating: Ambient temperature of 41 - 84.2°F, Inlet Water temperature of 95 - 158°F  
Cooling: Ambient temperature of 48.2 - 95°F, Inlet Water temperature of 41 - 68°F

**B. Dimensions**

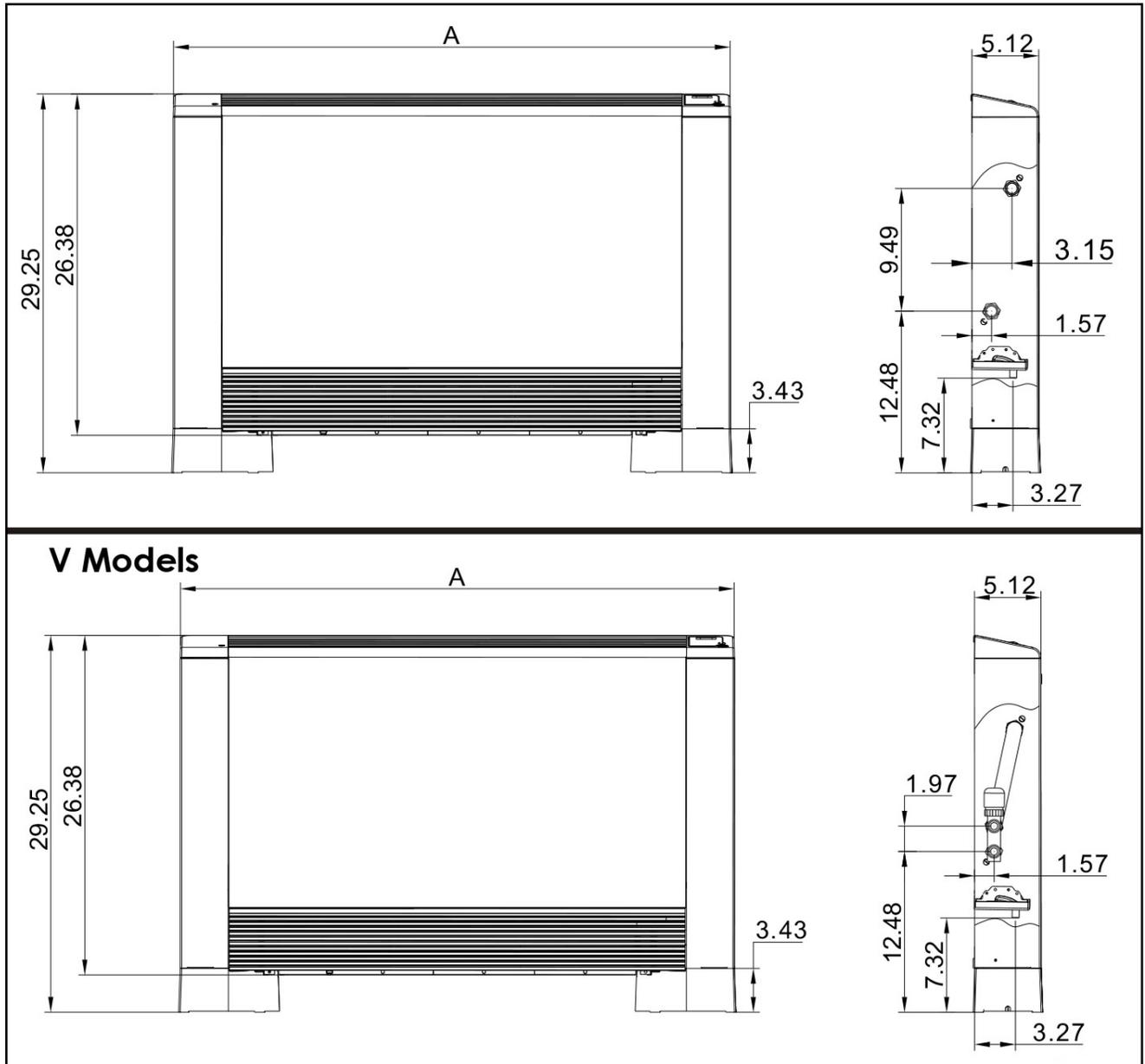


Figure 3 - Overall Product Dimensions

Model	VFC-9P**	VFC-14P**	VFC-20P**	VFC-25P**	VFC-32P**
Dimension A (Inches)	27.56	35.43	43.31	51.18	59.06

Table 2 - Fan Coil Dimensions - \*\* "WV" Denotes White Models with Valve; "B" Denotes Black Models without Valve

**C. Description of Operation**

The Ultra Thin Hydronic Fan Coil uses water to provide heated air in the winter and cooled, dehumidified air in the summer. Incoming air is drawn up through the fan coil and either heated or cooled (depending on installation) over the water pipes before being directed out of the top.

Compared with traditional fan coils, the Ultra Thin hydronic Fan Coil is thinner, quieter, and more aesthetically pleasing, and can be installed in various ways, such as floor installation, wall installation, ceiling installation and concealed installation, thus reducing installation costs.

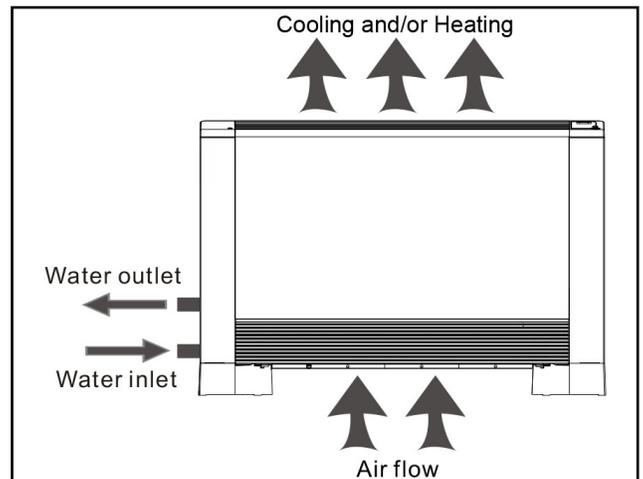


Figure 4 - Description of Operation

## Part 4 - Installation

### A. Precautions

Carefully follow these instructions to ensure correct fan coil installation and proper operation. Failure to follow these instructions can result in appliance malfunction and WILL VOID the warranty.

It is important that the electrical installation be made according to the National Electrical Code and local rules and regulations while following the data indicated in the technical specifications in this manual. Ensure the fan coil is properly grounded.

The fan coil must be installed in a position that allows for routine maintenance, such as filter cleaning.

### B. Positioning the Fan Coil

**Avoid installing the unit in proximity to:**

- Positions subject to exposure to direct sunlight;
- Heat sources;
- Damp areas or places with probable contact with water;
- Places with oil fumes;
- Places subject to high frequencies.

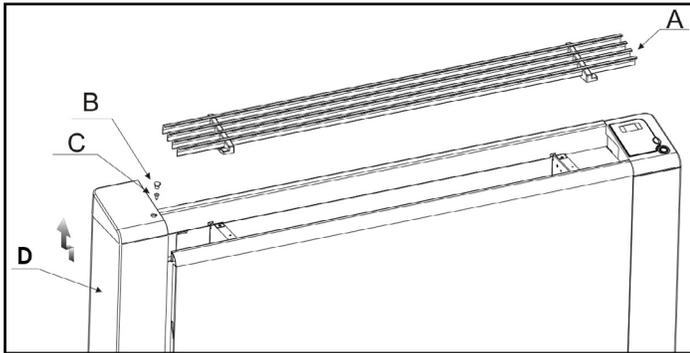
**Ensure that:**

- The wall on which the fan coil is installed is strong enough to support the weight;
- The wall does not have pipes or electrical wires passing through it;
- The wall is flat and level;
- There are no obstacles which could interfere with inlet and outlet air flow;
- The wall is preferably on the outer perimeter to allow discharge of condensate outdoors.

### C. Mounting

1. Dismount the upper grill by removing the fixing screws. See Figure 5, ref A.

2. Lift the cover (Figure 5, B) that protects the screws (Figure 5, C) and remove the screws. Move the side panel slightly and lift it out (Figure 5, D).



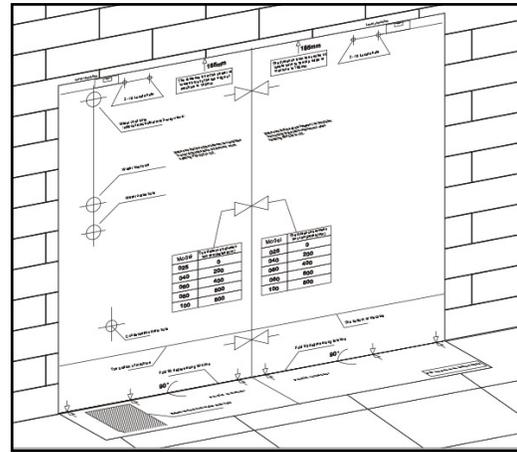
**Figure 5 - Removing the Side Panel**

3. Use the included paper template to trace the mounting position on the wall. See Figure 6.

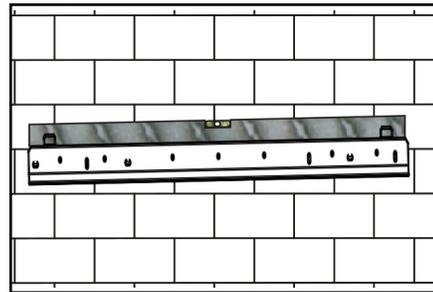
4. Place the mounting brackets on the wall over the traced holes and check them with a level. See Figure 7.

