



# LV-E Series Installation Manual



## **Includes:**

LV-E Series Fan Coils  
Product Specifications

From the Manufacturers of  
Hi-Velocity Systems™

[www.hi-velocity.com](http://www.hi-velocity.com)

Module LVE - LV-E Series Fan Coil Installation 051210

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# The LV-E System

By Energy Saving Products Ltd.

*All Product  
Sizing on  
Pg. 18*



LV-E Fancoil  
Specs Pg. 17

## Heating Options



Hot Water Coil



Electric Strip Coil

## Cooling Options



Water Coil Module

## Other Options



Return Air



Hi-Velocity Air Purification System

When sizing an LV-E fan coil for a residential system, it is necessary to have an accurate heat loss/gain done for the structure. This will ensure the proper equipment is used for cooling and heating. A heat loss/gain is done for each room, with all rooms added together to find the total BTUH load for the building. With the total load known, the appropriate fan coil can be chosen from **Pg. 18**.

THE LV-E FAN COIL IS NOT TO BE USED AS TEMPORARY HEATING/COOLING DURING THE CONSTRUCTION OF THE STRUCTURE. IF USED IN THIS CAPACITY ALL WARRANTIES WILL BE NULL AND VOID.

Fan coil units specified in this section shall be designed as a closed loop hydronic fan coil system, with published BTUH ratings and entering water temperatures between 110°F and 190°F. The system shall allow for heating, TX or chilled water cooling, and heat pump applications with electric coil back-ups. Entering water temperature and BTUH outputs shall match performances listed on **Pg. 20**.

## QUALITY ASSURANCE

Fan coil units shall be a total indoor air quality system complete with heating, cooling and air filtration, with the possibility of humidity control and fresh air make up. The fan coil must be factory manufactured, assembled and tested.

All equipment furnished under this specification shall comply with the standards set out by the following standards organizations:

<b>CSA</b>	Canadian Standards Association
<b>CE</b>	European Conformity
<b>UL</b>	Underwriters Laboratories

The fan coil units shall be designed, rated, and approved by CSA/UL.

The fan coil units shall have pre-wired controls consisting of a 24V transformer and printed circuit board. The circuit board shall be capable of providing both heating and cooling. Motors shall be 115/220/50/60/1 with published amp draws.

Sweat water connections are 3/4" for the LV-E 1050 and 1" for the LV-E 1750. All lines should be piped so as not to restrict use of the access panels, filter section, or electrical enclosure.

Refer to the appendix pages at the back of this manual for all specifications, measurements, etc.

Fan coils are to be located indoors, however, attic, crawl space and garage conditions are fully acceptable. The fancoil unit can be positioned in a Horizontal, Hi-Boy, or Counterflow position and can be suspended from the ceiling or placed directly on the floor.

When potential for gravity flow of the hot water exists, spring check valves may be needed on both the supply and return lines.

PLEASE READ THE ENTIRE MANUAL BEFORE BEGINNING INSTALLATION AS THIS WILL HELP AVOID MISTAKES THAT MAY COST TIME AND MONEY.

## DISCLAIMER

Energy Saving Products Ltd. reserves the right to discontinue, make changes to, and add improvements upon its products at any time without public notice or obligation. The descriptions and specifications contained in this manual were in effect at printing. Some illustrations may not be applicable to your unit.

## FAN COILS

The LV-E fan coil is manufactured with a direct drive, permanently lubricated motor that is mounted within the blower. All LV-E fan coils are single side access. The blower assembly can be easily slid out by removing the electrical box and then removing the three mounting bolts that attach the blower to the center plate.

## PLACEMENT

When installing the fan coil, keep these points in mind:

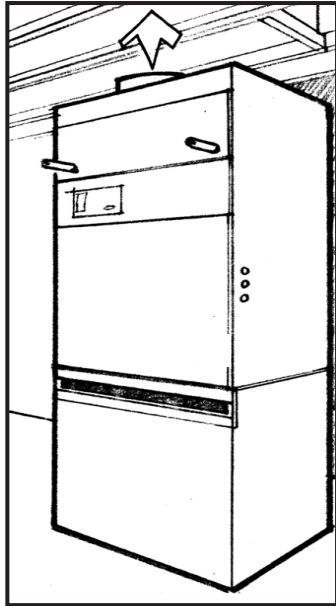
- Serviceability and access to the unit.
- Maximizing usable floor space.
- Location of heating/cooling source to the fan coil.

## HANGING STRAP KIT

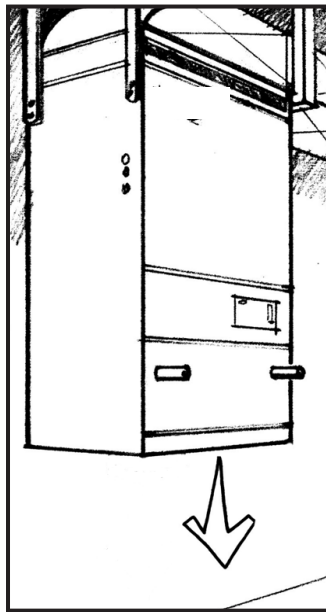
The Hanging Strap Kits are designed to suspend a horizontal or vertical fan coil. The nylon straps will absorb most of the vibration generated by the fan coil system, eliminating any sound transfer. The hanging strap kit is not recommended for the LV-E-1750.

As previously stated, the fancoil can be positioned in many different orientations. When placed in the Hi-Boy position, supply air is fed from the top of the unit. (**Fig. 01**) When placed in the Counterflow position, supply air is fed downwards from the unit. (**Fig. 02**)

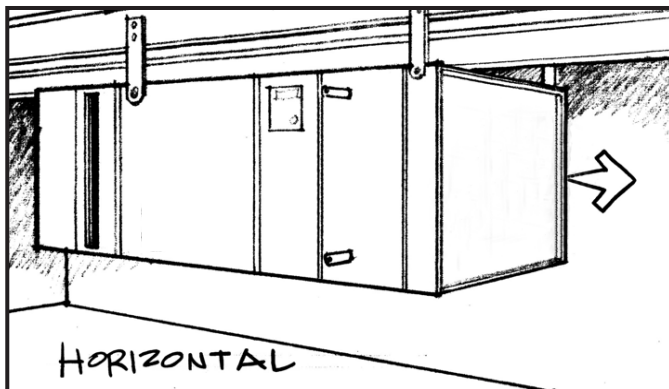
**Fig. 01 - Hi-Boy**



**Fig. 02 - Counter flow**



**Fig. 03 - Horizontal installation**



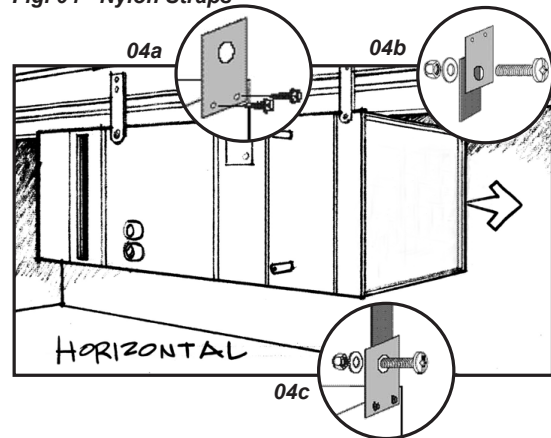
Quite often, the best location for the fan coil unit is suspended from the ceiling of the mechanical room, in the horizontal position (**Fig. 03**). This will allow for more floor space in the room, and will minimize the duct work needed to connect to the fan coil unit.

### FANCOIL UNIT ONLY

Attach the metal flanges to the four facing corners of the fancoil unit (**Fig. 04a**).

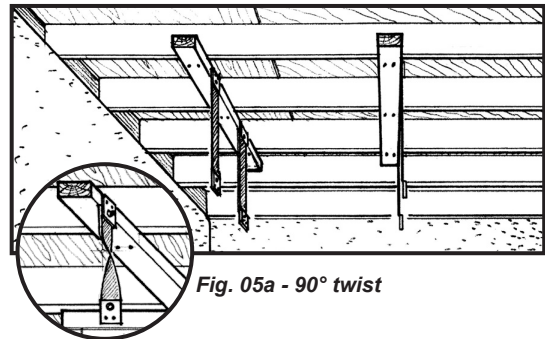
The Nylon Straps need to be cut to the desired length (4" or more). Make a 1/4" hole 1" from the end of the nylon strap. Slide the 1/4" bolt into the hole of the metal flange then into the nylon strap, secure with washer and nut. Repeat this at each end of the nylon straps (**Fig. 04b - 04c**).

**Fig. 04 - Nylon Straps**



Secure the nylon straps to the joist or support, it may be necessary to install a support across the joists to properly fasten the Nylon Straps (**Fig. 05**). The Nylon Straps are always installed in a vertical position; they should never be installed at an angle. It is acceptable to put a 90° twist in the Nylon Straps (**Fig. 05a**), do not exceed 90°.

**Fig. 05 - Support might be needed**



**Fig. 05a - 90° twist**

### CLEARANCES

Clearance is only needed on the access side of the units. However, ensure that there is a small space between the unit and any other surface to prevent vibration transfer. In order to maintain and service the fan coil unit, the minimum clearances required on the access side are (**Table 01**).

**Table 01 – Fan coil clearances**

Unit	Inches
LV-E 1050	22"*
LV-E 1750	32"

\*Add an additional 4" for Electric Strip Coils  
(not available for the LV-E 1750)

### REFRIGERANT COOLING MODULE

Due to the size of the RCM/RPM-E Cooling Modules and the high volume of air produced by the LV-E Fancoil Unit, the use of the RCM/RPM-E coils with the LV-E Fancoil is not advised. For refrigerant cooling needs, a third party blow through coil such as an A-Frame or N-Frame coil is suitable.

