

MANUAL – INSTALLATION, OPERATION, & MAINTENANCE

Vertical Concealed Fan Coil

FCVC Series

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PRICE[®]

VERTICAL CONCEALED FAN COIL

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VERTICAL CONCEALED FAN COIL

PRODUCT OVERVIEW

Safety Precautions

- A. Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction.
- B. When cutting or drilling into wall or ceiling, do not damage electrical wiring and other hidden utilities.
- C. Use this unit only in the manner intended by the manufacturer. If you have any questions, contact the manufacturer:

In the United States

2975 Shawnee Ridge Court
Suwanee, Georgia USA 30024
Ph: 770.623.8050
Fax: 770.623.6404

*In Canada or International Export
Sales Office*

638 Raleigh Street
Winnipeg, Manitoba
Canada R2K 3Z9
Ph: 204.669.4220
Fax: 204.663.2715

- D. Before servicing or cleaning unit, switch power off at service panel and lock service panel to prevent power from being switched on accidentally.
- E. Protect flammable materials nearby when brazing. Use flame and heat protection barriers where needed. Always have a fire extinguisher ready.
- F. The manufacturer assumes no responsibility for personal injury or property damage resulting from improper handling, installation, service or operation of the product.

Caution to Contractors

Fan Coil units are not intended for use as temporary heat or ventilation sources during building construction. The coil units are not designed nor equipped to operate in a dusty construction environment. Recirculating fan wheels can become coated in construction dust, resulting in an unbalanced wheel. This in turn can contribute to reduced motor life. Inlet air filters, if supplied, would provide little protection as they would quickly become plugged with construction dust.

Receiving Inspection

All Price Fan Coil units are inspected before shipment. After unpacking the assembly, check it for damage. If any damage to the products is found, report it immediately to the delivery carrier. Caution is required when unpacking the fan units with electric coils as not to damage the elements. Ensure that all packing material is removed from the inside of the unit, especially around the blower wheel and coil section.



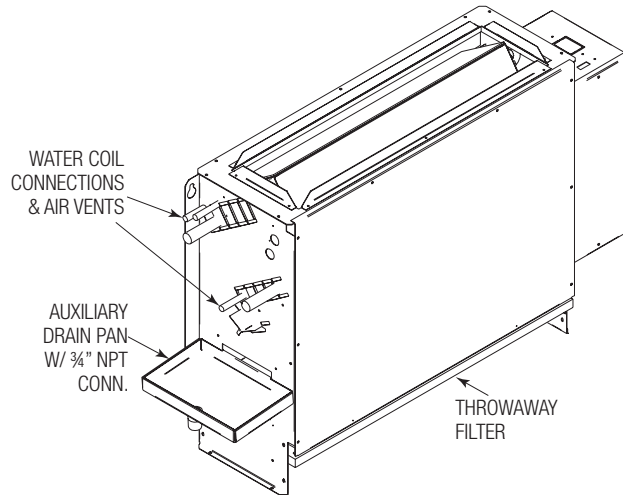
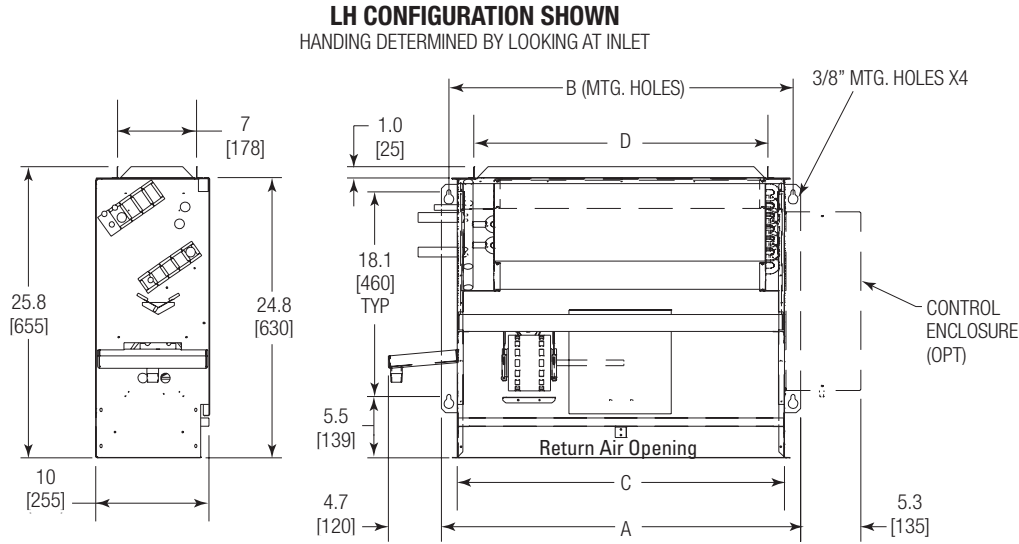
VERTICAL CONCEALED FAN COIL