5. If level, use a suitable drill to make the mounting holes and insert the toggle bolts (two [2] bolts each bracket). See Figure 8, A.

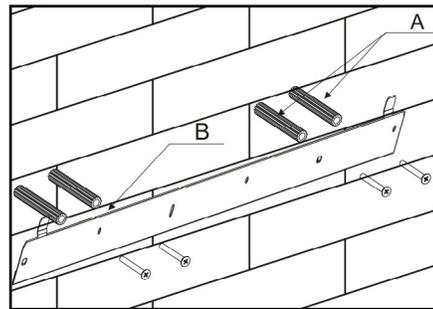
6. Check the brackets again with a level. See Figure 7. If level, tighten the two brackets. See Figure 8, B.



**Figure 6 - Mounting Template**



**Figure 7 - Leveling the Brackets**



**Figure 8 - Mounting the Bracket**

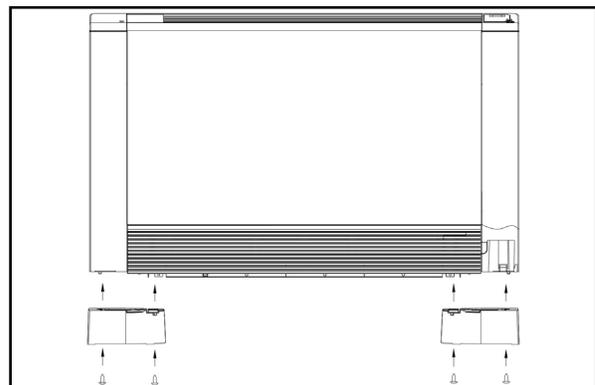
7. Mount the optional feet before installing the unit on the floor.

a. First, lay the unit down.

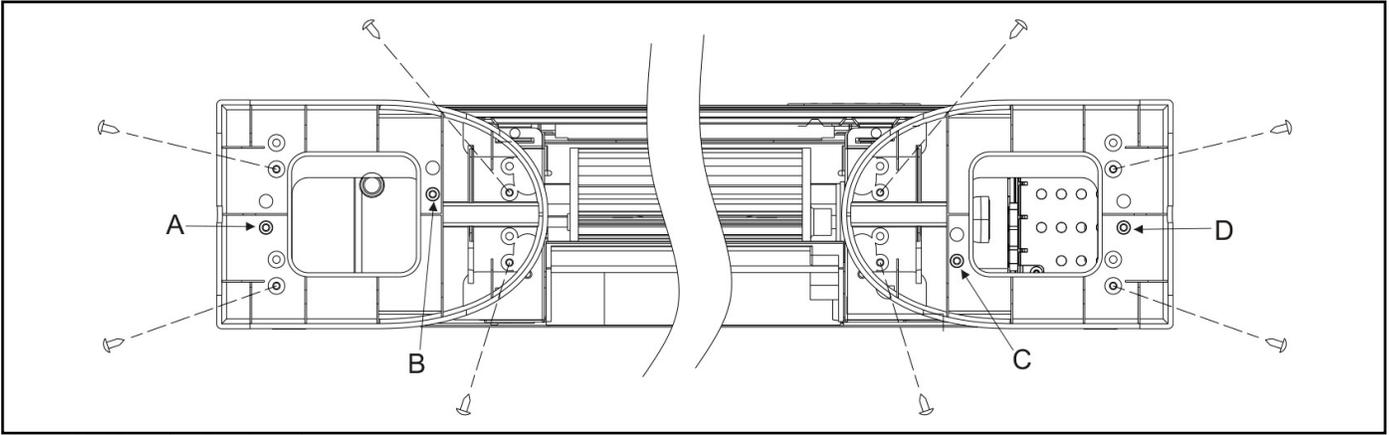
b. Next, remove the screws and two (2) feet from the accessories bag.

c. Position the feet so that the screw holes A / B / C / D match up with the holes on the unit. See Figures 9 and 10.

d. Use four (4) screws on each foot to properly install the feet to the fan coil. See Figure 10.

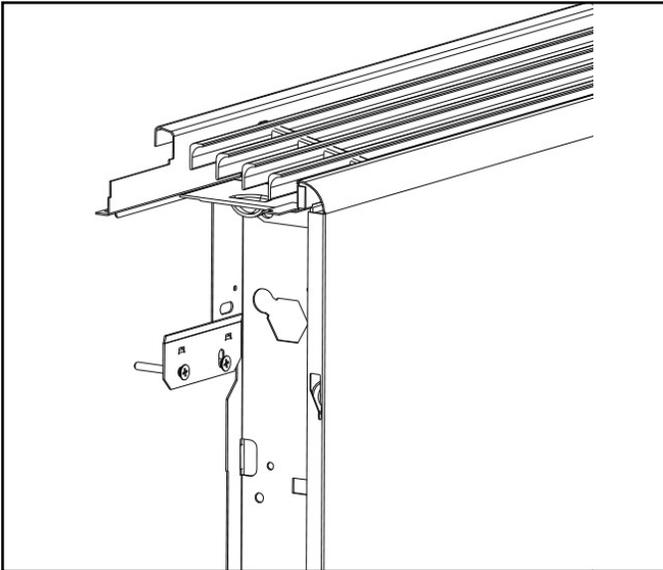


**Figure 9 - Mounting the Optional Feet**

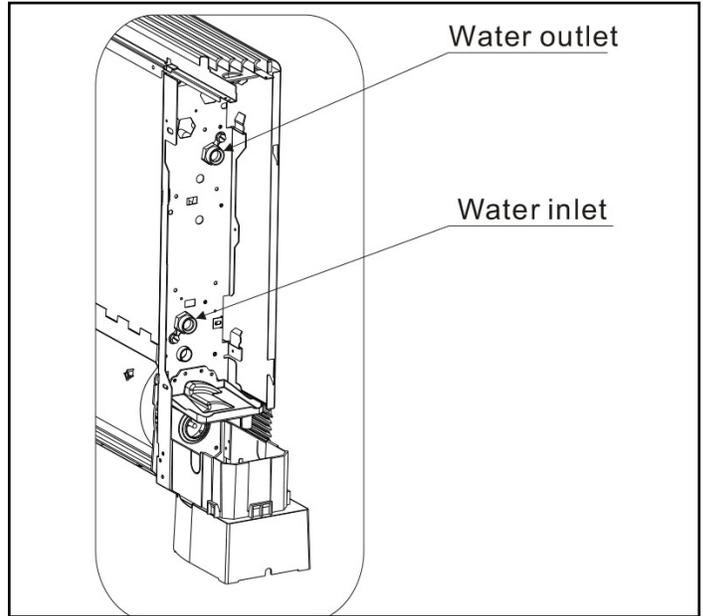


**Figure 10 - Mounting Feet Locations**

8. Mount the fan coil onto the mounting brackets. Ensure that the fan coil is stable and level. See Figure 11.



**Figure 11 - Mounting the Fan Coil to the Bracket**



**Figure 12 - Water Inlet and Outlet without Valves**

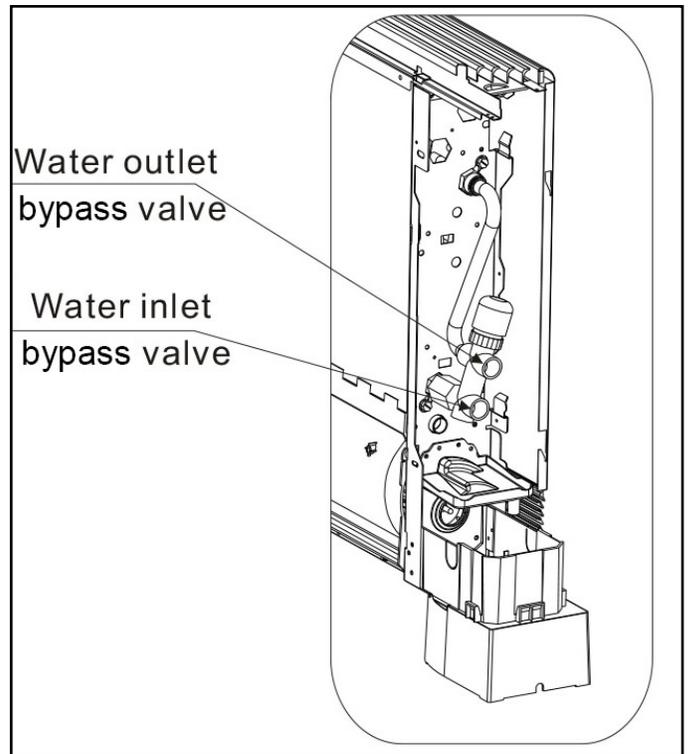
**D. Water Piping**

Refer to Figures 12 through 17 for water piping applications.