## WATER COIL MODULE (WCM/WM)

The water coil comes as a module and must be installed in the vertical position on the return air side of the fan coil. The WCM/WM come supplied with two L mounting brackets for connection to the fan coil (**Fig. 06**). For WCM/WM dimensional information and sweat water connection sizes refer to the manual shipped with the coil, also available on our website.

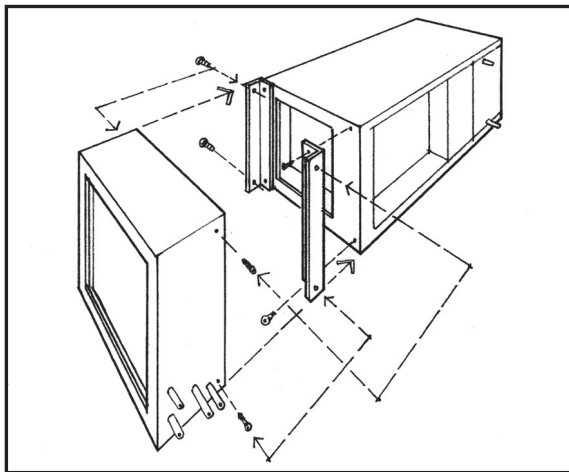
### PIPING THE WCM/WM

When the potential for gravity flow of the hot water exists, check valves may be needed on both the supply and return lines. **Fig. 08 and 09** give an example of this. All lines should be piped so as not to restrict access to the front panels, filter section, or electrical enclosure. Size your supply and return lines according to **Table 02**.

**Table 02 – WCM/WM pipe sizing**

Zone BTUH Heat loss	Pipe Size up to 40 feet	Pipe Size 40 – 100 feet
0 - 35,000	5/8"	3/4"
35,001 - 70,000	3/4"	1"
70,001 - 140,000	1"	1 1/4"

**Fig. 06 - Mounting Brackets**



## HOT WATER COIL ADD-ON

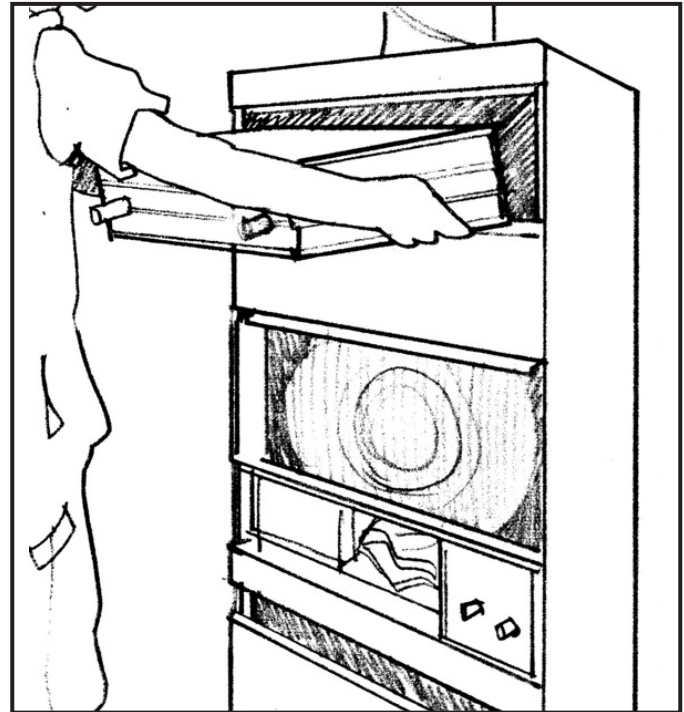
The Hot Water Coil Add-on is easily installed in the LV-E fan coil. With heating, condensate is not a consideration and the coil can be mounted on the supply side of the blower (**Fig. 07**).

With the removal of the front panels, the coil can be slid in place on the supply side of the blower. For Hot Water Coil dimensional information refer to the manual shipped with the coil, also available on our website.

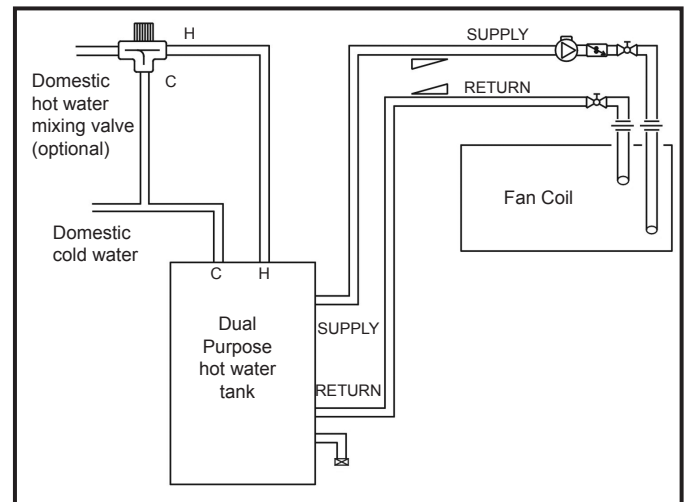
### PIPING THE HOT WATER COIL

**Fig. 08 and 09** illustrate typical pipe runs from a dual purpose hot water tank to a fan coil. These drawings are only for reference as all piping has to be run according to local code.

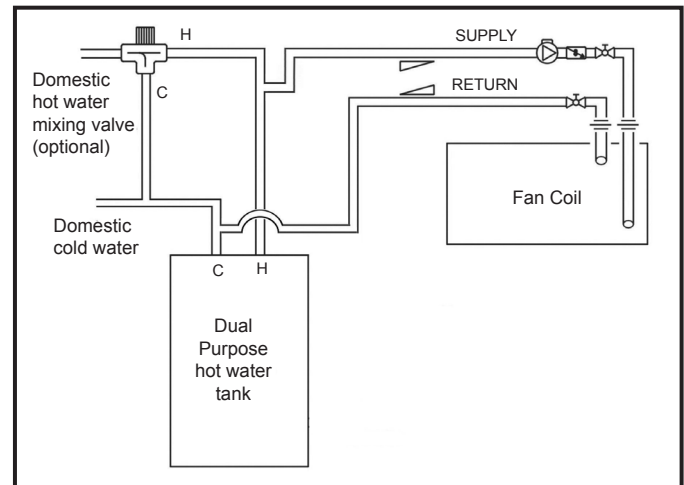
**Fig. 07 - Hot Water Coil easily slides into the fan coil**



**Fig. 08 - Hot water tank: Side take-offs**



**Fig. 09 - Hot water tank: Without side take-offs**



## ELECTRICAL STRIP HEATER (ESH)

The Electrical Strip Heater slides into the fan coil, on the supply side of the blower (**Fig. 07**). Once the front access doors have been removed, the ESH can be slid into place.

The ESH is labeled with a directional airflow sticker; when placing the ESH the sticker shall be in the direction of the air flow. Currently, the ESH is only available for use with the LV-E 1050

## WIRING THE ELECTRICAL STRIP HEATER

Before wiring in the ESH, make sure all power sources are disconnected. The wiring diagram is on the inside of the ESH front panel, or refer to **Pg. 10**. Use only wires suitable for 167°F (75°C); wires shall be sized according to local electrical code.

Use only class 2 wiring for the Control Circuit connections between the heater terminal 1, terminal 2 and the zone valve terminals. Please note, the ESH must be wired to a dedicated breaker, separate from the fan coil.

For Electrical Strip Heater Specifications, please refer to the manual shipped with the coil, also available on our website.

## RETURN AIR

The return air duct is not supplied with the LV-E Fancoil System. It is to be supplied and installed by the contractor. The return air and fresh air make-up ducts are to be installed according to local building code.

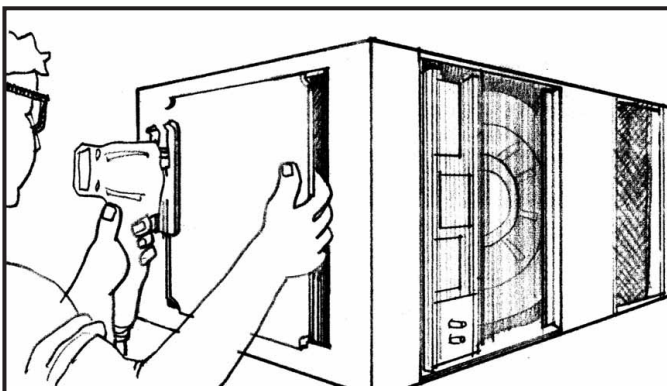
## RETURN AIR CUTOUT

All LV-E fan coils are shipped with the return air knockouts pre-measured for multiple configurations. **Table 03** contains the pre-measured dimensions for the return air knockouts.

**Table 03 – Return Air Cutout Dimensions**

Model	Dimensions
LV-E 1050	14 <sup>1</sup> / <sub>2</sub> " X 13 <sup>1</sup> / <sub>2</sub> "
LV-E 1750	21" X 17 <sup>7</sup> / <sub>8</sub> "

**Fig. 10 - Return air cutout**



Once the placement of the return has been decided, the return air knockout(s) can be marked and cut (**Fig. 10**). The pre-measured guide cuts supplied with the fan coil should always be used; this will guarantee maximum airflow across the coil.

## RETURN AIR BASE (OPTIONAL)

Energy Saving Products manufactures a return air base with a built in filter rack that matches up to the fan coil units.

