Versatec

Compact Horizontal Water Source/Geothermal Heat Pumps

- ¾ – 1½ Tons

Installation Information

Water Piping Connections

Electrical Connections

Startup Procedures

Preventive Maintenance

Versatec Compact Horizontal Installation Manual

WFI

IM1408 11/06

Versatec

Model Nomenclature

VLC 18 R S 0 1 C B SS A

Family
Versatec Compact (Low Temperature)

Unit Capacity
9,000 BTU @ 86°F
12,000 BTU @ 86°F
18,000 BTU @ 86°F

Return Air
R = Right

Discharge Options
E = End
S = Side

Voltage
0 = 208-230/60/1
2 = 265/60/1

Cabinet Options
1 = Unpainted

Coax Options
C = Copper
N = Cupronickel

Sound Kit
A = None
B = Blanket

Non-Standard Options
SS = Standard

Vintage
A = Current

Table of Contents

General Installation Information

Safety Considerations

Installing and servicing air conditioning and heating equipment can be hazardous due to system pressure and electrical components. Only trained and qualified service personnel should install, repair or service air conditioning and heating equipment.

Untrained personnel can perform the basic maintenance functions of cleaning coils and cleaning and replacing filters. All other operations should be performed by trained service personnel. When working on air conditioning and heating equipment, observe precautions in the literature, tags and labels attached to the unit and other safety precautions that may apply.

Follow all safety codes. Wear safety glasses and work gloves. Use quenching cloth for brazing operations. Have a fire extinguisher available for all brazing operations.

Note: Before installing, check voltage of unit(s) to ensure proper voltage.

WARNING: Before performing service or maintenance operations on the system, turn off main power switches to the unit. Turn off accessory heater power switch if applicable. Electrical shock could cause personal injury.

Moving and Storage

Move units in the normal "Up" orientation as indicated by the arrows on the packaging. Do not stack more than three units in total height. When the equipment is received, all items should be carefully checked against the bill of lading to be sure all materials have been received. Examine the units for shipping damage, removing the units from the packaging if necessary. Units in question should also be internally inspected. If any damage is noted, the carrier should make the proper notation on the delivery receipt, acknowledging the damage.

Unit Location

Locate the unit in an indoor area that allows for easy removal of the filter and access panels and has enough space for service personnel to perform maintenance or repair. Provide sufficient room to make water, electrical and duct connections. If the unit is located in a confined space, provisions must be made for return air to freely enter the space by means of a louvered grille, etc. These units are not approved for outdoor installation and, therefore, must be installed inside the structure. Care should be taken when units are located in unconditioned areas to prevent damage from frozen water lines and excessive heat that could damage electrical components.

CAUTION: Do not locate in areas subject to freezing.

Mounting Horizontal Units

Horizontal units are available with side or end discharge. Horizontal units are normally suspended from a ceiling by four 3/8" diameter threaded rods. The rods are usually attached to the unit corner posts by hanger bracket kits furnished with each unit.

Lay out the threaded rods per the dimensions shown in Figure 3 on page 5 and assemble the hangers to the unit as shown in Figure 1. Securely tighten the brackets to the unit. When attaching the hanger rods to the bracket, a double nut is recommended since vibration could loosen a single nut. The unit should be pitched approximately 1/4" towards the drain in both directions to facilitate condensate removal (see Figure 2 on page 5).

Some applications require an attic floor installation of horizontal units. In this case the unit is set in a full size secondary drain pan on top of a vibration absorbing material. The secondary drain pan prevents possible condensate overflow or water leakage damage to the ceiling. The secondary drain pan is usually placed on a plywood base isolated from the ceiling joists by additional layers of vibration absorbing material.

CAUTION: Do not use rods smaller than 3/8" diameter since they may not be strong enough to support the unit. The rods must be securely anchored to the ceiling.

General Installation Information (cont.)