PRODUCT OVERVIEW

Dimensional Data

FCVC, Concealed Unit, Size 02-12

All metric dimensions () are soft converted. Imperial dimensions are converted to metric and rounded to the nearest millimeter.



Size	Nominal		A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	Blowers	PSC Motor HP	ECM Motor HP
	CFM	L/s							
02	200	94	24.0 (610)	22.5 (572)	21.0 (524)	18.0 (457)	1	1/30	1/8
03	300	142	32.0 (813)	30.5 (775)	29.0 (737)	26.0 (660)	1	1/30	1/8
04	400	189	32.0 (813)	30.5 (775)	29.0 (737)	26.0 (660)	2	1/10	1/8
06	600	283	43.0 (1093)	41.5 (1055)	40.0 (1016)	37.0 (940)	2	1/10	1/8
08	800	378	48.0 (1220)	46.5 (1182)	45.0 (1143)	42.0 (1067)	2	1/10	1/4
10	1000	472	58.0 (1474)	56.5 (1436)	55.0 (1397)	52.0 (1321)	4	1/10 (x2)	1/8 (x2)
12	1200	566	68.0 (1728)	66.5 (1690)	65.0 (1651)	62.0 (1575)	4	1/10 (x2)	1/4 (x2)

NOTE: Total unit amps shown are based on motor specifications. Actual performance will vary with the application.

VERTICAL CONCEALED FAN COIL

INSTALLATION & MOUNTING INSTRUCTIONS

General

Price Fan Coils are designed to be durable and manufactured for sturdy construction. The units must still be handled with great care and no force or pressure applied to the coil or piping. When handled, the unit should be carried in an upright position holding onto the mounting points. The fan coils are not suitable for outdoor installations. The units should never be stored or installed where it may be subjected to a hostile environment such as rain, snow, or extreme temperatures. Care must be taken during and after installation to prevent foreign material such as paint, drywall mud or dust from entering the drain pan or the motor or blower wheels. Failure to do so may have serious effects on the unit performance and may cause premature failure if foreign material is allowed to be deposited into the motor or blower. Some job conditions may require the unit to be covered temporarily until installation

WARNING: Do not tamper with control components.

Mounting the Unit

Vertical units are designed to be floor mounted or otherwise supported from below, and bolted to the wall structure through the mounting holes provided in the unit chassis.

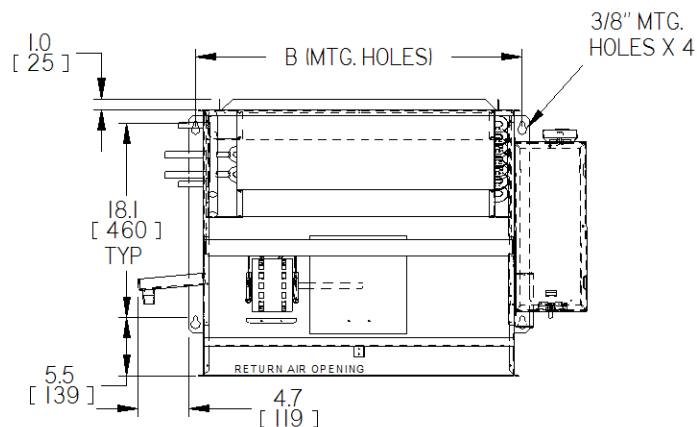
Refer to the unit product drawings for mounting hole locations and sizes.