**CAUTION**

- The water lines should be kept as short as possible.
- The piping system should be clean, with no sediment, corrosion, or jams in the pipeline. Sediment, corrosion, or jams could lead to water leakage.
- The water lines should be connected to the water tank and the height of the water should be 19.69" higher.
- Y type filter should be installed in the water inlet of the unit.
- Air release valve should be installed above the water lines to prevent air retention.
- Piping system should be pressure tested separately and not with the fan coil.

Failure to follow these instructions could result in property damage and WILL VOID product warranty.



**Figure 13 - Water Inlet and Outlet with Valves**

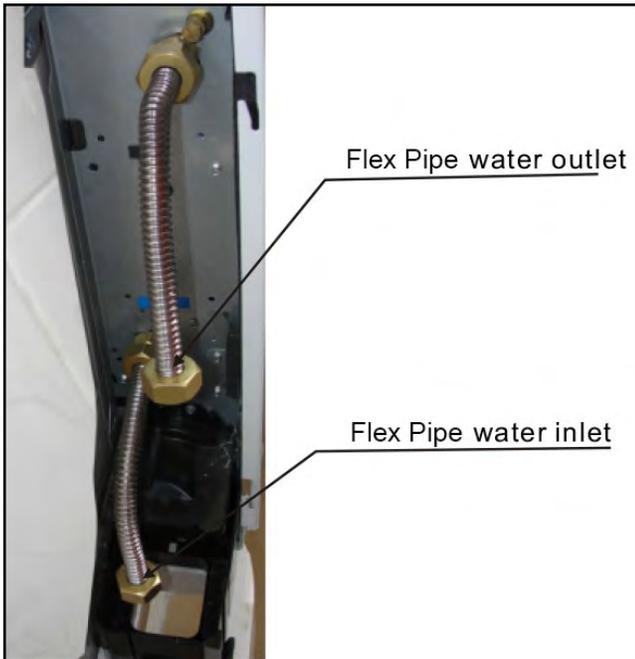


Figure 14 - Flex Pipe Installation Downward to Inlet and Outlet without Valves - Type 1 - Optional

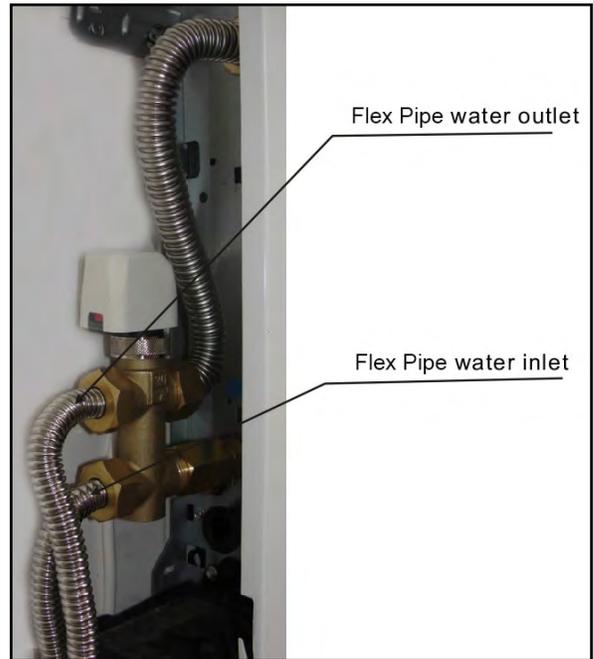


Figure 16 - Flex Pipe Installation Downward to Inlet and Outlet with Valves - Type 1 - Optional

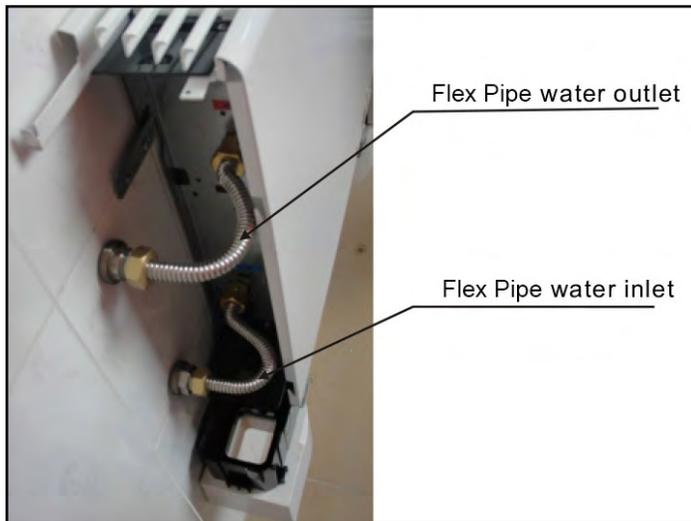


Figure 15 - Flex Pipe Installation Backward to Inlet and Outlet without Valves - Type 2 - Optional

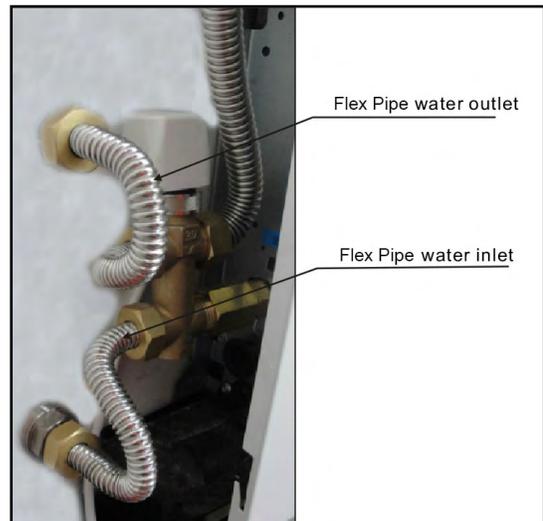


Figure 17 - Flex Pipe Installation Backward to Inlet and Outlet with Valves - Type 2 - Optional

**E. Condensate Piping**

When installing the condensate discharge device in vertically mounted fan coils, connect the condensate collection tray discharge union (Figure 18, C) to a pipe (Figure 18, B), and pipe discharge to a drain. The discharge pipe must be adequately sized (minimum inside diameter of 0.63 inches).

**CAUTION**

- When discharging directly into open drains it is advisable to make a siphon to prevent odors from the pipe entering the room. The curve of the siphon must be lower than the condensate collection orifice.
- If the condensate is to be discharged into a container, the pipe must be open to the atmosphere and the terminal must not be submerged in water to avoid vacuum locks that would interfere with normal outflow.

Failure to follow these instructions could result in property damage and WILL VOID product warranty.

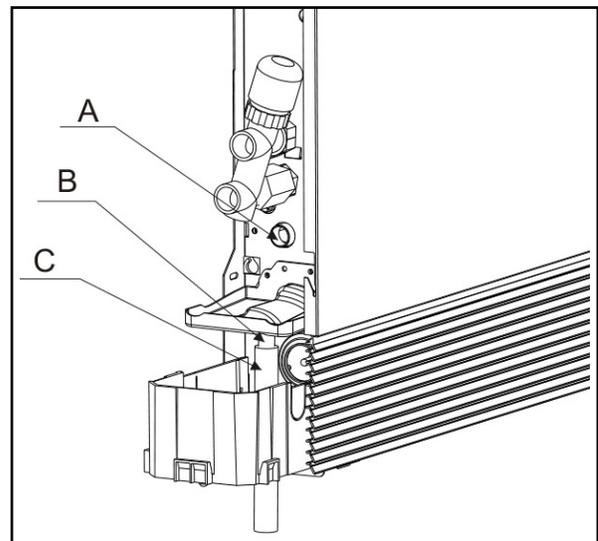


Figure 18 - Condensate Detail

**F. Purging**

Begin filling the system by opening the inlet and outlet valves. Use a screwdriver to open the purge screw. See Figure 19, A. When water starts coming out, close the purge screw. Continue filling the system until it reaches the nominal pressure value. Check the seals of the gaskets and ensure there are no leaks.

It is advisable to repeat this procedure after the appliance has been running for a few hours and periodically check the pressure of the system.

**NOTE:** If the system is powered and a thermo-valve is installed, use a special cap to press the valve stopper and open the valve.