Figure 1: Hanger Assembly

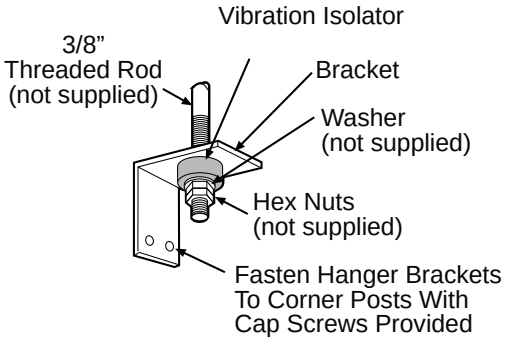


Figure 2: Unit Pitch for Drain

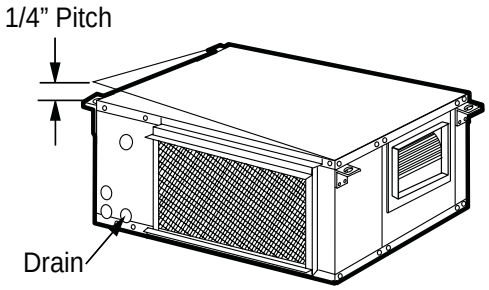
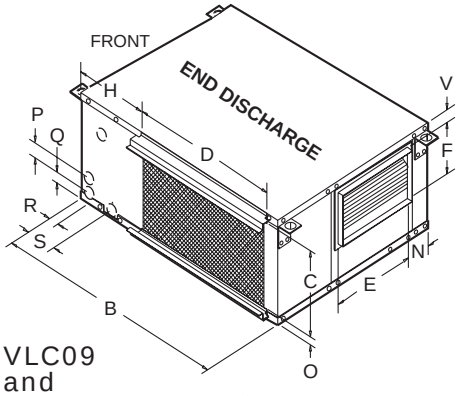
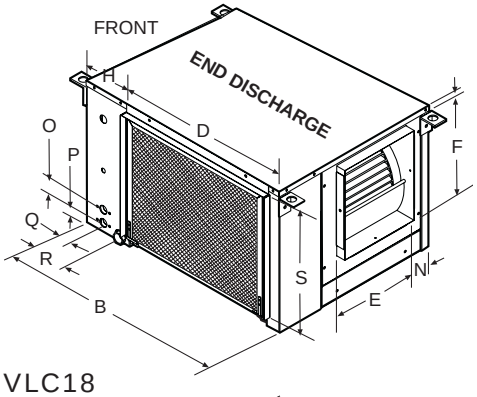


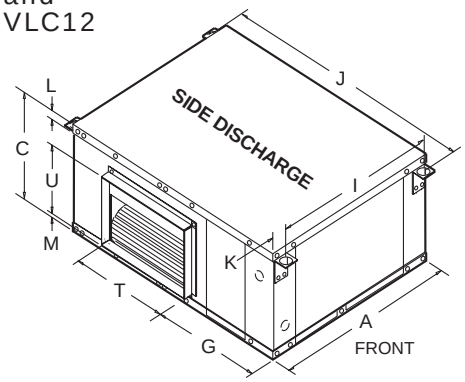
Figure 3: Unit Dimensions

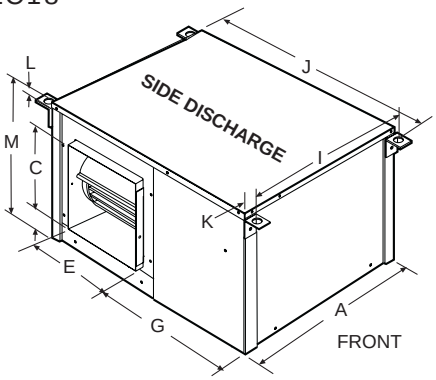


VLC09 and VLC12



VLC18





Model	A	B	C	D	E	F	G	H	I	J	K
VLC09, VLC12	20.25 [51.44]	26.38 [67.01]	10.88 [27.64]	17.06 [43.33]	9.51 [24.16]	7.48 [19.00]	12.79 [32.49]	8.00 [20.32]	18.48 [46.94]	27.82 [70.66]	0.89 [2.26]
	K	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**
	0.75 [1.91]	1.21 [3.07]	1.94 [4.93]	1.47 [3.73]	2.00 [5.08]	1.00 [2.54]	1.50 [3.81]	4.38 [11.13]	9.51 [24.16]	7.48 [19.00]	1.21 [3.07]

Model	A	B	C	D	E	F	G	H	I	J
VLC18	21.52 [54.66]	25.5 [64.77]	10.44 [26.52]	19.00 [48.26]	9.35 [23.75]	10.44 [26.52]	13.29 [33.76]	4.54 [11.53]	18.63 [47.32]	27.6 [70.10]
	K	**L**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	
	1.05 [2.67]	0.65 [1.65]	16.16 [41.05]	2.90 [7.37]	1.49 [3.78]	1.01 [2.57]	2.25 [5.72]	4.54 [11.53]	14.04 [35.66]	

Note: Dimensions in Inches [cm].

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General Installation Information (cont.)

Duct System

An air outlet collar is provided on all units to facilitate a duct connection. A flexible connector is recommended for discharge and return air duct connections on metal duct systems. Leave access for the removal of the blower housing mounting screws on the discharge air duct flange. This will allow internal removal of the blower assembly in case the blower housing or the blower motor should need replacement. In the supply plenum connection, two holes at these locations should allow removal of the mounting screws; however, the flexible connector can also allow access if it is mounted directly on the discharge duct flange. The air filters should be left on units with open return ducting. The air filter should be removed when using a return air filter grille.