After mounting the unit, it is ready for the various service connections such as water, drain, and electrical. At this time it should be verified that the proper types of service are actually provided to the unit.

WALL MOUNT BRACKETS ▼



MOUNTING LOCATIONS ▼



Unit Size	B in. (mm)
02	22.5 (572)
03	30.5 (775)
04	30.5 (775)
06	41.5 (1055)
08	46.5 (1182)
10	56.5 (1436)
12	66.5 (1690)

VERTICAL CONCEALED FAN COIL

INSTALLATION & MOUNTING INSTRUCTIONS

Cooling/Heating Pipe Connections

The valve packages are easily damaged when introduced to excessive amounts of heat. Great caution must be made when the connections are made with “sweat” or solder joints. The valve must be in the open position during all soldering and brazing operations. Heat should be dissipated with a wet cloth wrapped around the valve body.

Automatic valves must have the control cartridge removed for soldering.

Electrical Connection

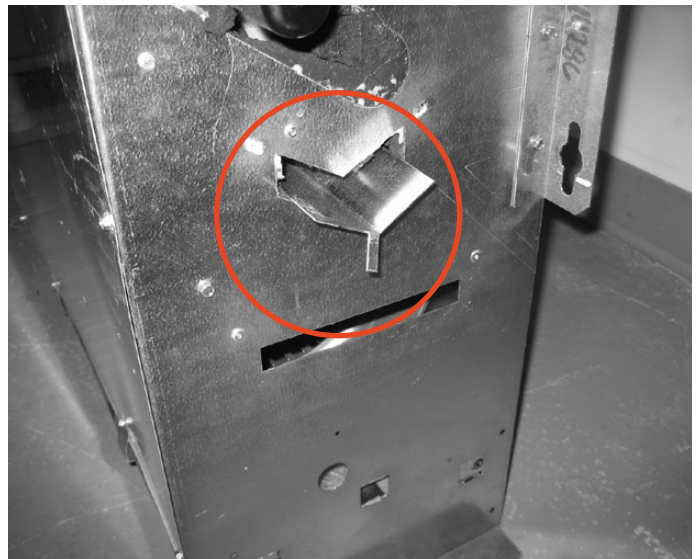
CAUTION: Disconnect all incoming power before any electrical installation or service is performed on the unit(s). All field wiring is to be in accordance with the National Electrical Code ANSI/NFPA No. 70 or the Canadian Electrical Code, Part 1, CSA Standard C 22.1. Refer to the product identification label on each unit for information to determine the field wire size. Check voltage requirements prior to power supply connection. Refer to the electrical label located near the electrical control box and also refer to the schematic drawing provided on the underside of the electrical control box cover. If upon energizing the electric motor excessive noise is apparent, shut down the unit. Determine the cause by checking for packing materials, etc. and re-energize after corrective action has been taken.

Auxiliary Drain Pan Mounting

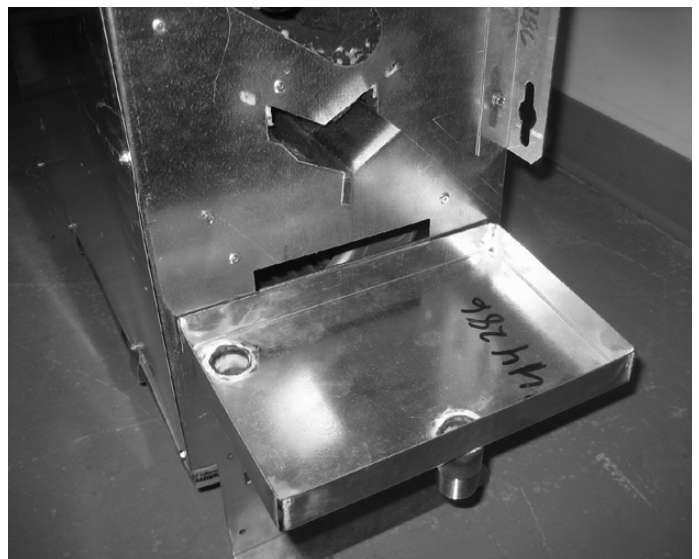
Auxiliary drain pan is attached below the coil connections and underneath the primary drain channel. Place the auxiliary drain pan in the slot indicated and ensure the drain pan is sloped away from the unit to allow for adequate drainage.