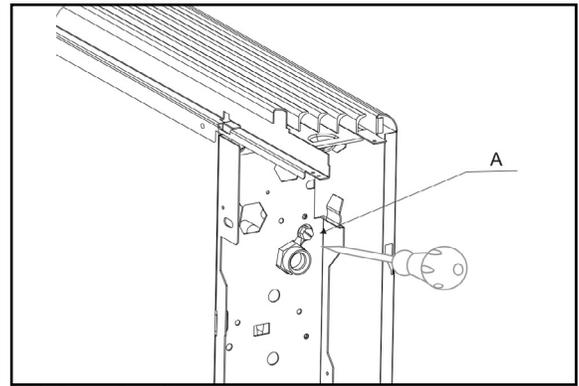


Figure 19 - Air Purge Detail

**Part 5 - Operation**

**A. Control Description**

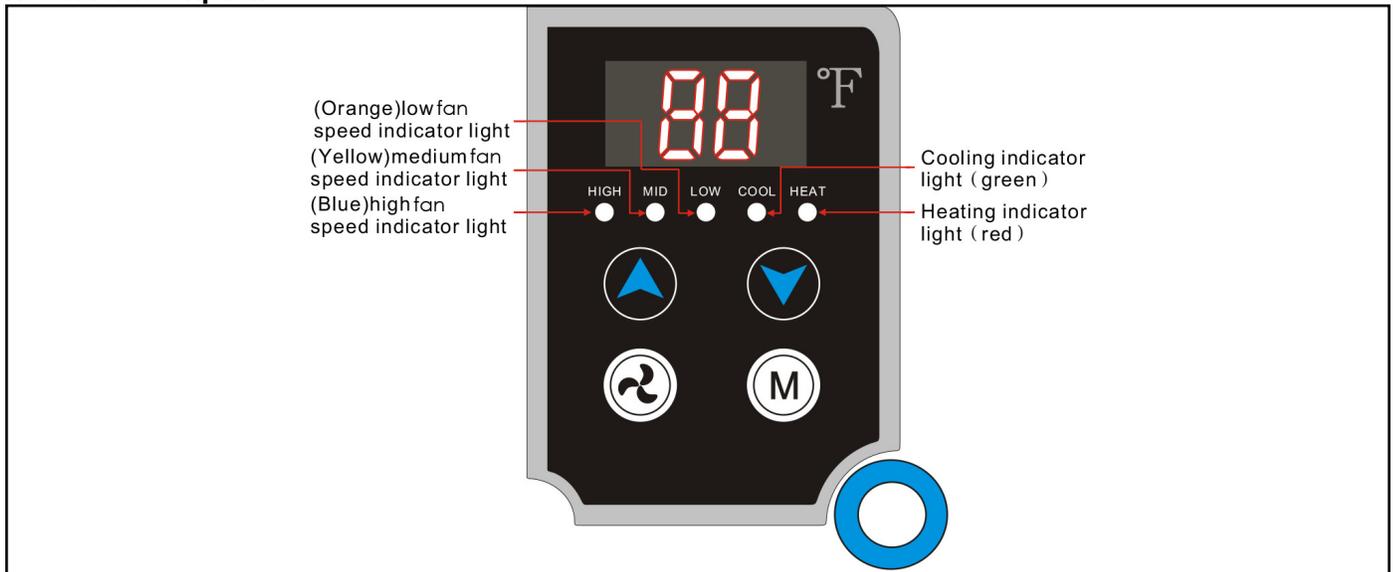


Figure 20 - Display and Control Detail

<b>Power Button</b>	
Pressing this button turns the fan coil on and off.	
<b>Mode Button</b>	
<p><b>Cooling Mode:</b> Green Cooling Indicator Light turns on</p> <p><b>Heating Mode:</b> Red Heating Indicator Light turns on</p> <p><b>Automatic Mode:</b> Either the Cooling or Heating Indicator Light will turn on depending on Fan Coil function</p> <p><b>Ventilating Mode:</b> Cooling and Heating Indicator Lights remain off. The High, Mid, or Low fan speed indicator will be on</p> <p><b>Dehumidifying Mode:</b> The Cooling Indicator Light flashes on for two seconds and off for one second</p> <p><b>NOTE:</b> Mode Changes can only be completed on the main interface.</p>	
<b>Fan Speed Button</b>	
<p><b>High Fan Speed:</b> The Blue High Fan Speed Indicator Light turns on</p> <p><b>Medium Fan Speed:</b> The Yellow Medium Fan Speed Indicator Light turns on</p> <p><b>Low Fan Speed:</b> The Orange Low Fan Speed Indicator Light turns on</p> <p><b>Automatic:</b> The High, Medium, or Low Fan Speed Indicator Lights will turn on depending on Fan Coil function</p> <p><b>NOTE:</b> Fan Speed Changes can only be completed on the main interface. Automatic Fan Speed cannot be selected while in Ventilating Mode. In Dehumidifying Mode, the Fan Speed will be fixed at low speed.</p>	
<b>Up Arrow</b>	
Check the temperature setting by pressing this button once. Increase the temperature setting by pressing this button again.	
<b>Down Arrow</b>	
Check the temperature setting by pressing this button once. Decrease the temperature setting by pressing this button again.	

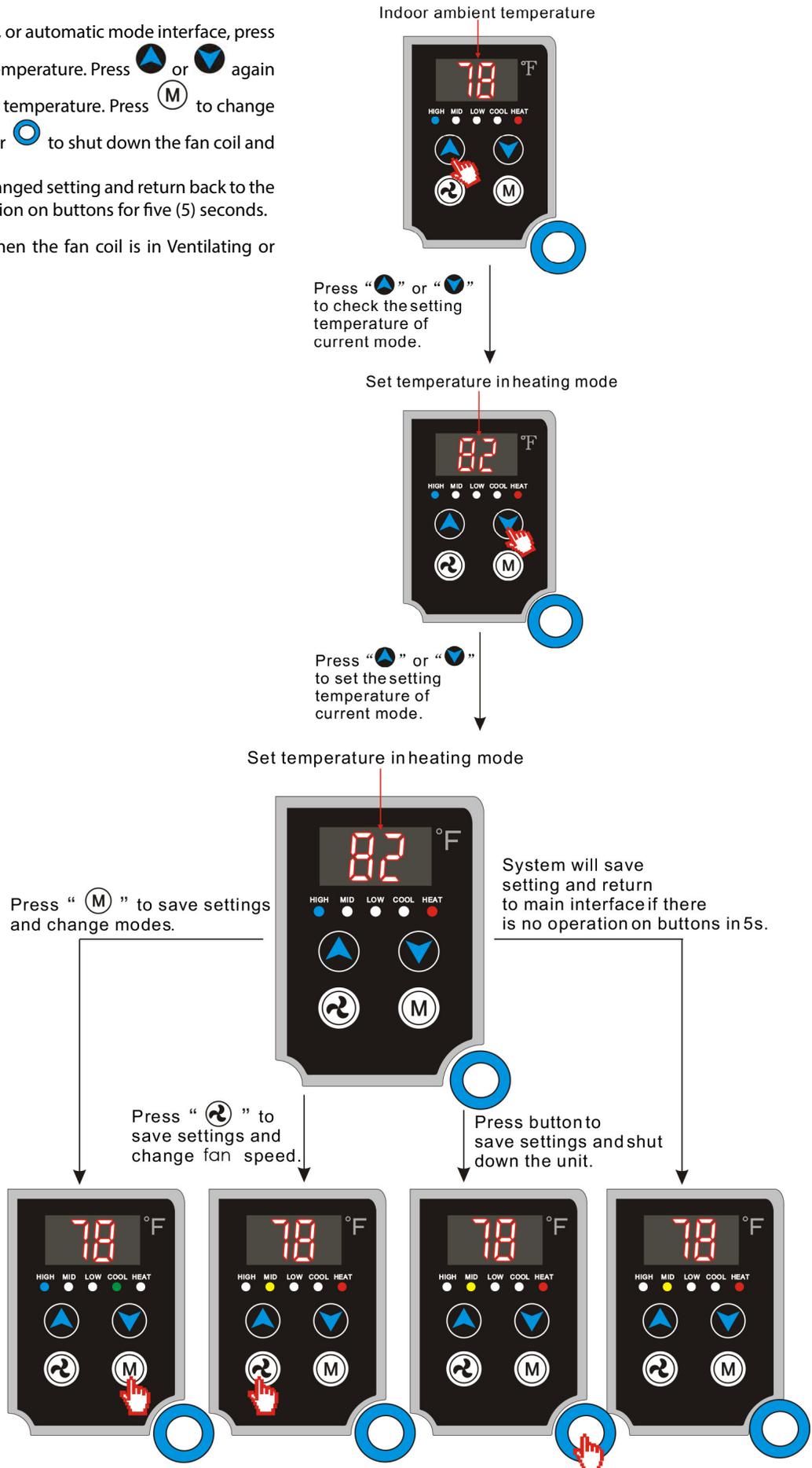
Table 3 - Display and Control Descriptions