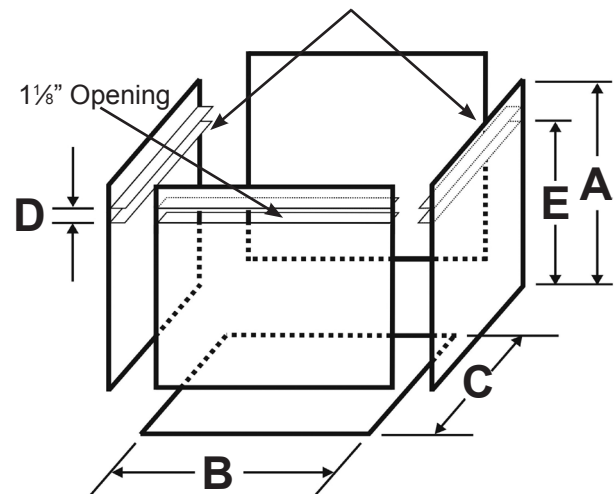
The return air base comes complete with a 1" filter and 1" filter rack. The filter is a 3 medium filter approximately 14% efficient, and can be replaced with any aftermarket filter. All Return Air bases come acoustically lined with half-inch sound absorbing insulation.

**Table 04 – Return Air Base dimensions**

	A	B	C	D	E
LV-E 1050	24"	18 <sup>1</sup> / <sub>2</sub> "	19 <sup>1</sup> / <sub>2</sub> "	1 <sup>1</sup> / <sub>8</sub> "	21 <sup>3</sup> / <sub>4</sub> "
LV-E 1750	24"	24 <sup>1</sup> / <sub>4</sub> "	26 <sup>1</sup> / <sub>2</sub> "	1 <sup>1</sup> / <sub>8</sub> "	21 <sup>3</sup> / <sub>4</sub> "

**Fig. 11 – Return Air Design**

Two 1<sup>1</sup>/<sub>8</sub>" Rails (D) for fan coil Placement and Filter Holder



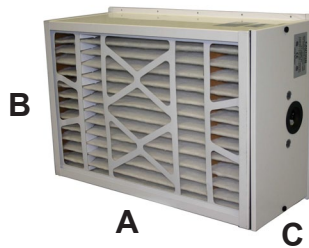
## FILTER RACK (OPTIONAL)

Also available from Energy Saving Products is a 3" Filter Rack. Filters are 1 inch thick, 3 medium filters approximately 14% efficient. Any after market filter may be used with both the Hi-Velocity Return Air Base and Filter Rack.

**Table 05– Filter Rack dimensions**

	A	B	C	D
LV-E 1050	3"	18 <sup>1</sup> / <sub>2</sub> "	19 <sup>1</sup> / <sub>2</sub> "	1 <sup>1</sup> / <sub>8</sub> "
LV-E 1750	3"	24 <sup>1</sup> / <sub>4</sub> "	26 <sup>1</sup> / <sub>2</sub> "	1 <sup>1</sup> / <sub>8</sub> "

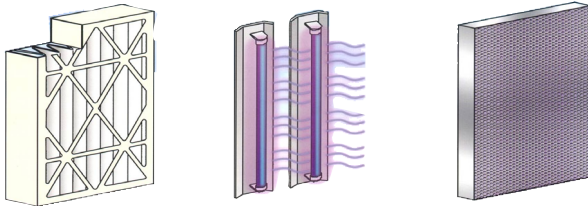
## HI-VELOCITY AIR PURIFICATION SYSTEM



Designed for the Hi-Velocity System, the HE PS gives consumers unsurpassed indoor air quality. The HE PS will work at the airflow rates of the LV-E 1050 only. For 3 stage filtration on the LV-E 1750, we recommend using the HE PS 1750. See our website for specifications.

**Table 06 –HE PS dimensions**

	A	B	C
HE PS w/ Flange	25 <sup>3/4</sup> "	17 <sup>3/4</sup> "	10"



## LV-E USER GUIDE

### INDOOR AIR QUALITY (IAQ)

Ensure that there is always a filter in place and check every month to ensure that the filter is clean. The amount of time between filter changes and cleaning will be dependant upon the living habits of the homeowner. With a clean air filter, you not only have cleaner air to breathe, but you will also help maintain unit efficiency, as well as increase the operating life of the unit.

### FILTER MAINTENANCE

The 1" 3 medium filters supplied by Energy Saving Products Ltd. can be cleaned and re-used. If the filter needs cleaning, the system should first be shut down and the filter removed. Once out of the unit, the filter can be vacuumed on the pink side and washed on the white side. Once the filter has been vacuumed, cleaned, and completely dried, it can be replaced in the unit. Note that the pink side of the filter faces the blower and the white side towards the return air. A filter can generally be cleaned a few times, if re-used too often it will restrict airflow.

## SYSTEM EFFICIENCY/PERFORMANCE

A big misconception that people have is that by turning off the air conditioning when they leave home, they save on cooling costs. This is not necessarily true as the system will need to run longer and harder when pulling the house down to temperature after being shut off for a large amount of time. Keeping the temperature within a small range when there are no loads from human use will result in less overall energy consumption.

## INSTALLATION CHECKLIST

Ensure that all electrical connections are tight, and that any packing or shipping restraints are removed from both the fan coil, and the outdoor unit. With the power to the condensing unit off, check the thermostat for normal operation and proper airflow from all vents. Do not run the fan coil without a filter in place.

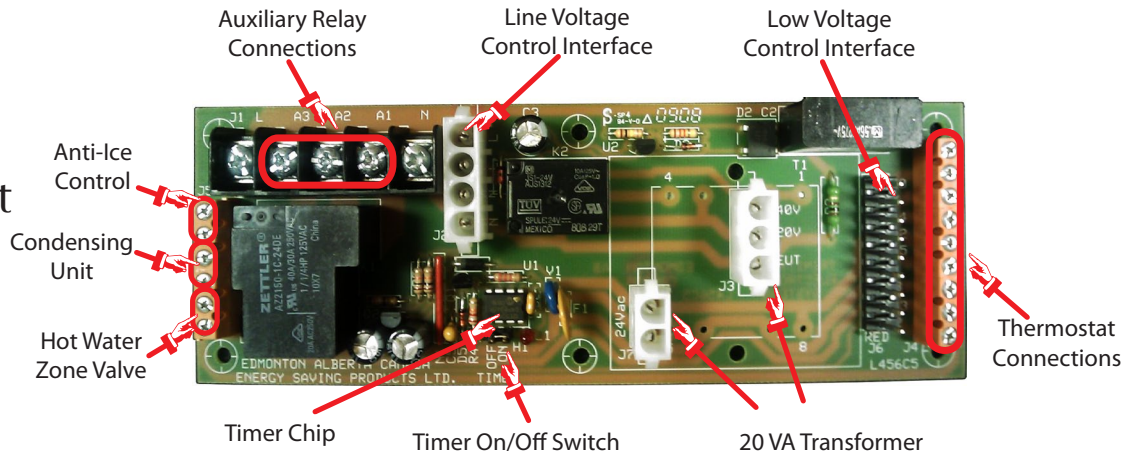
Observe the system pressures during the initial start-up and charging of the system. Refer to the outdoor or indoor coil manufacturer's charging guidelines. Check the voltage and amp draw of both the fan coil, and the outdoor unit. The voltages must be within 10% of the rating plate data. If more than 10% is noted, contact your local electrical company. Check that the amp draws of both units are within the information printed on the unit rating plates.

**IN THE EVENT OF DIFFICULTY DURING THE START-UP PROCEDURE, PLEASE REFER TO THE TROUBLE SHOOTING FLOW CHARTS (Pgs. 15-16) TO ASSIST YOU IN DETERMINING THE PROBLEM.**



## EPC CIRCUIT BOARD/CONTROL BOARD

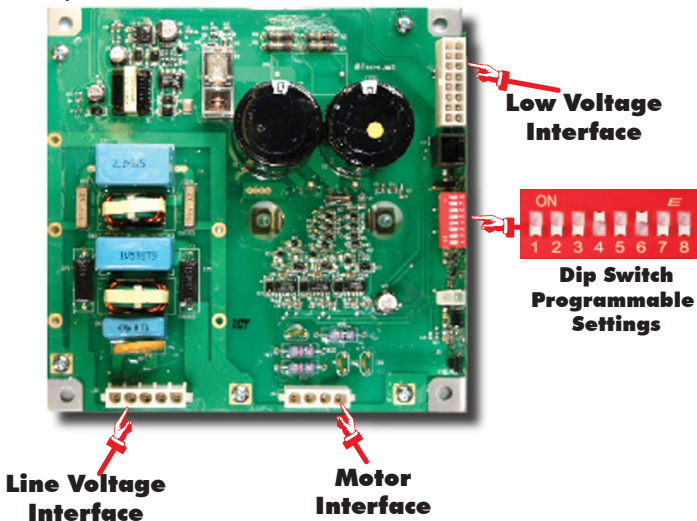
### EPC Circuit Board



Energy Saving Products Ltd. now utilizes automatic voltage and frequency recognition circuitry designed for the national and international market. This unique feature will automatically recognize and adjust to the voltage and frequency input. It doesn't matter if it is 115 or 230 volt, 50 or 60 cycle, our electronics will adjust to the input automatically.

The Circulator Timer Chip on our circuit board will energize the pump for 5 minutes every 24 hours. This timing cycle starts when power is turned on to the fan coil unit, and will be engaged at the same time every day. If you wish to have the timer cycle operate at a specific time of day, simply turn off power to the fan coil unit for three seconds at that time, and then turn the power back on. If you do not need to use the timer circuit, move the jumper header from the ON pins to the OFF pins and it will be disabled.