NOTE: Ensure the drain channel is sloped towards the coil connections and auxiliary pan.

MOUNTING SLOT ▼



AUXILIARY DRAIN PAN POSITIONING ▼



VERTICAL CONCEALED FAN COIL

INSTALLATION & MOUNTING INSTRUCTIONS

Start Up & Operation

General

Before beginning start up operation, familiarize yourself with the unit, options, accessories, controls so you understand proper system operation. All personnel should have a good working knowledge of general start-up procedures and have the appropriate start-up and balancing guides available for consultation.

NOTE: Water coils are not to be flipped in the field. This will cause loss of performance due to improper piping and condensate issues due to inadequate drainage.

Cooling/Heating

Prior to the water system start-up and balancing, the chilled/hot water systems should be flushed to clean out dirt and debris, which may have collected in the piping during construction. During this procedure, all unit service valves must be in the closed position. This prevents foreign matter from entering the unit and clogging the valves and metering devices. Filters should be installed in the piping mains to prevent this material from entering the units during normal operation. During system filling, air venting from the unit is accomplished by the use of the standard manual air vent fitting installed on the coil. The air vent screw should be turned counterclockwise no more than 1-1/2 turns to operate the air vent.

CAUTION: The air vent provided on the unit is not intended to replace the main system air vents and may not release air trapped in other parts of the system. Inspect the entire system for potential air traps and vent those areas as required, independently. In addition, some systems may require repeated venting over a period of time to properly eliminate air from the system.

Air System Balancing

All duct-work must be complete and connected, and all grilles, filters, access doors and panels must be properly installed to establish actual system operating conditions BEFORE beginning air balancing operations. Each individual unit and attached duct-work is a unique system with its own operating characteristics. For this reason, air balancing is normally done by balance specialists who are familiar with all procedures required to properly establish air distribution and fan system operating conditions.

These procedures should not be attempted by unqualified personnel. After the proper system operation is established, the actual unit air delivery and the actual fan motor amperage draw for each unit should be recorded in a convenient place for future reference such as the inspection, installation, & start-up check sheet, a copy of which is provided on the back of this manual. Contact the Sales Representative or the factory for additional copies of this sheet.

The manufacturer assumes no responsibility for undesirable system operation due to improper design, equipment or component selection, and/or installation of ductwork, grilles, and other field supplied components.

Water System Balancing

A complete knowledge of the hydronic system, its components, and controls is essential to proper water system balancing and this procedure should not be attempted by unqualified personnel. The system must be complete and all components must be in operating condition BEFORE beginning water system balancing operations. Each hydronic system has different operating characteristics depending on the devices and controls in the system. The actual balancing technique may vary from one system to another. After the proper system operation is established, the appropriate system operating conditions such as various water temperatures and flow rates should be recorded in a convenient place for future reference. Before and during water system balancing, conditions may exist which can result in noticeable water noise or undesired valve operation due to incorrect system pressures. After the entire system is balanced, these conditions will not exist on properly designed systems.