Uninsulated duct should be insulated with a minimum of 1" duct insulation. Application of the unit to uninsulated ductwork in an unconditioned space is not recommended as the unit's performance will be adversely affected.

If the unit is connected to existing ductwork, a previous check should have been made to assure that the duct has the capacity to handle the air required for the unit application. If ducting is too small (as in the replacement of heating only systems), larger ductwork should be installed. All existing ductwork should be checked for leaks, and repairs made accordingly.

The duct system and diffusers should be sized to handle the design airflow quietly. To maximize sound attenuation of the unit blower, the supply and return plenums should include internal duct liner of 1" thick glass fiber or be constructed of duct board. If air noise or excessive airflow is a problem, the blower speed can be changed to a lower speed to reduce airflow. (See Blower Performance Data on page 9 for further instructions.)

Piping

Supply and return piping must be at least as large as the unit connections on the heat pump (larger on long runs). The unit may be furnished with either a copper or optional cupronickel coil. Copper is adequate for closed loop systems and ground water which is not high in mineral content. In conditions anticipating moderate scale formation or in brackish water, a cupronickel heat exchanger is recommended. In situations where scaling could be heavy or where biological growth such as iron bacteria will be present, a closed loop system is recommended. Heat exchanger coils in ground water units may, over a period of time, lose heat exchange capability due to a buildup of mineral deposits inside. These can be cleaned, but only by a qualified service mechanic as acid and special pumping equipment are required. Never use flexible hoses of a smaller inside diameter than that of the water connection on the unit and limit hose length to 10 feet per connection. Check carefully for water leaks.

Each unit is equipped with FPT fittings for the water supply and return lines. When making the water connections to the unit, a Teflon thread sealant is recommended to minimize internal fouling of the piping. Do not overtighten connections. The water lines should be routed to avoid interfering with access to the unit. The use of a short length of high pressure hose with a swivel type fitting may simplify the connections and prevent vibration (see Figure 5, page 8).

Before final connection to the unit, the supply and return hose kits must be connected together, and the system must be flushed to remove dirt, piping chips and other foreign material. Normally, a combination balancing and close-off (ball) valve is installed at the return, and a rated gate or ball valve is installed at the supply. The return valve can be adjusted to obtain the proper water flow. The valves allow the unit to be removed for servicing.

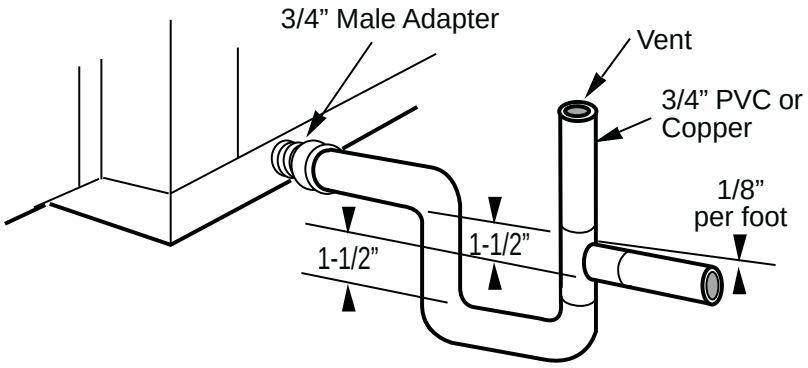
The proper water flow must be delivered to each unit whenever the unit heats or cools. To assure proper flow, use pressure/temperature ports to determine the flow rate. These ports should be located adjacent to the supply and return connections on the unit. The proper flow rate cannot be accurately set without measuring the water pressure drop through the refrigerant-to-water heat exchanger. (See Tables on page 13 for water flow and pressure drop information.)

Condensate Drain

Connect the drain through a trap to the condensate drain system in conformance with local plumbing codes. The condensate line must be trapped a minimum of 1-1/2" as shown in Figure 4 (Page 7). The condensate line should also be pitched away from the unit a minimum of 1/8" per foot. The top of the trap must be below the unit drain connection. Horizontal units should be pitched approximately 1/4" towards the drain in both directions to facilitate condensate removal (see Figure 2 on page 5).

General Installation Information (cont.)

Figure 4: Condensate Drain Connection



Water Quality

In ground water situations where scaling could be heavy or where biological growth such as iron bacteria will be present, a closed loop system is recommended. The heat exchanger coils in ground water systems may, over a period of time, lose heat exchange capabilities due to a buildup of mineral deposits inside. These can be cleaned, but only by a qualified service mechanic, as special solutions and pumping equipment are required. Desuperheater coils can likewise become scaled and possibly plugged. In areas with extremely hard water, the owner should be informed that the heat exchanger may require occasional flushing.