### EPC Control Board



## UNIT CONFIGURATION

The LV-E unit utilizes mass flow technology and will attempt to provide constant air delivery throughout the programming range. Whereas a conventional motor would slowly lose airflow due to a condition such as a dirty filter, the EPC Motor and mass flow program will attempt to maintain proper airflow rates through such a condition. This is achieved through control of the voltage and frequency of power provided to the motor. The LV-E System is field programmable from 1.5 to 5 tons of cooling with the use of an adjustable control board, with the tonnage being set by the 8 pins on board. See the Dip Switch Control graphic for reference. Detailed information on pin settings is supplied on [Page 13](#).

Dip Switch Control:



(Factory Setting, set for 1.5 tons)

Each programmed tonnage will have up to 5 adjustments for on-site fine tuning which is changed using pins 6,7 and 8.

## LV-E FAN COIL - EPC WIRING DIAGRAM

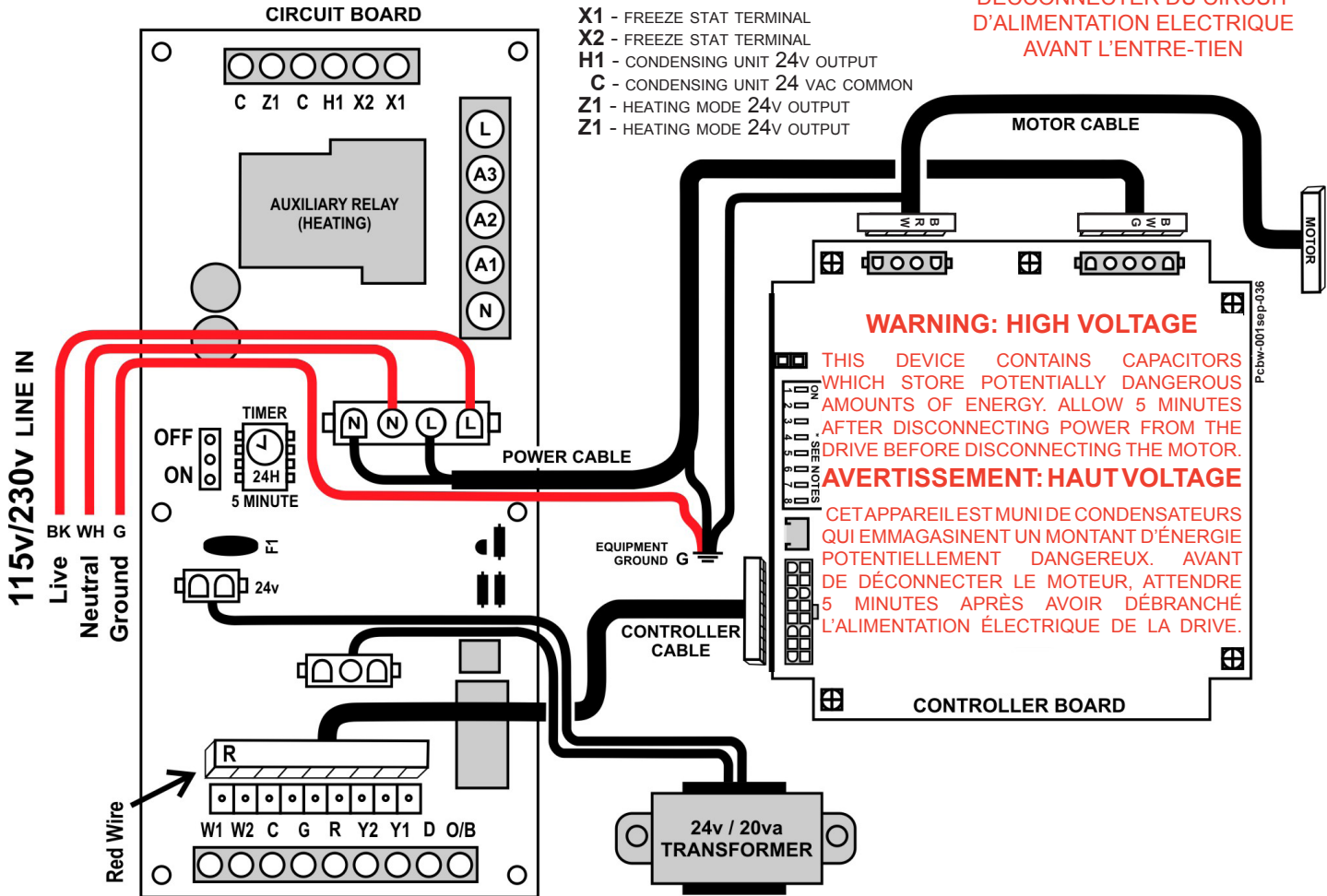
This wiring diagram is included on all of the LV-E models. The power inputs as well as the various connection terminals are identified, helping you to quickly wire in the required devices.

### FOR SINGLE STAGE OPERATION USE W2 & Y2 TERMINALS

**N** - NEUTRAL  
**L** - LINE VOLTAGE  
**A1** - AUXILIARY NORMALLY OPEN  
**A2** - AUXILIARY NORMALLY CLOSED  
**A3** - AUXILIARY COMMON  
**X1** - FREEZE STAT TERMINAL  
**X2** - FREEZE STAT TERMINAL  
**H1** - CONDENSING UNIT 24V OUTPUT  
**C** - CONDENSING UNIT 24 VAC COMMON  
**Z1** - HEATING MODE 24V OUTPUT  
**Z1** - HEATING MODE 24V OUTPUT

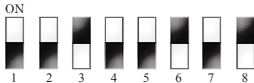
**CAUTION**  
 DISCONNECT THE ELECTRIC  
 POWER BEFORE SERVICING

**ATTENTION**  
 DECONNECTER DU CIRCUIT  
 D'ALIMENTATION ELECTRIQUE  
 AVANT L'ENTRE-TIEN

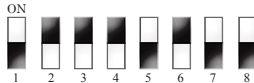


### MINIMUM FACTORY DIP SETTINGS BLACK IS DIP SWITCH SETTING

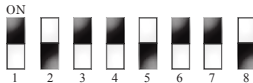
LV-E 1050 400 CFM/TON  
 2 TONS/47.5 MBH @ 5 GPM



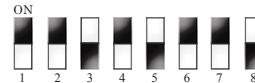
LV-E 1050 400 CFM/TON  
 3 TONS/64.6 MBH @ 5 GPM



LV-E 1750 400 CFM/TON  
 4 TONS/94.3 MBH @ 10 GPM



LV-E 1750 350 CFM/TON  
 5 TONS/112.1 MBH @ 10 GPM



Heating Ratings Based Upon 160°F EWT

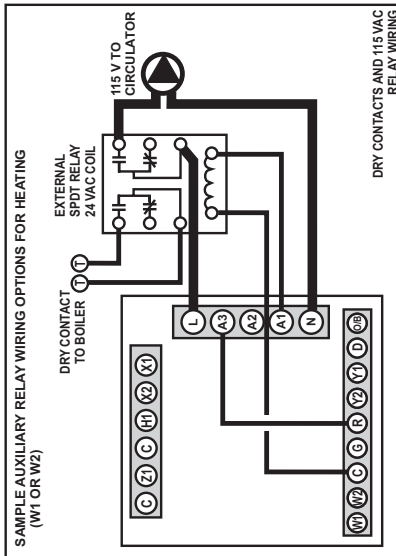
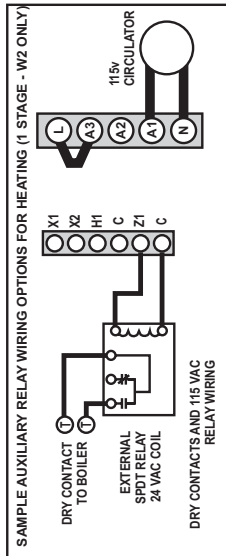
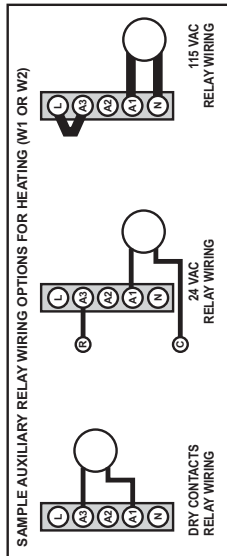
### NOTES:

- 1) USE THERMOSTAT FAN SWITCH TO DISABLE/ENABLE CONTINUOUS FAN.
- 2) 'C' TERMINAL ON THERMOSTAT (COMMON) IS NOT NEEDED FOR SOME THERMOSTATS. CONSULT THERMOSTAT INSTRUCTIONS FOR DETAILS.
- 3) A3 (AUXILIARY RELAY COMMON) CAN BE USED WITH A1 AND/OR A2 AS DRY CONTACTS, ARMED 24v FROM THE 'R' TERMINAL, OR ARMED FROM THE 'L' TERMINAL.

- 4) AUXILIARY RELAY TIMER ACTIVATES CIRCUIT FOR 5 MINUTES EVERY 24 HOURS STARTING WHEN POWER IS APPLIED TO THE UNIT. RED LIGHT IS ON WHEN AUXILIARY RELAY IS ACTIVATED.
- 5) SEE INSTALLATION MANUAL FOR MORE DETAILED WIRING DIAGRAMS AND DIP SWITCH SETTINGS.
- 6) FAILURE TO READ AND FOLLOW ALL INSTRUCTIONS CAREFULLY BEFORE INSTALLATION COULD CAUSE PERSONAL INJURY AND/OR PROPERTY DAMAGE.

# Extended Wiring Diagrams

Extended wiring diagrams for the various applications the LV-E model can be used for. If you don't find the wiring configuration you require, please call the technical department at Energy Saving Products Ltd. for further assistance.