VERTICAL CONCEALED FAN COIL

MAINTENANCE

Filters

The type of throwaway filter most commonly used on fan coil units should be replaced on a regular basis. The time interval between each replacement should be established based on regular inspection of the filter and should be recorded in the log for each unit. Refer to the chart below for recommended filter size for each product type and size. If the replacement filters are not purchased from the factory, the filters used should be the same type and size as that furnished from or recommended by the factory. Pleated media or extended surface filters should not be used since the high air pressure drops encountered with these types of filters is not compatible with the type of fan coil unit covered in this manual. Consult the factory for applications using filter types other than the factory standard or optional product. All filters supplied have a MERV rating of 3.

Unit Size	Filter Face Area	Filter Size
02	1.46	20.75 x 10
03	2.01	28.75 x 10
04	2.01	28.75 x 10
06	2.78	39.75 x 10
08	1.74 & 1.39 [3.13]	24.75 x 10 & 19.875 x 10
10	1.74 & 2.08 [3.82]	24.75 x 10 & 29.875 x 10
12	1.74 & 2.78 [4.52]	24.75 x 10 & 39.75 x 10

FCVC Filter Replacement Instructions

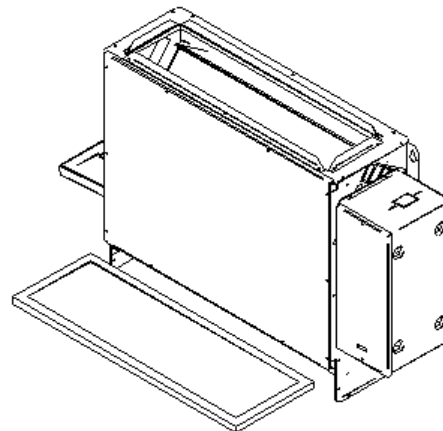
1. Slide the filter out from the unit, and replace it with the new filter.

Filter(s)

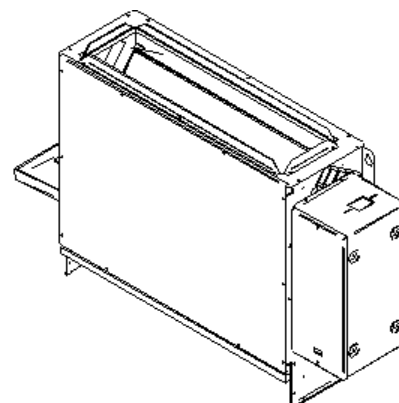
1. Filters, if supplied, should be replaced or removed after system start-up.
2. If filters are used beyond system start-up they should be changed regularly to avoid excessive restriction of air flow. Frequency would depend on environment.

Contact your Price representatives for details on replacement filter media.

STEP 1 ▼



STEP 2 ▼



VERTICAL CONCEALED FAN COIL

MAINTENANCE

Fan and Motor Assembly

CAUTION: Motor may be very hot. Ensure motor has cooled before service.

1. Disconnect all incoming power before servicing the unit.
2. Price Fan Coil units are supplied with permanently lubricated motors.
3. The blower and motor should be inspected annually for accumulation of dust and dirt. Clean as necessary.
4. Blower and motor can be accessed without disconnecting ductwork.
5. Motors are provided with thermal overload protection. If the motor overheats and trips the thermal overload, it will automatically reset after cooling down to a proper operating temperature.
6. ECM motors are impedance protect and provide the same protection as a thermal overload motor. This complies with VL 2111 overheating protection for motors.

Motor full load amps										
Unit Size	Motor HP		PSC				ECM			
	PSC	ECM	115V	208V	240V	277V	115V	208V	240V	277V
02	1/30	1/8	0.70	0.50	0.50	0.50	1.40	0.68	0.68	0.58
03	1/30	1/8	0.70	0.50	0.50	0.50	1.25	0.65	0.65	0.56
04	1/10	1/8	1.80	0.70	0.70	0.64	2.00	0.99	0.99	0.77
06	1/10	1/8	1.80	0.70	0.70	0.64	2.20	1.08	1.08	0.89
08	1/10	1/4	1.80	0.70	0.70	0.64	2.20	1.54	1.54	0.95
10	1/10 (x2)	1/8 (x2)	3.28	1.40	1.40	1.28	3.80	1.90	1.90	1.56
12	1/10 (x2)	1/4 (x2)	3.28	1.40	1.40	1.28	4.30	2.25	2.25	1.94

NOTE: Total unit amps shown are based on motor specifications and test data. Actual performance will vary with the application.