**B. Setting the Temperature**

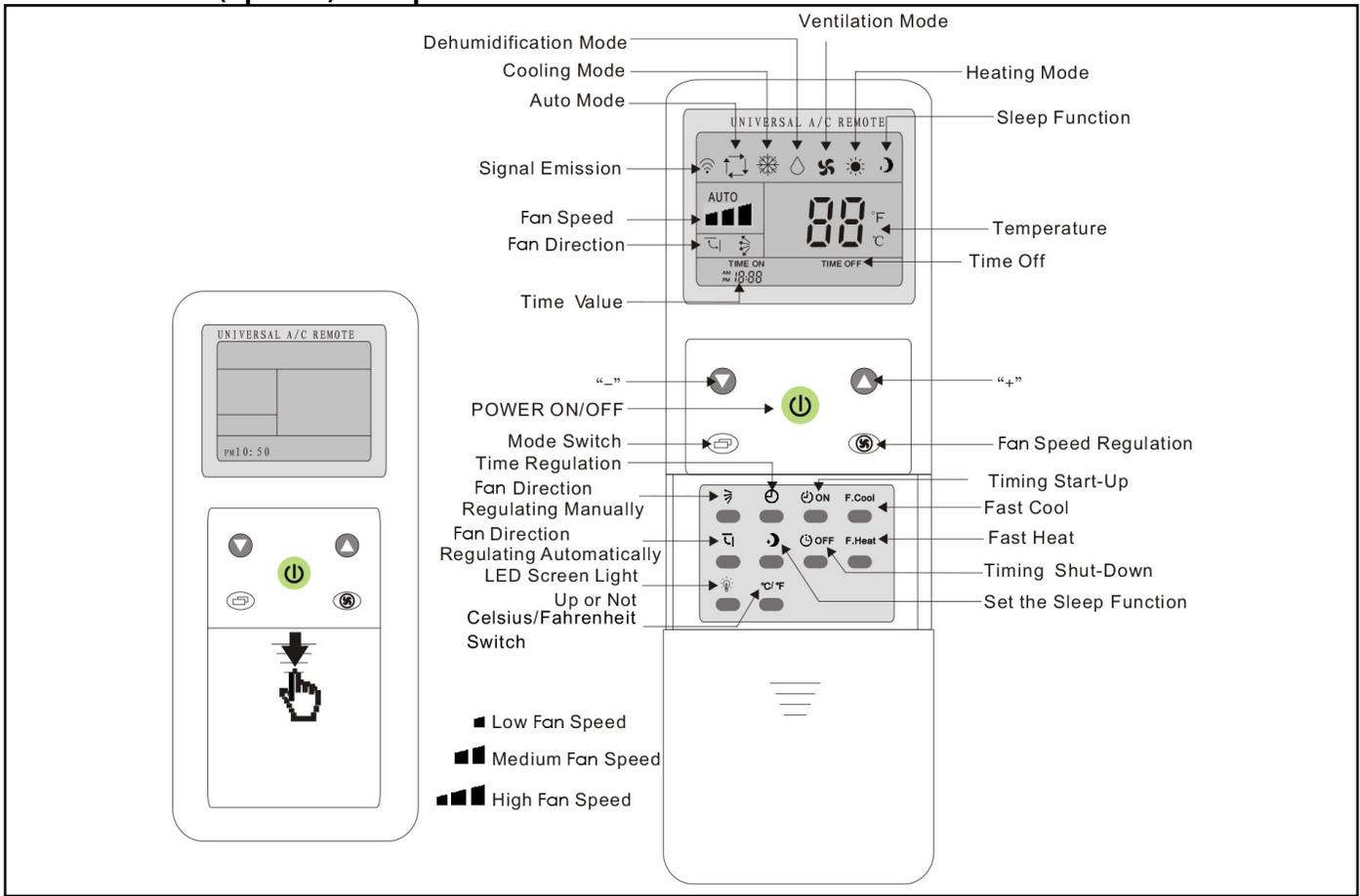
When at the main heating, cooling, or automatic mode interface, press or to check the setting temperature. Press or again to increase or decrease the setting temperature. Press to change mode, to change fan speed, or to shut down the fan coil and save settings.

**NOTE:** The control will save any changed setting and return back to the main interface if there is no operation on buttons for five (5) seconds.

**NOTE:** or are invalid when the fan coil is in Ventilating or Dehumidifying Mode.



**C. Remote Control (Optional) Description**



**Figure 21 - Remote Control Detail**

<b>Power Button</b>	
Pressing this button turns the fan coil on and off.	
<b>Mode Button</b>	
Press this button to choose from the Automatic, Cooling, Dehumidifying, Ventilating, and Heating Modes.	
<b>Fan Speed Button</b>	
Press this key to choose from High, Medium, and Low Fan Speeds.	
<b>Up Arrow</b>	
Increase the setting by pressing this button.	
<b>Down Arrow</b>	
Decrease the setting by pressing this button.	

**Table 4 - Display and Control Descriptions**

**NOTE:** Take out the batteries from the remote if it is not to be used for a long time. If the remote is not working properly, take out the batteries for thirty-five (35) minutes to allow it to reset. Replace the batteries. The remote should work normally.

**D. Using the Remote Control**

**1. F. Cool and F. Heat Function**

Press the “F. Cool” or “F. Heat” buttons to automatically set the fan coil to either Cooling or Heating Mode at high fan speed.

**2. Time Setting**

Press and hold the button until the time value flashes. Adjust the current time value by pressing to increase or to decrease. To save the time setting, press the button again.

**NOTE:** A 12 hour clock displays the current time value. A 24 hour clock is not available.

**3. Timing Start-Up or Timing Shut-Down**

**NOTE:** Timing Start-Up is only available when the fan coil IS NOT operating. DO NOT shut power supply off to the fan coil when setting Timing Start-Up. Timing Shut-Down is only available when the fan coil IS operating.

Press the Timing Start-Up button while the fan coil is not operating to set Timing Start-Up. Use the or buttons to set the number of hours the fan coil will operate. The unit will automatically begin to operate one hour after setting Timing Start-Up.

**NOTE:** The range of Timing Start-Up is from 1 to 11 hours. If the setting is over 11 hours the Timing Start-Up setting will be cancelled.

Press the Timing Shut-Down  OFF button while the fan coil is operating to set Timing Shut-Down. Use the  or  buttons to set the number of hours the fan coil will operate. The unit will automatically stop operating one hour after setting Timing Shut-Down.

**NOTE:** The range of Timing Shut-Down is from 1 to 11 hours. If the setting is over 11 hours the Timing Shut-Down setting will be cancelled.

**4. Sleep Function**

**NOTE:** The Sleep Function can only be set while the fan coil is in Heating or Cooling Mode.

- a. To begin or cancel the Sleep Function, press the  button.
- b. When the Sleep Function is activated, the  icon will be shown on the top right corner of the remote control's LCD screen. "TIME OFF" and "7" will be shown on the lower right corner of the LCD screen. This means that the fan coil will automatically shut down seven (7) hours after setting the Sleep Function. To change the amount of hours or cancel the time setting altogether, press the  OFF key.
- c. One (1) hour after setting the Sleep Function, the fan speed will automatically reduce to low. However, while Sleep Function is set, fan speed can be changed by pressing .
- d. Two (2) hours after setting the Sleep Function in Cooling Mode the temperature setting will increase 1°C or about 2°F per hour.
- e. Three (3) hours after setting the Sleep Function in Heating Mode the temperature setting will decrease 1°C or about 2°F per hour.

**5. Change Temperature Measurement**

Press  to switch Temperature Measurement from Celsius to Fahrenheit.

**6. Illuminate the LED Screen**

Press the  key to light or turn off the LED Screen on the fan coil.

**E. Default Settings**

Mode	Default Setting
Cooling Temperature	75.2°F
Heating Temperature	82.4°F
Automatic Setting Temperature	71.6°F

Table 5 - Default Settings - NOTE: Temperatures are Adjustable

**F. Parameter List**

Number	Detail	Range	Default
01	Target Temp. High Limit	16 - 205°F	86°F
02	Target Temp. Low Limit	16 - 205°F	46°F
03	Target Cooling Temp.	Para 02 - Para 01	78°F
04	Target Heating Temp.		68°F
05	Auto Mode Target Cooling Temp.		78°F
06	Auto Mode Target Heating Temp.		68°F
07	In Heating Mode, if the coil temp. is lower than this set temperature the fan will shut off.	41 - 104°F	77°F
08	In Cooling Mode, if the coil temp. is higher than 68°F the fan will shut off.	0 (Off or No) - 1 (On or Yes)	1
09	Turn on Ultra Low Fan Speed		0
10	Is a Water Valve Installed?		1
11	Is the system used for radiant floor heating?		0
12	Fahrenheit or Celsius	0 (C) - 1 (F)	1
13	Is the fan coil used as the main temperature controller?	0 (No) - 1 (Yes)	0

Number	Detail	Range	Default
14	Address	1 - 99	15
15	Lock the Control?	0 (No) - 1 (Yes)	0
16	Use the Remote Control while the Main Control is Locked?		1
17	Require a password to unlock the control?		0
18	Password 1	0 - 99	50
19	Password 2		
20	In standby mode, the fan turns on and off intermittently.	0 (No) - 1 (Yes)	1

Table 6 - Parameter Settings - NOTE: Temperatures are Adjustable

**Part 6 - Maintenance and Troubleshooting**

**A. Cleaning**

**WARNING**

DO NOT carry out any maintenance or cleaning on the fan coil before turning off the power supply. Failure to adhere to these guidelines can result in substantial property damage, electric shock, severe personal injury, or death.