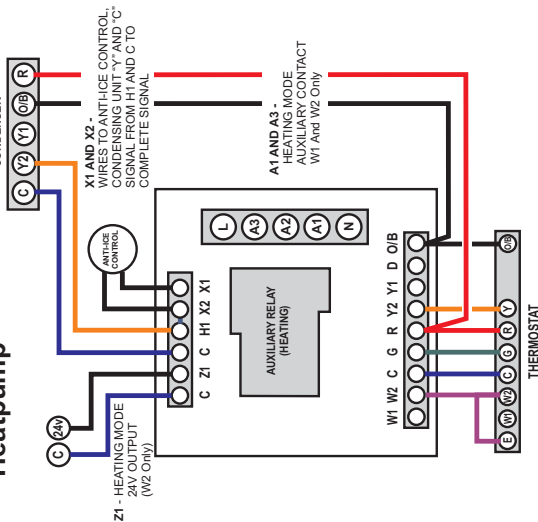


## FOR SINGLE STAGE OPERATION USE W2 & Y2 TERMINALS

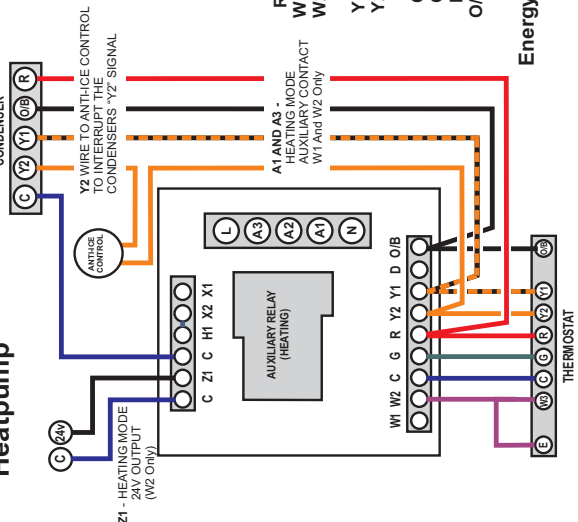
- R - 24VAC OUTPUT
- W1 - FIRST STAGE HEAT
- W2 - SECOND STAGE HEAT (OR SINGLE STAGE)
- Y1 - FIRST STAGE COOLING (OR SINGLE STAGE)
- Y2 - SECOND STAGE COOLING (OR SINGLE STAGE)
- C - 24 VAC COMMON
- G - THERMOSTAT FAN SWITCH
- D - DEHUMIDIFICATION
- O/B - HEATPUMP REVERSING VALVE
- N - NEUTRAL
- L - LINE VOLTAGE
- A1 - AUXILIARY NORMALLY OPEN
- A2 - AUXILIARY NORMALLY CLOSED
- A3 - AUXILIARY COMMON
- X1 - FREEZE STAT
- X2 - FREEZE STAT
- H1 - CONDENSING UNIT 24V OUTPUT (Y)
- C - 24 VAC COMMON
- Z1 - HEATING MODE 24V OUTPUT
- C - 24 VAC COMMON

Energy Saving Products 12615-124 Street, Edmonton, AB T5L-0N8  
ESP315.06

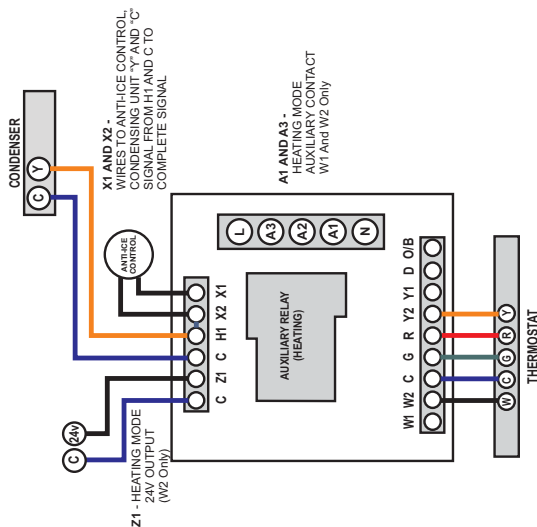
### 1 Stage Cooling 2 Stage Heating Heatpump



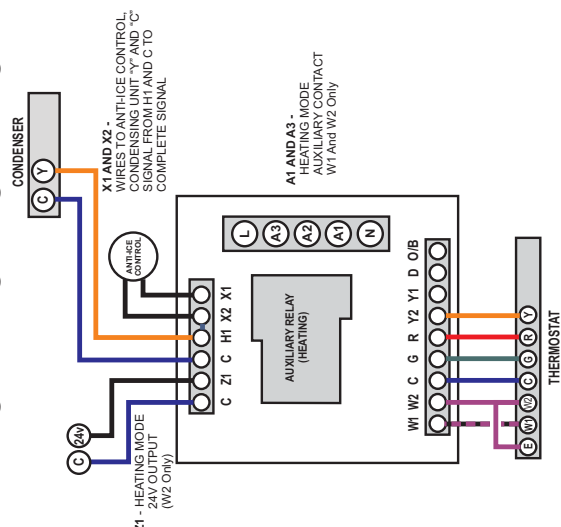
### 2 Stage Cooling 3 Stage Heating Heatpump



### 1 Stage Cooling 1 Stage Heating



### 1 Stage Cooling 2 Stage Heating



## LV-E Fan Coil - 24V Wiring Controls

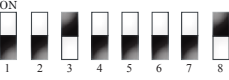
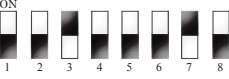
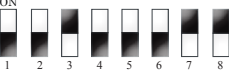
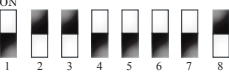
<b>W1</b>	W1 input to 1st (low stage) heat calls. Active when R is applied. Activates 1st stage heat fan and Auxiliary Relay. (W1 operates at 60% of W2 Fan Speed)
<b>W2</b>	W2 input to 2nd (high/primary stage) heat calls. Active when R is applied. Activates 2nd stage heat fan, Auxiliary Relay and 24V to Z1 (W2 operates at 320/280 CFM per ton, refer to dip setting)
<b>C</b>	24V supply common
<b>G</b>	G input for thermostat fan switch. Active when R is applied (G operates at 50% of Y2 Fan Speed)
<b>R</b>	24V supply
<b>Y2</b>	Y2 input to 2nd (high/primary stage) cooling or heat pump call. Active when R is applied. Activates 2 stage cooling fan speed, activates X1 with 24V for freeze stat and condenser connections (Y2 operates at 400/350 CFM per ton, refer to dip setting)
<b>Y1</b>	Y1 input to 1st (low stage) cooling or heat pump calls. Active when R is applied. Activates 1 stage cooling fan speed. (Y1 operates at 60% of Y2 Fan Speed)
<b>D</b>	24V input required from dehumidistat switch activates blower system to 320/280 CFM per ton from dip setting. Y2 must be activated rom thermostat. (D operates at 320/280 CFM per ton, refer to dip setting)
<b>O/B</b>	Blind contact for condenser heat pump from thermostat
<b>X1</b>	24V Signal with calls from Y2, powers Freeze Stat
<b>X2</b>	Freeze Stat connection return signal
<b>H1</b>	24V Signal to Y on Condenser
<b>C</b>	Common for Condensing Unit
<b>Z1</b>	24V supply on W2 call
<b>C</b>	Common

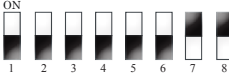
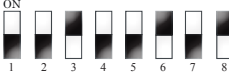
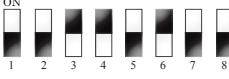
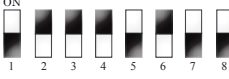
**\*Note: X1 to X2** recommended to be wired to Freeze Stat (Anti-Ice Control)  
If Freeze Stat is not used, a jumper between X1 to X2 must be installed to complete the H1 - 24V Signal to Y on Condenser (i.e. Chilled Water Systems)

# EPC Circuit Board Pin Settings and Air Flow Data (Standard)

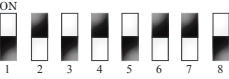
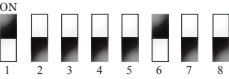
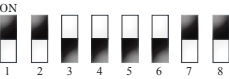
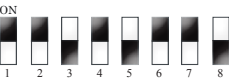
BLACK INDICATES DIP SWITCH POSITION. A heat loss/gain must be done prior to selecting an LV-E unit. Once an accurate heat loss/gain is completed, select the appropriate LV-E unit and the correct pin settings.