Coils

1. Disconnect all incoming power before servicing the unit.
2. To access coils for servicing, remove front access panel by removing the screws holding the panel in place. EXPOSED: turning the cabinet latches on the front of the access panel by using a flat head screwdriver.
3. The coil should be inspected periodically for accumulation of dust and dirt. Clean as necessary. Cleaning can be done by brushing the coils in the direction of the fins as to not damage them. Compressed air can also be used to blow out the dust particles in the coil. Vacuum up all dust particles so they can not damage the blower and motor.

VERTICAL CONCEALED FAN COIL

MAINTENANCE

Electric Heater Replacement Instructions

CAUTION: Disconnect all incoming power before any service is performed on the unit(s).

Ensure line power is off to the control panel. The control panel contains hazardous voltages when energized; make certain that incoming line voltage has been disconnected. The Fan Coil Electric Heater assembly, seen in **Illustration A**, can be removed by following the steps listed below:

1. Remove the front access panel of the unit.
2. Remove the 4 screws holding the heat shield in place, as seen in **Illustration B**.
3. Pull out the heat shield until the heater wire terminals are accessible and disconnect them from the heater element. If there isn't enough slack in the wires to sufficiently access the heater, disconnect the heater wire terminals inside the control box.
4. Replace the heater element.
5. Reinstall the heat shield by repeating steps 1-4 in reverse order.

NOTE: See Electric Coils manual for troubleshooting.

ILLUSTRATION A ▼

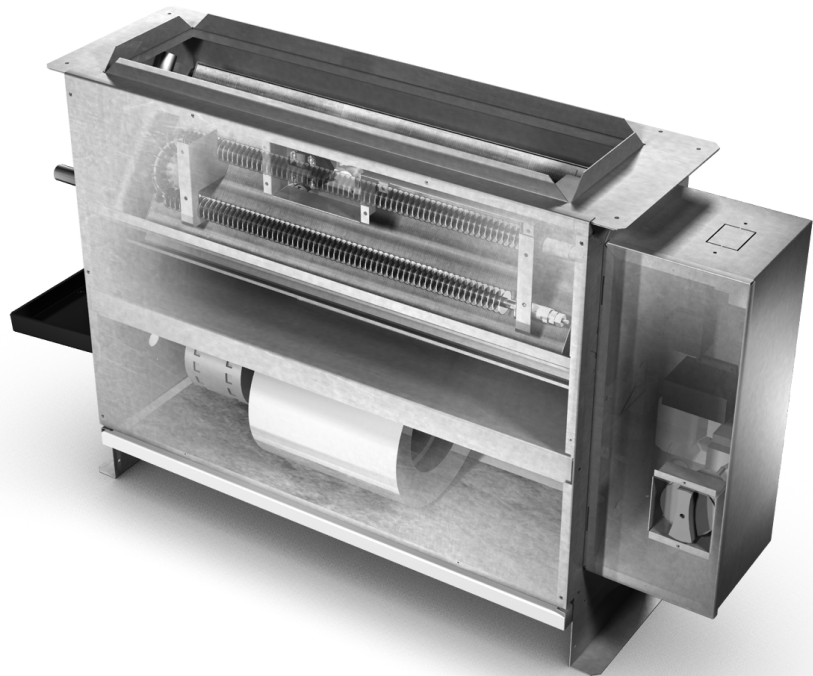
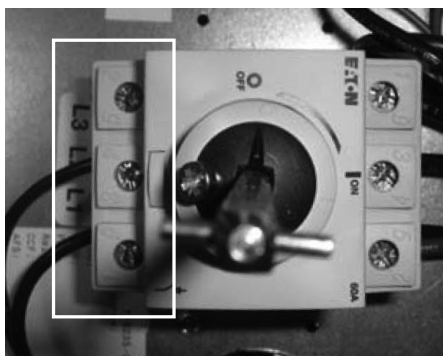