To promote fan coil reliability and safety it is recommended to maintain and clean it a minimum of every six months. Some installation conditions may require more frequent cleaning.

To clean the filter:

1. Open the grill at the fan coil. Using a flat head screwdriver to gently pry the top of the grill may aid in this process. See Figure 22.
2. Open the grill. See Figure 23.

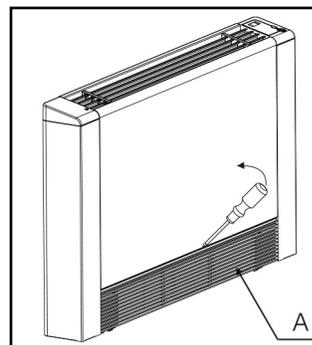


Figure 22 - Opening the Grill

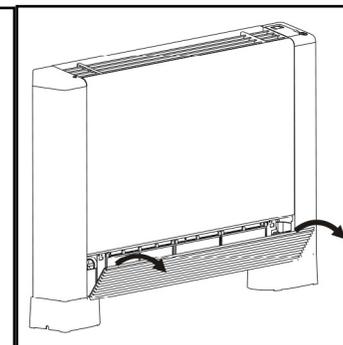


Figure 23 - Opening the Grill

3. Lift out the grill (Figure 24). Remove it and set it aside (Figure 25).

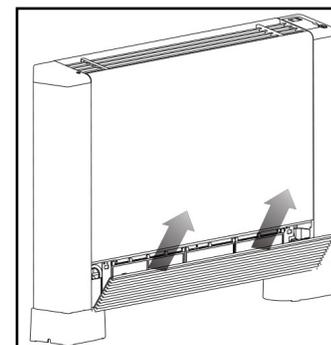


Figure 24 - Lifting Out the Grill

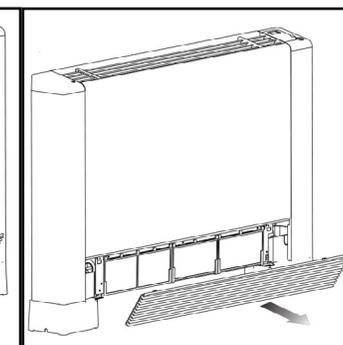
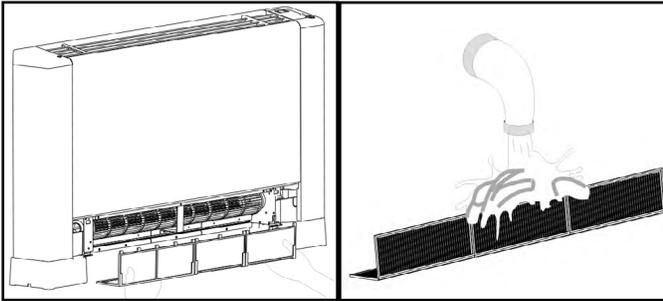


Figure 25 - Removing the Grill

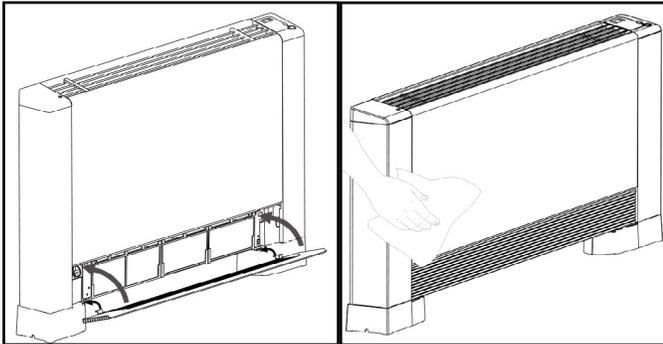
4. Remove the filter (Figure 26).
5. Wash the filter with water (Figure 27).



**Figure 26 - Removing the Filter**      **Figure 27 - Washing the Filter**

6. Dry and reinstall the filter in the fan coil. Then clean and dry the grill and reinstall it. See Figure 28.
7. Use a soft and damp rag to clean the outer body of the fan coil. See Figure 29.

**NOTE:** To protect the paint coat DO NOT use rough sponges or corrosive detergents to clean the fan coil.



**Figure 28 - Reinstalling the Filter**      **Figure 29 - Cleaning the Unit**

**B. Common Faults and Solutions**

The following table describes common fault codes and their usual solutions.

Fault Code	Malfunction	Cause	Solutions
<b>P4</b>	Indoor ambient temperature sensor	Ambient temperature sensor is open or shorted	Check or replace the ambient temperature sensor
<b>P5</b>	Coil temperature sensor	Coil temperature sensor is open or shorted	Check or replace the coil temperature sensor
<b>P6</b>	Motor feedback signal	Feedback wire is not properly wired or fan motor has failed	Check the feedback wire or replace the fan motor

**Table 7 - Fault Code Table**

**Part 7 - Wiring**

**⚠ WARNING**

DO NOT wire the fan coil before turning off the power supply. Failure to ensure the power is off before wiring the fan coil can result in substantial property damage, electric shock, severe personal injury, or death.

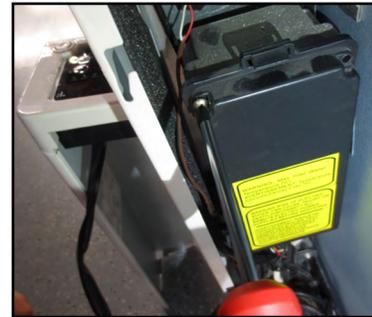
**Connecting the Thermostat Wire Harness**

1. After the fan coil is powered off, lift the plastic cover on the control and use a small flat head screwdriver or needlenose pliers to remove the plug covering the screw. Then use a Phillips head screwdriver to remove the screw securing the side panel to the fan coil. See Figure 30.



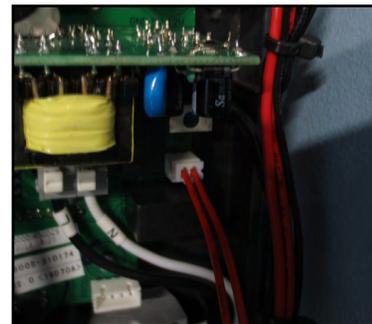
**Figure 30 - Removing / Reinstalling the Side Panel Screw**

2. Lift and remove the side panel. Place it gently in front of the fan coil. This process can be done by hand.
3. Use a Phillips head screwdriver to remove the four (4) screws connecting the internal wiring cover. See Figure 31. Remove the internal wiring box cover.



**Figure 31 - Removing / Reinstalling the Internal Wiring Cover**

4. Connect the Thermostat Wire Harness to the control board. See Figure 32.



**Figure 32 - Connected Thermostat Wire Harness**

5. Connect the Boiler Thermostat or Heat Pump On/Off to the Wire Harness using the provided push-on connectors.
6. Run the connected wire down toward the bottom of the internal wiring box. Reinstall the internal wiring box cover with the screws removed in Step 3.
7. Run the wire through the knockout provided on the bottom of the side panel. Reinstall the side panel by hand as described in step 1. Then reinstall the screw and plug removed in step 1.
8. Restore power to the fan coil. Ensure the unit operates properly.