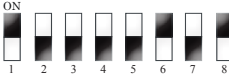
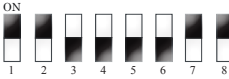
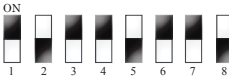
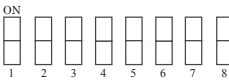
## Model: LV-E 1050

Model: LV-E 1050	350 CFM/Ton	
<b>Cooling: 1.5 Ton</b>  Pin Setting 0010-0001	CFM	525
	Watts	110
<b>Cooling: 2.0 Ton</b>  Pin Setting 0010-0010	CFM	700
	Watts	185
<b>Cooling: 2.5 Ton</b>  Pin Setting 0010-0011	CFM	875
	Watts	245
<b>Cooling: 3.0 Ton</b>  Pin Setting 0110-0001	CFM	1050
	Watts	440

Model: LV-E 1050	400 CFM/Ton	
<b>Cooling: 1.5 Ton</b>  Pin Setting 0000-0011	CFM	600
	Watts	140
<b>Cooling: 2.0 Ton</b>  Pin Setting 0010-0101	CFM	800
	Watts	205
<b>Cooling: 2.5 Ton</b>  Pin Setting 0011-0100	CFM	1000
	Watts	290
<b>Cooling: 3.0 Ton</b>  Pin Setting 0111-0100	CFM	1200
	Watts	515

## Model: LV-E 1750

Model: LV-E 1750	350 CFM/Ton	
<b>Cooling: 3.0 Ton</b>  Pin Setting 0101-0110	CFM	1050
	Watts	230
<b>Cooling: 3.5 Ton</b>  Pin Setting 1000-0100	CFM	1225
	Watts	310
<b>Cooling: 4.0 Ton</b>  Pin Setting 1100-0011	CFM	1400
	Watts	440
<b>Cooling: 5.0 Ton</b>  Pin Setting 1101-0110	CFM	1750
	Watts	695

Model: LV-E 1750	400 CFM/Ton	
<b>Cooling: 3.0 Ton</b>  Pin Setting 1000-0101	CFM	1200
	Watts	270
<b>Cooling: 3.5 Ton</b>  Pin Setting 1100-0011	CFM	1400
	Watts	440
<b>Cooling: 4.0 Ton</b>  Pin Setting 1011-0110	CFM	1600
	Watts	500
<b>Cooling: 5.0 Ton</b>  Pin Setting N/A	CFM	N/A
	Watts	N/A

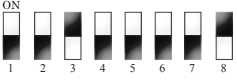
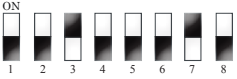
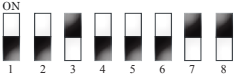
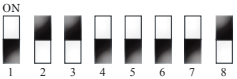
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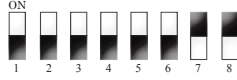
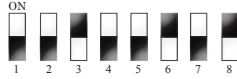
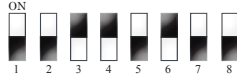



# EPC Circuit Board Pin Settings and Air Flow Data (Metric)

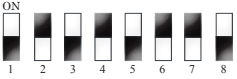
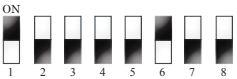
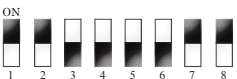
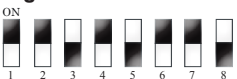
BLACK INDICATES DIP SWITCH POSITION. A heat loss/gain must be done prior to selecting an LV-E unit. Once an accurate heat loss/gain is completed, select the appropriate LV-E unit and the correct pin settings.

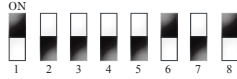
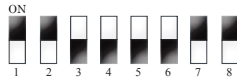
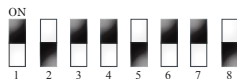

## Model: LV-E 1050

Model: LV-E 1050	47 L/s per kW	
<b>Cooling: 1.5 Ton</b>  Pin Setting 0010-0001	L/s	248
	Watts	110
<b>Cooling: 2.0 Ton</b>  Pin Setting 0010-0010	L/s	330
	Watts	185
<b>Cooling: 2.5 Ton</b>  Pin Setting 0010-0011	L/s	413
	Watts	245
<b>Cooling: 3.0 Ton</b>  Pin Setting 0110-0001	L/s	496
	Watts	440

Model: LV-E 1050	54 L/s per kW	
<b>Cooling: 1.5 Ton</b>  Pin Setting 0000-0011	L/s	283
	Watts	140
<b>Cooling: 2.0 Ton</b>  Pin Setting 0010-0101	L/s	378
	Watts	205
<b>Cooling: 2.5 Ton</b>  Pin Setting 0011-0100	L/s	472
	Watts	290
<b>Cooling: 3.0 Ton</b>  Pin Setting 0111-0100	L/s	566
	Watts	515

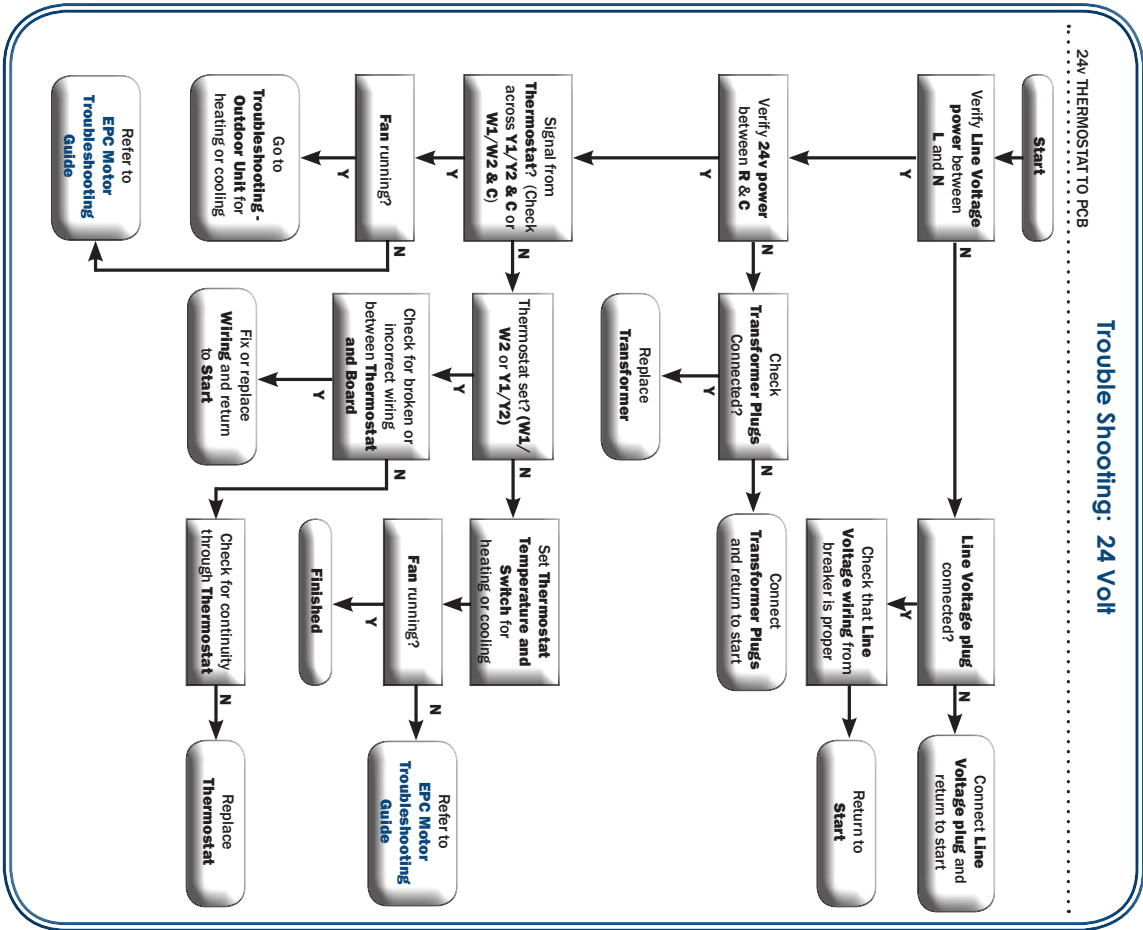
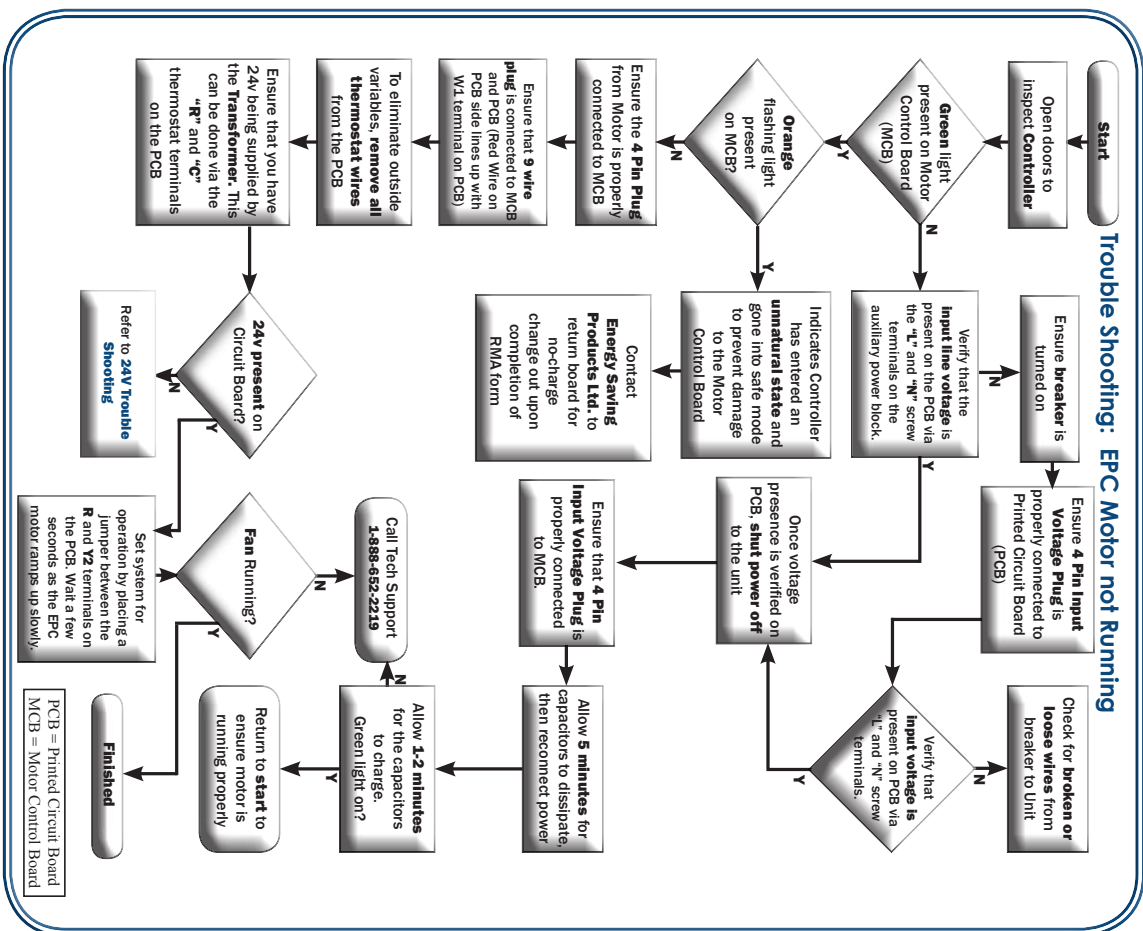
## Model: LV-E 1750