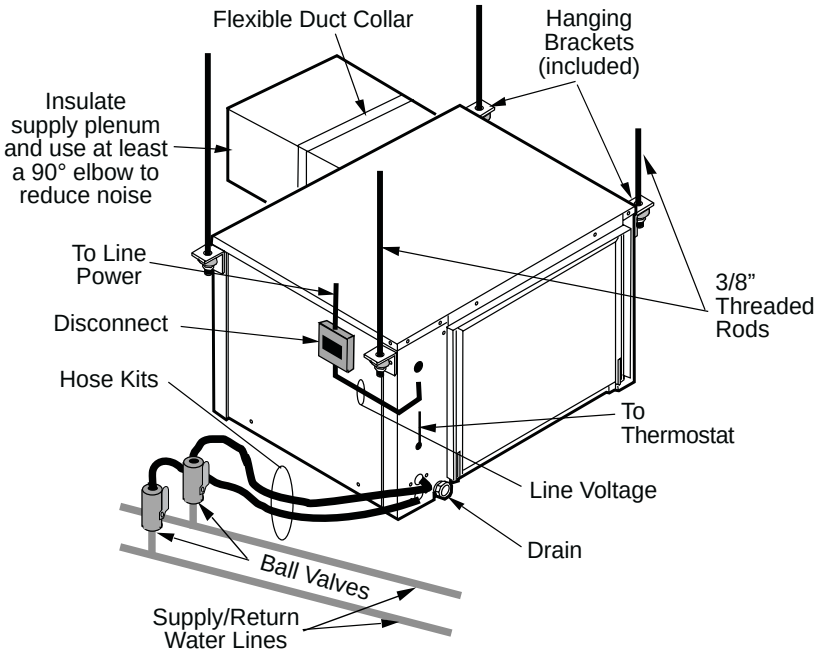
Units with cupronickel heat exchangers are recommended for open loop applications due to the increased resistance to build-up and corrosion, along with reduced wear caused by acid cleaning.

Material		**Copper**	**90/10 Cupro-Nickel**
pH	**Acidity/Alkalinity**	7- 9	5 - 9
Scaling	Calcium and Magnesium Carbonate	(Total Hardness) less than 350 ppm	(Total Hardness) less than 350 ppm
Corrosion	Hydrogen Sulfide	Less than .5 ppm (rotten egg smell appears at 0.5 PPM)	10 - 50 ppm
	Sulfates	Less than 125 ppm	Less than 125 ppm
	Chlorine	Less than .5 ppm	Less than .5 ppm
	Chlorides	Less than 20 ppm	Less than125 ppm
	Carbon Dioxide	Less than 50 ppm	10 - 50 ppm
	Ammonia	Less than 2 ppm	Less than 2 ppm
	Ammonia Chloride	Less than .5 ppm	Less than .5 ppm
	Ammonia Nitrate	Less than .5 ppm	Less than .5 ppm
	Ammonia Hydroxide	Less than .5 ppm	Less than .5 ppm
	Ammonia Sulfate	Less than .5 ppm	Less than .5 ppm
	Total Dissolved Solids (TDS)	Less than 1000 ppm	1000-1500 ppm
Iron Fouling (Biological Growth)	Iron, Fe^{2+} (Ferrous) Bacterial Iron Potential	None	None
	Iron Oxide	Less than 1 ppm. Above this level deposition will occur.	Less than 1 ppm. Above this level deposition will occur.
Erosion	Suspended Solids	Less than 10 ppm and filtered for max of 600 micron size	Less than 10 ppm and filtered for max of 600 micron size
	Threshold Velocity (Fresh Water)	5-8 ft/sec	8-12 ft/sec

Note: Grains = PPM divided by 17 • mg/l is equivalent to PPM

General Installation Information (cont.)

Figure 5: Typical Installation



Boiler/Cooling Tower Systems

The water loop is usually maintained between 60°F and 90°F (VLC units allow 25°F to 110°F EWT) for proper heating and cooling operation. This is accomplished using a cooling tower and a boiler.

To reject excess heat from the water loop, the use of a closed circuit evaporative cooler or an open type cooling tower with a secondary heat exchanger between the tower and the water loop is recommended. If an open type cooling tower is used without a secondary heat exchanger, continuous chemical treatment and filtering of the water must be performed to ensure that the water is free from damaging materials.

CAUTION: Water piping exposed to outside temperature may be subject to freezing.

Closed Loop Systems

Once piping is completed between the unit, flow center and the earth loop, final purging and charging of the loop is needed. A WaterFurnace flush cart (with at least a 1.5 hp pump) is needed to achieve adequate flow velocity in the loop to purge air and dirt particles from the loop piping system. An antifreeze solution is used in most areas to prevent freezing. Maintain the pH level in the 7.6 to 8.2 range for final charging. Flush the system adequately to remove as much air as possible, then pressurize the loop to a static pressure of 50 to 75 psi (winter) or 40 to 50 psi (summer). This is normally adequate for good system operation. Ensure that the flow center provides adequate flow through the unit by checking the pressure drop across the heat exchanger and comparing it to the figures shown in the Pressure Drop table on page 13. Normally about 3 gpm flow rate per ton of cooling capacity is needed in closed loop systems.