ILLUSTRATION B ▼



Disconnect View

VERTICAL CONCEALED FAN COIL

MAINTENANCE

Troubleshooting Guide

General	<ol style="list-style-type: none">1. Confirm fan coil size and rating with blueprint and schedule (check Control Assembly label on terminal unit).2. Visually check electrical connections with the Control Wiring diagram(s) located inside the electrical enclosure or in the applicable controls brochure.3. Verify that the supply voltage is the same as specified on the control diagram(s) or Voltage Information label.
Noise	<ol style="list-style-type: none">1. Foreign material in fan.2. Fan or duct size selection too small for application causing high air velocity.3. Vibrating duct work.4. Unbalanced fan wheel causing it to hit the housing.
Fan Does Not Operate	<ol style="list-style-type: none">1. Check the unit wiring against the provided Control and Wiring diagrams. See inside cover of the electrical enclosure for diagrams.2. Verify that the disconnect switch or breaker is not opened.3. Check for proper control signal from thermostat. See thermostat for full heating and monitor output.4. Fan wheel may be touching the housing.
Air Volume not as Specified	<ol style="list-style-type: none">1. Check filter for excessive dust build-up.2. Check fan for particle blockage.3. Check coils for particle blockage.4. Measure downstream static pressure; compare to fan curve.5. Verify that the supply voltage is the same as specified on the wiring diagram. See wiring diagram pasted on the inside of the electrical enclosure or in the applicable controls brochure.6. Insulating duct liner loose.

VERTICAL CONCEALED FAN COIL

MAINTENANCE

Replacement Parts

Component	Part#	Description
Fan Motors	019142-001	115V - 1/10 HP (Sizes 04, 06, 08, 10 & 12)
	019142-002	208V-240V - 1/10 HP (Sizes 04, 06, 08, 10 & 12)
	019142-003	277V - 1/10 HP (Sizes 04, 06, 08, 10 & 12)
	019145-001	115V - 1/30 HP (Size 02 & 03)
	019145-002	208V-240V - 1/30 HP (Size 02 & 03)
	019145-003	277V - 1/30 HP (Size 02 & 03)
Fan Speed Controllers	019432-001	3 Speed Switch with Wall Plate (DSW3)
Digital Controllers	250000-100	PIC-FC Controller
	250000-450	FC-PSC3 Controller
Blowers	100152-001	Left Hand Blower
	100152-002	Right Hand Blower
Coils	023452-001	1 Row Coil (Size 02)
	023452-002	1 Row Coil (Size 03 & 04)
	023452-003	1 Row Coil (Size 06)
	023452-004	1 Row Coil (Size 08)
	023452-005	1 Row Coil (Size 10)
	023452-006	1 Row Coil (Size 12)
	023451-001	2 Row Coil (Size 02)
	023451-002	2 Row Coil (Size 03 & 04)
	023451-003	2 Row Coil (Size 06)
	023451-004	2 Row Coil (Size 08)
	023451-005	2 Row Coil (Size 10)
	023451-006	2 Row Coil (Size 12)
	023449-001	3 Row Coil (Size 02)
	023449-002	3 Row Coil (Size 03 & 04)
	023449-003	3 Row Coil (Size 06)
	023449-004	3 Row Coil (Size 08)
	023449-005	3 Row Coil (Size 10)
	023449-006	3 Row Coil (Size 12)
	023448-001	4 Row Coil (Size 02)
	023448-002	4 Row Coil (Size 03 & 04)
	023448-003	4 Row Coil (Size 06)
	023448-004	4 Row Coil (Size 08)
	023448-005	4 Row Coil (Size 10)
	023448-006	4 Row Coil (Size 12)
Filters	042297-033	1" Glass Fiber Filter – 24.75 X 10 (Sizes 08, 10 & 12)
	042297-034	1" Glass Fiber Filter – 29.75 X 10 (Size 10)
	042297-035	1" Glass Fiber Filter – 39.75 X 10 (Size 06 & 12)
	042297-040	1" Glass Fiber Filter – 20.75 X 10 (Size 02)
	042297-041	1" Glass Fiber Filter – 28.75 X 10 (Size 03 & 04)
	042297-042	1" Glass Fiber Filter – 19.75 X 10 (Size 08)