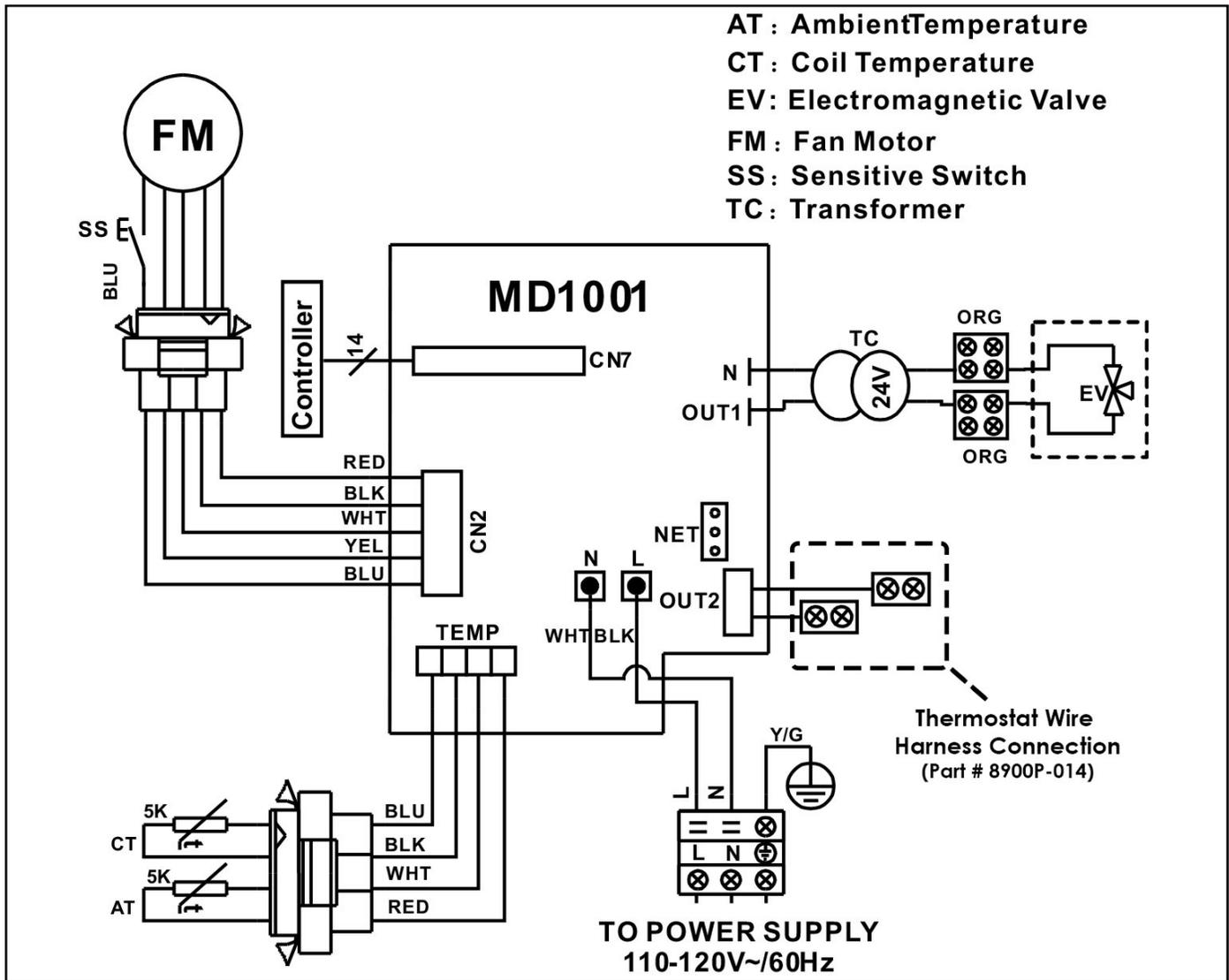


Figure 33 - Internal Wiring

No.	Signal	Definition
1	CN4	Fan Output
2	PROG1	Programming Port
3	CN7	To Control
4	FAN	Fan Feedback
5	TEMP	To Ambient and Coil Temperature
6	N OUT	To Valve
7	L	Live Wire
8	N	Neutral Wire
9	NET1	Communication or On-Line Port
10	OUT2	TT for Boiler (On/Off for Heat Pump)
11	TC	Transformer

Table 8 - Wiring Descriptions

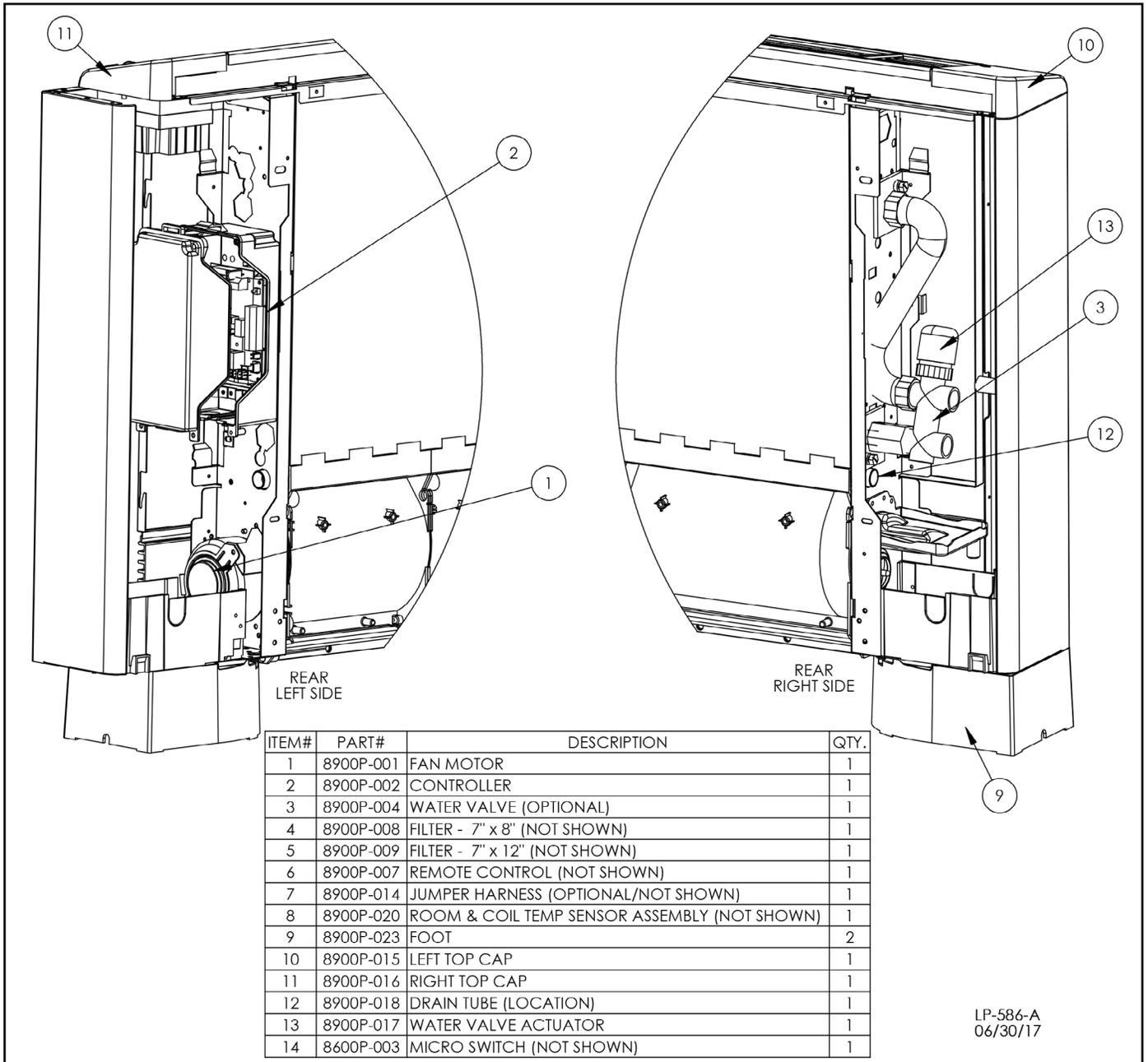


Figure 34 - Replacement Parts

**Ultra Thin Hydronic Fan Coil  
Limited Five (5) Year Warranty  
For Residential and Commercial Use**

HTP warrants each ultra thin hydronic fan coil and its components to be free from defects in materials and workmanship according to the following terms, conditions, and time periods. UNLESS OTHERWISE NOTED THESE WARRANTIES COMMENCE ON THE DATE OF INSTALLATION. This limited warranty is only available to the **original consumer purchaser** (hereinafter "Owner") of the fan coil, and is non-transferable.

**COVERAGE**

A. During the first year after the original date of installation in the dwelling, HTP warrants that it will repair or replace, at its option, any defective or malfunctioning component of the hydronic fan coil that is found to have failed due to manufacturer's defect. Replacement components will be warranted for ninety (90) days.

B. Should a defect or malfunction result in a leakage of water from the fan coil within the above-stated warranty periods due to defective material or workmanship, malfunction or failure to comply with the above warranty, with such defect or malfunctioning having been verified by an authorized HTP representative, HTP will replace the defective or malfunctioning fan coil with a replacement of the nearest comparable model available at the time of replacement. The replacement fan coil will be warranted for the unexpired portion of the applicable warranty period of the original fan coil.

C. In the event of a leakage of water of a replacement fan coil due to defective material or workmanship, malfunction, or failure to comply with the above warranty, HTP reserves the right to refund to the Owner the published wholesale price available at the date of manufacture of the original fan coil.

D. If, at the time of a request for service the Owner cannot provide a copy of the original sales receipt or the warranty card registration, the warranty period for the fan coil shall then be deemed to have commenced thirty (30) days after the date of manufacture of the fan coil and NOT the date of installation of the fan coil.