Open Loop Systems

Always maintain water pressure in the heat exchanger by placing water control valves at the outlet of the unit and use a closed bladder type expansion tank to minimize mineral deposits. Ensure proper water flow through the unit by checking the pressure drop across the heat exchanger and comparing it to the figures in the Pressure Drop table on page 13. Normally about 1.5 gpm flow rate per ton of cooling capacity is needed in open loop systems. Some water control valves draw their power directly from the unit's 24V transformer and can overload and possibly burn out the transformer. Check total VA draw of the water valve and ensure it is under 24 VA. Connect the 24V solenoid valve between pins 1 and 9 on the terminal strip. Discharge water from a heat pump is not contaminated in any manner and can be disposed of in various ways depending on local building codes (e.g. recharge well, storm sewer, drain field, adjacent stream or pond, etc.). Most local codes forbid using sanitary sewers for disposal. Consult your local building and zoning department to assure compliance in your area.

Physical Data

Model	VLC09	VLC12	VLC18
Fan Wheel	6 x 9 [15.2 x 22.9]	6 x 9 [15.2 x 22.9]	9 x 7 [22.9 x 17.8]
PSC Fan Motor HP	1/10	1/10	1/6
PSC Fan Motor Speeds	4	4	3
Compressor	Recip.	Recip.	Recip.
Refrigerant Charge (R-22)	25 [0.709]	24 [0.680]	31 [0.879]
Air Coil Dimensions	10 x 16 [25.4 x 40.6]	10 x 16 [25.4 x 40.6]	14 x 16 [35.6 x 40.6]
Air Coil Face Area	1.1 [0.102]	1.1 [0.102]	1.56 [0.145]
Return Air Connection (WxD)	10.8 x 17.1 [27.4 x 43.4]	10.8 x 17.1 [27.4 x 43.4]	18.8 x 13.5 [47.7 x 34.3]
Supply Air Connection (WxD)	9.5 x 7.5 [24.1 x 19.1]	9.5 x 7.5 [24.1 x 19.1]	10.4 x 9.4 [26.4 x 23.9]
Water Inlet/Outlet Size (FPT)	0.5 [1.27]	0.5 [1.27]	0.5 [1.27]
Filter (Disposable)	10 x 17 [25.4 x 43.2]	10 x 17 [25.4 x 43.2]	14 x 18 [35.6 x 45.7]
Shipping Weight	100 [45.4]	104 [47.2]	171 [77.6]

Notes: Dimensions in: Inches [cm], Ounces [kg], Square Feet [sq. meters], Pounds [kg]. Rev. 2/1/06

Blower Performance Data

Fan Speed

The fan motor on the VLC09-12 has four speed taps. The VLC18 has three speed taps. To change speeds, disconnect the power and move the speed wire to the appropriate winding tap.

Model VLC09, 12	Fan Speed	Airflow (cfm) @ E.S.P. (in. wg)					
		0.0	0.1	0.2	0.3	0.4	0.5
265V	H	420	400	385	370	335	290
	MH	400	390	375	350	325	280
	ML	380	360	330	310	280	265
	L	330	310	290	270	240	250
230V	H	400	380	360	240	300	260
	MH	350	330	310	290	250	230
	ML	330	310	290	260	230	200
	L	290	270	250	225	210	-
208V	H	380	360	340	330	290	250
	MH	320	300	280	265	225	220
	ML	300	280	260	230	220	-
	L	260	240	220	205	-	-
VLC18							
265V	H	670	650	640	590	530	460
	M	610	600	580	540	490	420
	L	540	530	510	480	440	380
230V	H	750	700	660	610	560	490
	M	680	660	620	580	525	460
	L	590	580	550	520	470	395
208V	H	680	650	620	575	520	450
	M	600	580	560	520	470	415
	L	510	494	475	450	420	375

Electrical

General

Be sure the available power is the same voltage and phase as that shown on the unit serial plate. Line and low voltage wiring must be done in accordance with local codes or the National Electric Code, whichever is applicable. See the Electrical Data table below for wire and fuse or circuit breaker sizing information.

Accessory Pump Operation

If the unit is to be used with an accessory pump (flow center or desuperheater pump, etc.), an accessory pump fuse kit (APF) can be purchased to connect and fuse the pump(s).

208 Volt Operation

All 208-230 volt units are factory wired for 230 volt operation. For 208 volt operation, the position of the red and blue transformer wires should be switched.