VERTICAL CONCEALED FAN COIL

MAINTENANCE

Component	Part#	Description
Disconnect Switches	019903-001	115V/277V Single Pole Toggle Switch
	019903-003	208V/240V Double Pole Toggle Switch
	019774-002	Door Disconnect Switch 40A
	019774-003	Door Disconnect Switch 60A
	019774-005	Door Disconnect Switch 25A
	019779-004	Door Disconnect Shaft 90mm
	019779-005	Door Disconnect Shaft 150mm
	019780-001	Door Disconnect Knob
Fuse Blocks	019459-001	Fuse Block 600V 30A
	019840-001	Fuse Holder Class T, 1 Pole, 30A (For Electric Heat)
	019840-002	Fuse Holder Class T, 1 Pole, 60A (For Electric Heat)
	019840-003	Fuse Holder Class T, 2 Pole, 30A (For Electric Heat)
	019840-004	Fuse Holder Class T, 2 Pole, 60A (For Electric Heat)
Electric Heat Thermal Resets	019768-002	Thermal Disc Auto Reset 150°
	019769-001	Thermal Disc Manual Reset 150°
Transformers	019436-001	120/24V 50VA Transformer
	019436-005	277/24V 50VA Transformer
	019436-010	120,277/24V 50VA Transformer
	019436-011	208,240/24V 50VA Transformer
Contactors	019417-001	Magnetic Contactor 2 Pole, 24/240/277V, 30 FLA
	019417-002	Magnetic Contactor 2 Pole, 24/240/277V, 25 FLA
	019417-003	Magnetic Contactor 2 Pole, 24/240/277V, 40 FLA
	019417-004	Magnetic Contactor 2 Pole, 24/240/277V, 20 FLA
	019863-001	Magnetic Contactor 2 Pole, 24/120V, 30 FLA
	019863-002	Mercury Contactor 2 Pole, 30A
	019863-003	Mercury Contactor 2 Pole, 60A

Heater element

025900-XXX

1	SIZE 02	1	115V	1	1.0 kW
2	SIZE 03	2	208V	2	1.5 kW
3	SIZE 04	3	230V	3	2.0 kW
4	SIZE 06	4	277V	5	3.0 kW
5	SIZE 08			7	4.0 kW
6	SIZE 10			8	5.0 kW
7	SIZE 12			9	6.0 kW

ENSURE HEATER VOLTAGE AND KW RATING IS AVAILABLE
IN THE SPECIFIED UNIT SIZE WHEN ORDERING.

VERTICAL CONCEALED FAN COIL

MAINTENANCE

Installation Checklist

Receiving & Inspection

- Unit received undamaged
- All parts accounted for
- Unit arrangement/hand correct

Handing and Installation

- Unit mounted level and plumb
- Correct electrical service
- Proper access available for unit and components
- Correct overcurrent protection provided
- Rubber grommet isolators used
- Correct service switch/disconnect provided
- Code compliance for all components
- Shipping screws and hardware removed
- Unit protected from dirt and foreign matter

Cooling/Heating Connections

- Correct chilled water line to the unit
- Correct hot water line to the unit
- Drain pan sloped properly

Ductwork Connections

- Correct supply and return grille type and size
- Flexible duct connections to unit
- Insulate ductwork as required
- Control outside air to protect from heat/cold

Electrical Connections

- Refer to unit wiring diagram
- Wiring in code compliance
- Connect power service

This document contains the most current product information as of this printing.
For the most up-to-date product information, please go to priceindustries.com.

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