Model: LV-E 1750	47 L/s per kW	
<b>Cooling: 3.0 Ton</b>  Pin Setting 0101-0110	L/s	496
	Watts	230
<b>Cooling: 3.5 Ton</b>  Pin Setting 1000-0100	L/s	578
	Watts	310
<b>Cooling: 4.0 Ton</b>  Pin Setting 1100-0011	L/s	661
	Watts	440
<b>Cooling: 5.0 Ton</b>  Pin Setting 1101-0110	L/s	826
	Watts	695

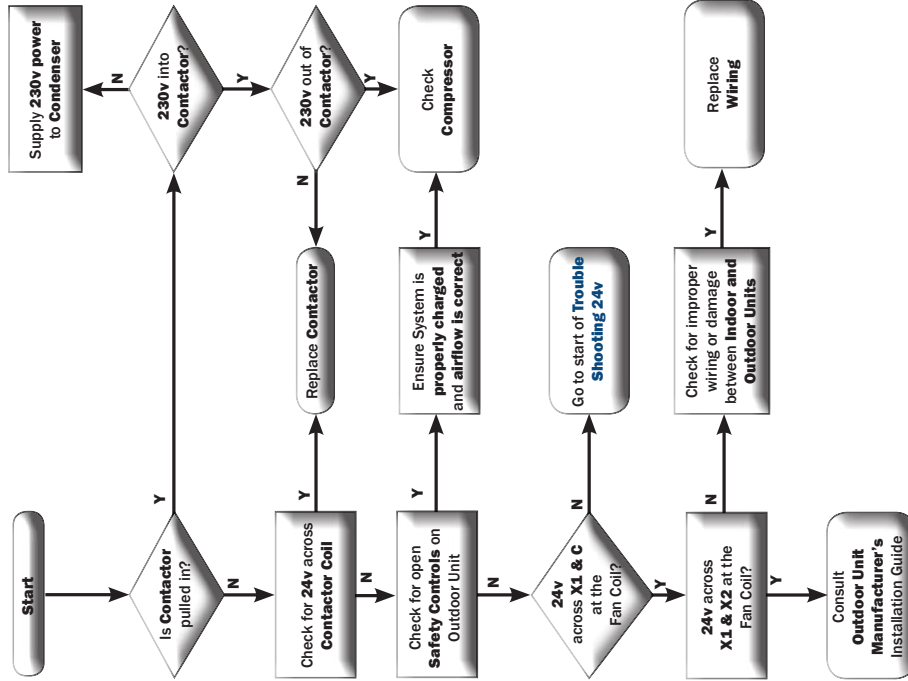
Model: LV-E 1750	54 L/s per kW	
<b>Cooling: 3.0 Ton</b>  Pin Setting 1000-0101	L/s	566
	Watts	270
<b>Cooling: 3.5 Ton</b>  Pin Setting 1100-0011	L/s	660
	Watts	440
<b>Cooling: 4.0 Ton</b>  Pin Setting 1011-0110	L/s	755
	Watts	500
<b>Cooling: 5.0 Ton</b>  Pin Setting N/A	L/s	N/A
	Watts	N/A

Black indicates dip switch position:

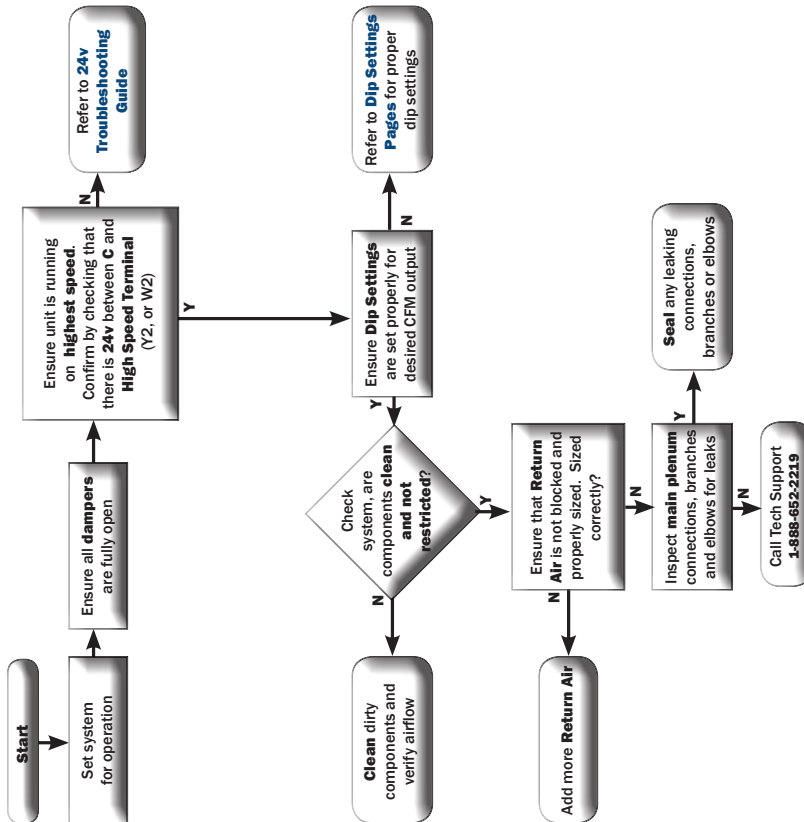




**Trouble Shooting: Outdoor Unit - Electrical**



**Trouble Shooting: Low Air Flow**



PCB = Printed Circuit Board  
MCB = Motor Control Board



**Matching Coils**

**Chilled Water Coils**

WCM-70/1050, WM-100/1050, WM-1750

**Hot Water Coils**

HWC-70/1050, HWC-1750

**Electrical Coils**

ESH-750 (5-18 Kw)

# LV-E Series Specifications (Standard & Metric)

**Hot Water Heating**

**LV-E 1050**

**LV-E 1750**

Coil Type	70/1050	70/1050	70/1050*1	70/1050*1	1750	1750	1750
Tonnage (kW)	1.5 (5.27kW)	2 (7.03 kW)	2.5 (8.78 kW)	3 (10.54 kW)	3.5 (12.30 kW)	4 (14.05 kW)	5 (17.57 kW)
Max. BTUH @ 190°F E.W.T. (kW @ 88°C)	50,100 (14.67)	63,200 (18.51)	75,200 (22.02)	86,000 (25.18)	112,800 (33.03)	125,500 (36.75)	149,200 (43.69)
Max. BTUH @ 180°F E.W.T. (kW @ 82°C)	45,900 (13.44)	58,000 (16.98)	69,000 (20.20)	78,900 (23.10)	103,400 (30.28)	115,100 (33.70)	136,800 (40.06)
Max. BTUH @ 170°F E.W.T. (kW @ 77°C)	41,800 (12.24)	52,800 (15.46)	62,700 (18.36)	71,700 (20.99)	94,200 (27.58)	104,700 (30.66)	124,400 (36.43)
Max. BTUH @ 160°F E.W.T. (kW @ 71°C)	37,700 (11.04)	47,500 (13.91)	56,500 (16.54)	64,600 (18.92)	84,800 (24.83)	94,300 (27.61)	112,100 (32.82)
Max. BTUH @ 150°F E.W.T. (kW @ 66°C)	33,600 (9.84)	42,300 (12.39)	50,300 (14.73)	57,400 (16.81)	75,500 (22.11)	83,900 (24.57)	99,700 (29.19)
Max. BTUH @ 140°F E.W.T. (kW @ 60°C)	29,400 (8.61)	37,000 (10.83)	43,900 (12.85)	50,100 (14.67)	66,100 (19.35)	73,400 (21.49)	87,000 (25.47)
Max. BTUH @ 130°F E.W.T. (kW @ 54°C)	25,200 (7.38)	31,700 (9.28)	37,500 (10.98)	42,700 (12.50)	56,600 (16.57)	62,800 (18.39)	74,400 (21.79)
Max. BTUH @ 120°F E.W.T. (kW @ 49°C)	21,100 (6.18)	26,500 (7.76)	31,500 (9.22)	35,900 (10.51)	47,400 (13.88)	52,600 (15.40)	62,300 (18.24)
Max. BTUH @ 110°F E.W.T. (kW @ 43°C)	17,100 (5.01)	21,400 (6.27)	25,500 (7.47)	29,100 (8.52)	38,300 (11.21)	42,600 (12.47)	50,500 (14.79)
GPM Flow ratings (L/s Flow Ratings)	5 (.32)	5 (.32)	5 (.32)	5 (.32)	10 (.63)	10 (.63)	10 (.63)
Pressure Drop FT. (m) H <sub>2</sub> O (Drop in kPa)	3.9 (.97)	3.9 (.97)	3.9 (.97)	3.9 (.97)	3.1 (.77)	3.1 (.77)	3.1 (.77)
CFM @ 68°F E.A.T. (L/s @ 20°C E.A.T.)	420 (198)	560 (264)	700 (330)	840 (396)	980 (463)	1120 (529)	1400 (661)