Electrical Data

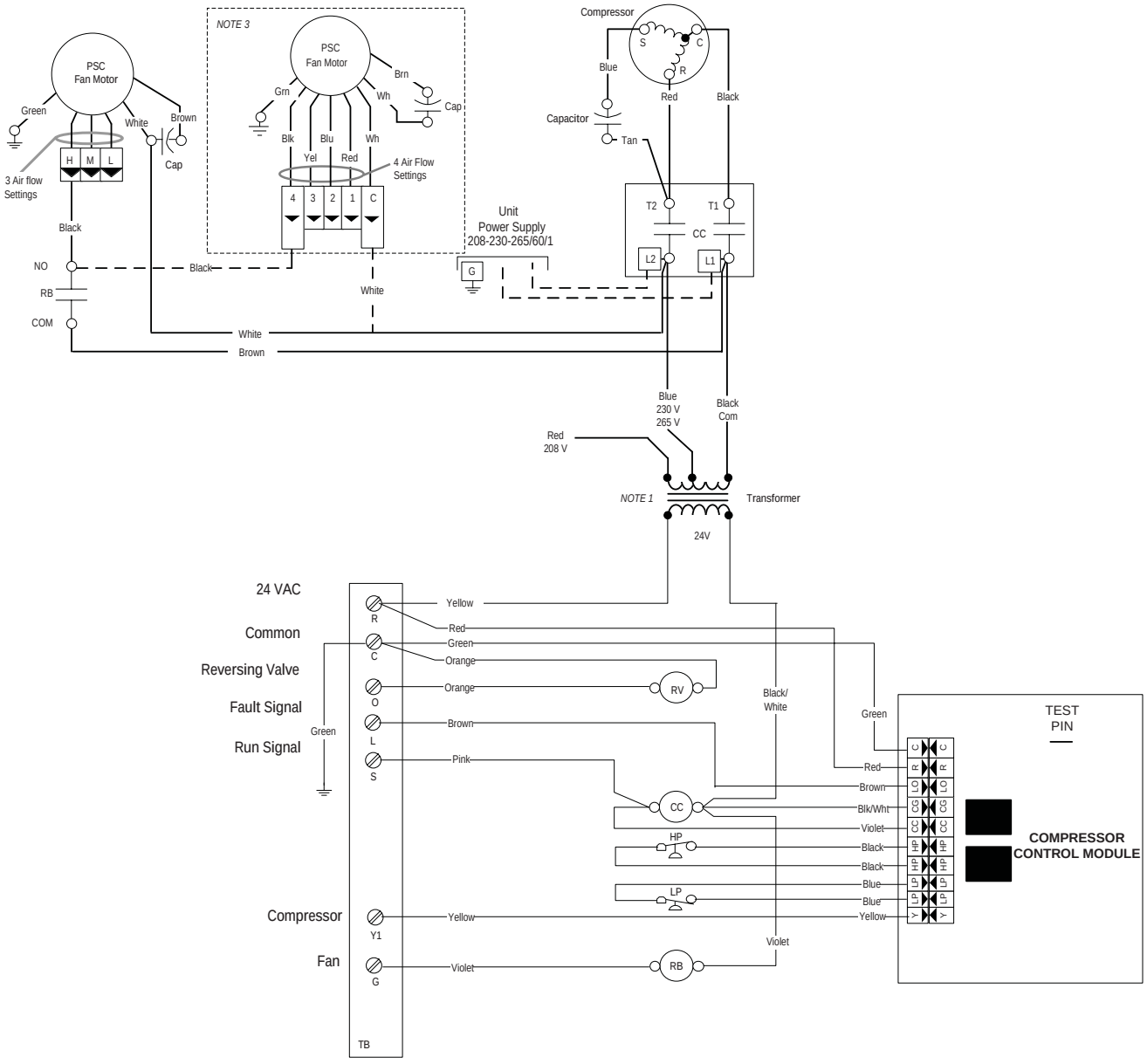
Model	Rated Voltage	Voltage Min/Max	Compressor			Fan Motor FLA	Total Unit FLA	Min Circ Amp	Max Fuse
			MCC	RLA	LRA				
VLC09	208-230/60/1	197/253	5.5	3.5	20.0	0.6	4.1	5.0	10
	265/60/1	239/292	4.8	3.1	16.0	0.6	3.7	4.5	10
VLC12	208-230/60/1	197/253	9.1	5.8	31.0	0.6	6.4	7.9	10
	265/60/1	239/292	5.5	3.5	22.0	0.6	4.1	5.0	10
VLC18	208-230/60/1	197/254	14.0	9.0	48.0	1.1	10.1	12.3	20
	265/60/1	239/292	12.0	7.7	44.0	1.0	8.7	10.6	15

Notes: HACR circuit breaker in USA only. All fuses Class RK-5.