E. If government regulations, industry certification, or similar standards require the replacement fan coil or component(s) to have features not found in the defective fan coil or component(s), the Owner will be charged the difference in price represented by those required features. If the Owner pays the price difference for those required features and/or to upgrade the size and/or other features available on a new replacement fan coil or component(s), the Owner will also receive a complete new limited warranty for that replacement fan coil or component(s).

F. This warranty extends only to fan coils utilized in applications that have been properly installed by qualified professionals based upon the manufacturer's installation instructions.

G. It is expressly agreed between HTP and the Owner that repair, replacement, or refund are the exclusive remedies of the Owner.

H. HTP will not accept claims from the Owner for labor costs incurred by any person as a result of the repair, replacement, removal, or reinstallation of a fan coil or any component thereof.

**OWNER RESPONSIBILITIES**

The Owner or Installer must:

1. Maintain the fan coil in accordance with the maintenance procedure listed in the manufacturer's provided instructions. Preventive maintenance can help avoid any unnecessary breakdown of the fan coil.
2. Maintain all related system components in good operating condition.
3. Keep the fan coil free of damaging scale deposits.
4. Make provisions so if the fan coil or any component or connection thereto should leak, the resulting flow of water will

not cause damage to the area in which it is installed.

**WARRANTY EXCLUSIONS**

This limited warranty will not cover:

1. Any fan coil purchased from an unauthorized dealer.
2. Any fan coil not installed by a qualified heating installer/service technician, or installations that do not conform to any applicable national or local building codes.
3. Service trips to teach the Owner how to install, use, maintain, or to bring the fan coil installation into compliance with local building codes and regulations.
4. Failure to locate the fan coil in an area where leakage of the fan coil or water line connections will not result in damage to the area adjacent to the fan coil or lower floors of the structure.
5. Any failed components of the system not manufactured by HTP as part of the fan coil.
6. Fan coils repaired or altered without the prior written approval of HTP.
7. Damages, malfunctions, or failures resulting from improper installation, or failure to install the fan coil in accordance with applicable building codes/ordinances or good plumbing and electrical trade practices; or failure to operate and maintain the fan coil in accordance with the manufacturer's provided instructions.
8. Damages, malfunctions, or failures resulting from failure to operate the fan coil at pressures not exceeding the working pressure shown on the rating label.
9. Failure or performance problems caused by improper sizing of the fan coil or piping, electric service voltage, wiring or fusing.
10. Damages, malfunctions, or failures caused by operating the fan coil with modified, altered, or unapproved components, or any component / attachment not supplied by HTP.
11. Damages, malfunctions, or failures caused by abuse, accident, fire, flood, freeze, lightning, acts of God and the like.
12. Failure of the fan coil due to the accumulation of solid materials or lime deposits.
13. Any damage or failure resulting from improper water chemistry. WATER CHEMISTRY REQUIREMENTS – Sodium less than 20mg/L. Water pH between 6.0 and 8.0. Hardness less than 7 grains. Chlorine concentration less than 100 ppm.
14. Fan coils replaced for cosmetic reasons due to damages to the exterior (scratches, dents, etc.)
15. Components of the fan coil that are not defective, but must be replaced during the warranty period as a result of reasonable wear and tear.
16. Components of the fan coil that are subject to warranties, if any, given by their manufacturers. HTP does not adopt these warranties.
17. Fan coils installed outside the fifty states (and the District of Columbia) of the United States of America and Canada.
18. Fan coils moved from the original installation location.
19. Fan coils that have had their rating labels removed.
20. Any labor charges incurred by any person in connection with the examination or replacement of a fan coil or parts claimed by the Owner to be defective.

**PROCEDURES FOR WARRANTY SERVICE REQUESTS**

Any claim for warranty assistance must be made immediately upon finding the issue. First, please consult the HTP Warranty Wizard (<http://www.htproducts.com/Warranty-Wizard.html>) to check warranty eligibility. You may also contact HTP Technical Support at 1-800-323-9651 for questions or assistance. Warranty coverage requires review and approval of the issue with HTP Technical Support or through the Warranty Wizard prior to a full unit replacement. Any claim for warranty reimbursement will be rejected if prior approval from HTP is not obtained in advance of a full unit replacement. Final determination will be made as part of the warranty claim process.

**When submitting a warranty claim the following items are required:**

**1. Proof of purchase or installation of the product** – Typically a copy of the invoice from the installing contractor, the receipt of the purchase of the product, or an original certificate of occupancy for a new home.

**2. Clear pictures (or video) of the following:**

- a. Serial number tag (sticker)
- b. The product
- c. The product issue / failure whenever possible
- d. A picture of the piping near the product
- e. For gas fired products, a picture of the venting, including how it exits the building

All claims will be reviewed by HTP within three (3) business days. If additional information is required and requested by the HTP Claims Department you will have thirty (30) days to provide it. When all requested information is provided HTP will respond within three (3) business days. The claim will be automatically closed if requested information is not provided within thirty (30) days. Claims will not be reopened without HTP Warranty Supervisor approval.

During the claims process a product that must be replaced will be given a designation of either a) field scrap, or b) return to HTP. If the product must be returned to HTP, the returned product must arrive at HTP within thirty (30) days of the date of our request to return the product. After receipt of the returned product HTP may require as many as thirty (30) additional days for product testing. **NOTE: Any components or heaters returned to HTP for warranty analysis will become the property of HTP and will not be returned, even if credit is denied.**

If you have questions about the coverage of this warranty, please contact HTP at the following address or phone number: HTP, 272 Duchaine Blvd., New Bedford, MA, 02745, Attention: Warranty Service Department, 1(800) 323-9651.

**SERVICE, LABOR AND SHIPPING COSTS**

This limited warranty does not extend to any shipping charges, delivery expenses, or administrative fees incurred by the Owner in repairing or replacing the fan coil or component(s). This warranty does not extend to any labor costs incurred by any person as a result of the repair, replacement, removal, or reinstallation of a fan coil or any component thereof. All such expenses are the Owner's responsibility.

**LIMITATIONS OF THIS HTP WARRANTY AND REMEDIES**  
**THE FOREGOING WARRANTIES ARE EXCLUSIVE AND ARE GIVEN AND ACCEPTED TO THE FURTHEST EXTENT UNDER APPLICABLE LAW IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ANY OBLIGATION, LIABILITY, RIGHT, CLAIM OR REMEDY IN CONTRACT OR TORT, WHETHER OR NOT ARISING FROM HTP'S NEGLIGENCE, ACTUAL OR IMPUTED. THE REMEDIES OF THE OWNER SHALL BE LIMITED TO THOSE PROVIDED HEREIN TO THE EXCLUSION OF ANY OTHER REMEDIES INCLUDING WITHOUT LIMITATION, INCIDENTAL OR CONSEQUENTIAL DAMAGES, SAID INCIDENTAL AND CONSEQUENTIAL DAMAGES INCLUDING, BUT NOT LIMITED TO, PROPERTY DAMAGE, LOST PROFIT OR DAMAGES ALLEGED TO HAVE BEEN CAUSED BY ANY FAILURE OF HTP TO MEET ANY OBLIGATION UNDER THIS AGREEMENT INCLUDING THE OBLIGATION TO REPAIR AND REPLACE SET FORTH ABOVE. NO AGREEMENT VARYING OR EXTENDING THE FOREGOING WARRANTIES, REMEDIES OR THIS LIMITATION WILL BE BINDING UPON HTP. UNLESS IN WRITING AND SIGNED BY A DULY AUTHORIZED OFFICER OF HTP. THE WARRANTIES STATED HEREIN ARE NOT TRANSFERABLE AND SHALL BE FOR THE BENEFIT OF THE OWNER ONLY.**

**NO OTHER EXPRESS WARRANTIES**

This warranty gives the Owner specific legal rights. The Owner may also have other rights that vary from state to state. Some states do not allow the exclusion or limitation of incidental or consequential damages so this limitation or exclusion may not apply to the Owner.

These are the only written warranties applicable to the fan coil manufactured and sold by HTP. HTP neither assumes nor authorizes anyone to assume for it any other obligation or liability in connection with said fan coils.

HTP reserves the right to change specifications or discontinue models without notice.

### Customer Installation Record Form

The following form should be completed by the installer for you to keep as a record of the installation in case of a warranty claim. After reading the important notes at the bottom of the page, please also sign this document.

Customer's Name	
Date of Installation	
Installation Address	
Product Name / Serial Number(s)	
Comments	
Installer's Code / Name	
Installers Phone Number	
Signed by Installer	
Signed by Customer	

**IMPORTANT**

Customer: Please only sign after the installer has fully reviewed the installation, safety, proper operation, and maintenance of the system. If the system has any problems please call the installer. If you are unable to make contact, please call your sales representative.

Distributor / Dealer: Please insert contact details.

	<p style="text-align: center;"><b>Correct Disposal of this Product</b></p> <p>This marking indicates that this product should not be disposed with other household wastes. Recycle it responsibly to promote the sustainable reuse of material resources and prevent possible harm to the environment or human health from uncontrolled waste disposal.</p>
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