**Chilled Water Cooling**

**LV-E 1050**

**LV-E 1750**

Coil Type	70/1050	70/1050	100/1050*2	100/1050*2	1750	1750	1750
E.W.T.							
Max. BTUH @ 48°F E.W.T. (kW @ 8.9°C)	20,200 (5.91)	23,800 (6.97)	31,500 (9.22)	34,900 (10.22)	46,700 (13.67)	50,400 (14.76)	56,200 (16.46)
Max. BTUH @ 46°F E.W.T. (kW @ 7.8°C)	22,000 (6.44)	25,800 (7.55)	34,200 (10.01)	37,900 (11.10)	50,700 (14.85)	54,600 (15.99)	60,900 (17.83)
Max. BTUH @ 44°F E.W.T. (kW @ 6.7°C)	23,700 (6.94)	27,800 (8.14)	37,000 (10.83)	40,800 (11.95)	55,000 (16.10)	58,800 (17.22)	65,500 (19.18)
Max. BTUH @ 42°F E.W.T. (kW @ 5.6°C)	25,400 (7.44)	29,900 (8.76)	39,600 (11.60)	43,800 (12.83)	58,300 (17.07)	62,900 (18.42)	70,000 (20.50)
Max. BTUH @ 40°F E.W.T. (kW @ 4.4°C)	27,000 (7.91)	31,800 (9.31)	42,200 (12.36)	46,600 (13.64)	62,100 (18.18)	66,900 (19.59)	74,500 (21.81)
S.H.R.							
Max. BTUH @ 48°F E.W.T. (kW @ 8.9°C)	69%	72%	71%	73%	69%	71%	74%
Max. BTUH @ 46°F E.W.T. (kW @ 7.8°C)	67%	70%	68%	70%	67%	68%	71%
Max. BTUH @ 44°F E.W.T. (kW @ 6.7°C)	65%	67%	66%	68%	65%	66%	69%
Max. BTUH @ 42°F E.W.T. (kW @ 5.6°C)	63%	66%	65%	66%	64%	65%	67%
Max. BTUH @ 40°F E.W.T. (kW @ 4.4°C)	62%	64%	63%	65%	62%	63%	65%
GPM Flow ratings (L/s Flow Ratings)	5 (.32)	5 (.32)	7 (.44)	7 (.44)	10 (.63)	10 (.63)	10 (.63)
Pressure Drop FT. (m) H <sub>2</sub> O (Drop in kPa)	4.5 (1.12)	4.5 (1.12)	4.5 (1.12)	4.5 (1.12)	3.6 (.90)	3.6 (.90)	3.6 (.90)
CFM@80°F dB/67°F wB E.A.T. (L/s @ 27dB/ wB 19°C)	525 (248)	700 (330)	875 (413)	1050 (496)	1225 (578)	1400 (661)	1750 (826)

**Electrical Heating**

**LV-E 1050**

**LV-E 1750**

Kilowatt Range	5 - 18 Kw	N/A
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**Fancoil**

**LV-E 1050**

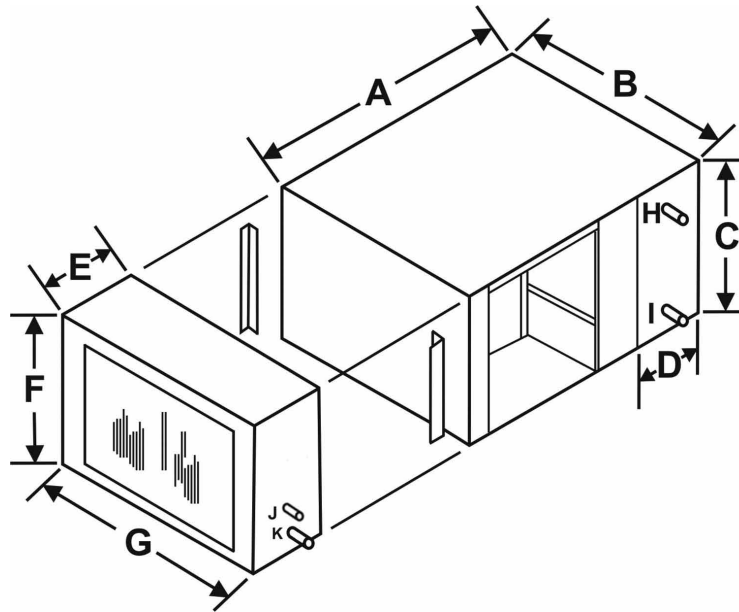
**LV-E 1750**

Voltage		115/230/1/50/60 F.L.A. 8 amp	
Max Rated C.F.M. (Max Rated L/s)		1200 (566)	1750 (826)
Horse Power/Watts		1/3 HP EPC - 515w	3/4 HP EPC - 695w
R.P.M.		Variable	Variable
Integral Surge and Fuse System		Yes	Yes
Supply Air Size		15" X 16" (381mm X 406mm)	22.5" X 22.5" (572mm X 572mm)
Return Size Needed		182 in <sup>2</sup> (0.12m <sup>2</sup> )	240 in <sup>2</sup> (0.12m <sup>2</sup> )
Shipping Weight		95 lbs (43 kg)	125 lbs (43 kg)
Fan Coil Size	Length Width Height	32.5" (826mm) 19.5" (495mm) 18.5" (470mm)	39" (991mm) 26.75" (679mm) 24.25" (616mm)

\*1 - WCM-100 will provide the same heating capacities at 7 GPM and 3.9 FT. H<sub>2</sub>O (0.44L/s and 0.97 kPa)

\*2 - Use a full transition when using the WCM-100 to ensure even airflow across the coil. The WCM-70 is not to be used at these airflow rates.

# Quick Sizing Guide



Item	Length	Width	Height		
<b>Fan coils</b>	<b>A</b>	<b>B</b>	<b>C</b>		
<b>LV-E 1050</b>	32.5" (826mm)	19.5" (495mm)	18.5" (470mm)		
<b>LV-E 1750</b>	39" (991mm)	26 3/4" (679mm)	24 1/4" (616mm)		
<b>Water Cooling Modules</b>	<b>G</b>	<b>E</b>	<b>F</b>	<b>J</b>	<b>K</b>
<b>WCM-70</b>	19 3/8" (492mm)	10 1/8" (257mm)	18 1/2" (470mm)	3/4" (19mm)	3/4" (19mm)
<b>WM-100</b>	25 3/8" (645mm)	7" (178mm)	18 3/8" (467mm)	3/4" (19mm)	3/4" (19mm)
<b>WM-1750</b>	26 1/4" (667mm)	8" (203mm)	22 5/8" (575mm)	1 1/8" (29mm)	1 1/8" (29mm)
<b>Hot Water Coils (6 Row)</b>	<b>B</b>	<b>D</b>	<b>C</b>	<b>H</b>	<b>I</b>
<b>LV-E 1050</b>	19" (483mm)	5 1/2" (140mm)	16" (406mm)	3/4" (19mm)	3/4" (19mm)
<b>LV-E 1750</b>	26" (660mm)	5 1/2" (140mm)	22" (559mm)	1 3/4" (44mm)	3/4" (19mm)

Heating Coil Add-on does not come as a module, it slides into the Hi-Velocity fan coil

Electrical Strip Heater	B	D	C
<b>HV-750</b>	18 3/4" (476mm)	5 5/8" (143mm)	15 1/2" (394mm)

Dimensions for the ESH do not include the electrical access panel, add 4" to ESH for Total Length

Hi-Velocity Air Pur. Syst.	B	D	C
<b>HE PS c/w Merv 11 Filt.</b>	25" (635mm)	17" (432mm)	10" (254mm)
<b>HE PS-1750</b>	32" (813mm)	23" (584mm)	14" (356mm)

## WARRANTY

One year limited warranty. The heat exchanger and blower are free from defects in workmanship for one year from date of purchase.

Three year limited warranty. The EPC Motor, EPC Controller and EPC Circuit Board are free from defects in workmanship for three years from date of purchase.

Two year limited warranty. The electrical strip heater is free from defects in workmanship for two years from date of purchase

This warranty applies only to the fan coil unit and does not include connections, attachments, and other products or materials furnished by the installer. This warranty applies only to the first purchaser at retail and excludes any damages caused by changes, relocation to, or installation in a new site. This warranty does not cover any defects caused by failure to follow the installation and operating instructions furnished with the fan coil, local building codes, and good industry standards. Failure to correctly install the fan coil, or material related to the unit, may result in improper system performance and/or damages and will void this warranty.

## TERMS AND CONDITIONS

- Any repair performed under warranty must be approved by Energy Saving Products Ltd. for this warranty to be valid.
- The manufacturer is not liable for any other damages, personal injury, or any other losses of any nature.
- The liability of the manufacturer is limited to and shall not exceed the cost of replacement parts and shall not include transportation to and from the factory, and field labour.
- Inoperative parts must be returned with serial number, purchase date, and a detailed description of the entire problem with an ESP RMA Form.
- This warranty replaces all other warranties expressed or implied.



EDMONTON, ALBERTA, CANADA  
PHONE (780) 453-2093 FAX (780) 453-1932  
TOLL FREE 1-888-652-2219  
[www.hi-velocity.com](http://www.hi-velocity.com)

Energy Saving Products Ltd., established in 1983, manufactures the Hi-Velocity Systems™ product line for residential, commercial and multi-family markets. Our facilities house Administration, Sales, Design, Manufacturing, as well as Research & Development complete with an in-house test lab. Energy Saving Products prides itself on Customer Service and provides design services and contractor support.



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## Build Smart, Breathe *Easy*

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Fax: 780-453-1932

Toll Free: 1-888-652-2219



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