Wiring Schematic

Versatec Compact Horizontal 208-230, 265/60/1

97P643-02 11/6/03



Legend

Factory low voltage wiring	CCM - Compressor Control Module	L1 Field wire lug	Switch - High pressure	Notes:
Factory line voltage wiring	CC - Compressor contactor	Ground	Switch - Low pressure	1 - Switch blue and red wires for 208 V operation.
Field low voltage wiring	HP - High pressure switch	Relay Contacts - N.O., N.C.	Relay coil	2 - Refer to installation manual for fan speed settings.
Field line voltage wiring	LP - Low pressure switch	P 2 3 1 Polarized connector	Capacitor	3 - Motor wiring for 09 and 12 unit sizes.
Optional block	RB - Blower relay			
Quick connect terminal	RV - Reversing valve coil			
Screw terminal - field connection	TB - Terminal board			
Wire nut	PS - Power strip			

Startup

Before powering unit, check the following:

- High voltage wiring is correct and matches the nameplate
- Fuses, breakers and wire size are correct
- Low voltage wiring is completed
- Piping is completed and water system has been cleaned and flushed
- Air is purged from the closed loop system
- Isolation valves are open and loop water control valves or loop pumps are wired
- Condensate line is open, trapped and correctly pitched
- Blower rotates freely
- Blower speed is correct
- Compressor mounting bolts are loosened to reduce vibration noise
- Air filter is clean and in position
- Service/access panels are in place
- Thermostat is in the OFF position
- Return air temperature is between 50°F to 80°F in heating and 60°F to 95°F in cooling

Unit Startup (Using Standard MCO Thermostat)

1. Turn thermostat fan switch to ON. Blower should operate.
2. Balance airflow at registers. Adjust fan speed if necessary.
3. Set thermostat to highest temperature.
4. Set thermostat operation switch to COOL position. Compressor should NOT come on.
5. Slowly reduce the thermostat setting until both the compressor and water control valve/loop pump(s) are activated. Verify that the compressor is on and that the water flow rate is correct by measuring pressure drop through the heat exchanger by using the P/T plugs and comparing to the Pressure Drop table on page 13. **For other temperatures, multiply the gauge pressure drop times the correction factor in the Temperature Change table on page 13.**
6. Check the temperature of both the supply and discharge water (see the Temperature Change table on page 13).
7. Verify that the temperature rise is within range of the table.
8. Check for air temperature drop of 15°F to 20°F across the air coil.
9. Turn thermostat switch to OFF position. A hissing should indicate proper functioning of the reversing valve.
10. Leave unit OFF for approximately five (5) minutes to allow pressures to equalize.
11. Turn thermostat to lowest setting.
12. Set thermostat switch to HEAT position.
13. Raise thermostat temperature until both compressor and water control valve/loop pump(s) are activated.
14. Verify that the temperature drop is within the range of the Temperature Change table on page 13.
15. Check for air temperature rise of 20°F to 35°F across the air coil.
16. Turn the thermostat to a higher setting to make certain that the first stage of auxiliary electric heat is activated (if installed and mode switch set to “Normal”) and the temperature rise across the heater is appropriate.
17. Confirm that all stages of the auxiliary heat come on when the thermostat is in EMERGENCY HEAT mode.
18. Check for vibrations, noise and water leaks.
19. Set system to maintain desired comfort level.
20. Instruct the owner/operator of correct thermostat and system operation.
21. **Be certain to fill out and forward all warranty papers to the WFI warranty department.**

Startup (cont.)

Temperature Change Through Heat Exchanger

Water Flow Rate (GPM)	Water Temperature Change (°F)	
	Rise (Chg)	Drop (Htg)
For Open Loop: use 1.5 gpm/ton	9 - 12	4 - 8
Earth Coupled or Cooler/Boiler systems use 3 gpm/ton	20 - 26	10 -17

Pressure Drop Data (50°F)

Model	VLC09			VLC12			VLC18		
Flow Rate (gpm)	1.5	2.0	2.5	1.5	2.5	3.5	3.0	4.0	5.0
Press Drop (ft hd)	6.2	9.5	12.5	6.2	12.5	20.3	7.9	12.6	19.9
Press Drop (psi)	2.7	4.1	5.4	2.7	5.4	8.8	3.4	5.4	8.6

Troubleshooting

Should a major problem develop, refer to the following information for possible causes and corrective steps:

If neither the fan nor the compressor run:

1. The fuse may be blown or the circuit breaker open. Check electrical circuits and motor windings for shorts or grounds. Investigate for possible overloading. Replace fuse or reset circuit breaker after fault is corrected.
2. Supply voltage may be too low. Check it with a volt ohm meter.
3. Control system may be faulty. Check thermostat for correct wiring and 24 volt transformer for operation.
4. Wires may be loose or broken. Replace or tighten.

If the fan operates and the compressor does not:

1. The low pressure switch may have tripped due to:
   a. fouled or plugged evaporator (air coil in cooling; coaxial in heating)
   b. low or no evaporator flow (air coil in cooling; coaxial in heating)
   c. entering water too cold (heating)
   d. not enough air over the air coil due to dirty filters (cooling)
   e. fan motor failure (cooling)
   f. low refrigerant (heating or cooling)
2. The high pressure switch may have tripped due to:
   a. fouled or plugged condenser (coaxial in cooling; air coil in heating)
   b. low or no condenser flow (coaxial in cooling; air coil in heating)
   c. entering water too warm (cooling)
   d. not enough airflow over the air coil due to dirty filters (heating)
   e. fan motor failure (heating)
3. Check capacitor.
4. Wires may be loose or broken. Replace or tighten.
5. The compressor overload protection may be open. If the compressor dome is extremely hot, the overload will not reset until cooled down. If the overload does not reset when cool, it may be defective. If so, replace the compressor.
6. The internal windings of the compressor motor may be grounded to the compressor shell. Replace the compressor.
7. The compressor winding may be open. Check continuity with ohm meter. If the winding is open, replace the compressor.
8. Check the thermostat setting, calibration and wiring.

If sufficient cooling or heating is not obtained:

1. Check thermostat for improper location.
2. Airflow may be insufficient. Check and clean the filter.
3. Check for restriction in water flow.
4. Check subcooling for low refrigerant charge.
5. The reversing valve may be defective, creating a refrigerant bypass. If unit won't cool, check reversing valve coil.
6. Check thermal expansion valve for possible restriction of refrigerant flow.

If the unit operation is noisy:

1. Check fan wheel clearance. Adjust as necessary.
2. Check for bent fan wheel. Replace if damaged.
3. Check for loose fan wheel on the shaft.
4. Check compressor for loose mounting bolts. Make sure compressor is floating free on its isolator mounts.
5. Check for tubing contact with the compressor or other surfaces. Readjust tubing by bending slightly.
6. Check screws on all panels.
7. Check for clatter or hum in the contactor or relays due to low voltage or a defective holding coil. Replace component.
8. Check vibration absorbing material under unit for proper installation. Unit must be fully supported, not just on corners.
9. Check for abnormally high discharge pressures.

Preventive Maintenance

Water Coil Maintenance

1. Keep all air out of the water. An open loop system should be checked to ensure that the well head is not allowing air to infiltrate the water line. Lines should always be airtight.
2. Keep the system under pressure at all times. It is recommended in open loop systems that a water control valve be placed in the discharge line to prevent loss of pressure during off cycles. Closed loop systems must have a positive static pressure for proper circulator pump operation.

Notes: If the installation is performed in an area with a known high mineral content in the water, it is best to establish a periodic maintenance schedule when the coil can be checked. Should coil cleaning be necessary, use standard cleaning procedures which are compatible with either the cupronickel or copper water lines. Generally, the more water flowing through the unit, the less chance there is for scaling. Low GPM flow rates produce higher temperatures through the coil. To avoid excessive pressure drop and the possibility of copper erosion, do not exceed GPM flow rate as shown on the specification sheets for each unit.

Other Maintenance

Filters must be clean to obtain maximum performance. They should be inspected every two to three months under normal operating conditions and be replaced when necessary. Units should never be operated without a filter.

In areas where airborne bacteria produce a slime in the drain pan, it may be necessary to treat chemically to minimize the problem. The condensate drain can pick up lint and dirt, especially with dirty filters. Inspect twice a year to avoid the possibility of overflow.

The air coil must be cleaned to obtain maximum performance. Check once a year under normal operating conditions and if dirty, brush or vacuum clean. Care must be taken not to damage the aluminum fins while cleaning.

CAUTION: Fin edges are sharp.

Replacement Procedures

Replacement Parts

When contacting WFI for service or replacement parts, refer to the model number and serial number of the unit as stamped on the serial plate attached to the unit. If replacement part(s) are required, mention the date of installation of the unit and the date of failure, along with an explanation of the malfunction(s) and a description of the replacement part(s) required.

In-Warranty Material Return

Material may not be returned except by permission of authorized WaterFurnace warranty personnel. Contact your local distributor or the WaterFurnace warranty department for warranty return authorization and assistance.

Manufactured by WFI
9000 Conservation Way
Fort Wayne, IN 46809

Product:	Versatec
Type:	Compact Horizontal Water Source Heat Pumps
Size:	¾ through 1½ Tons

Document Type:	Installation Manual
Part Number:	IM1408
Release Date:	11/06
Supercedes:	IM1408 (02/06)