Hi-Velocity Systems™

Small Duct High Velocity Heating, Cooling and Home Comfort Systems

RBM Refrigerant Base Module

Installation Manual

For use with R-410A Refrigerant

For A2L Refrigerants you MUST refer to the RBM-A2L Installation Manual



RBM-50 (1.5-2 Tons)
RBM-70 (2.5-3 Tons)
RBM-100 (3.5-5 Tons)

Includes:

Pre-Piped TXV (R-410A)
Freeze-Stat
Drain Pan
Service/Access Port(s)
T-Mounting Brackets
Double-Sided Mounting Tape
Hole Plugs (2)

Manufactured By

Energy Saving PRODUCTS LTD

Refrigerant Base Modules (RBM)

The RBM Series cooling coil comes as a module and can be installed in the vertical or horizontal position on the return air side of the air handler. The RBM comes with T-mounting brackets, thermal expansion valve, access port(s), and an external freeze stat*. This module comes heat pump ready and has most components pre-piped. Only the access port(s) and freeze stat will need to be installed. Fig. 01 shows approximate installation locations for these components.

The included access port(s) will need to be field installed to read refrigerant pressures/temperatures at the evaporator coil (RBM). Fig. 01 shows approximate installation locations for these components.

RBM modules can be used on any R-410A or A2L condenser if matching R-410A or A2L refrigerant components are used.

***IMPORTANT: The Freeze Stat (anti-ice control) serves the purpose of preventing severe icing of the coil in the event of an undercharge or low load on the coil. This piece of equipment must be used at all times. Failure to properly install the freeze stat will result in RBM related warranty issues being voided.**

NOTE: Do not remove protective bubble wrap from Freeze Stat



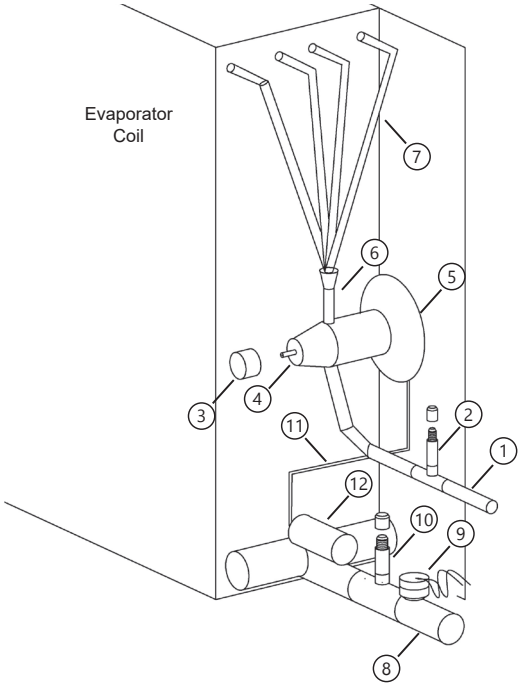


Fig. 01 - Coil Assembly

1) Liquid line	7) Distributor tubes
2) High side access port (if applicable)	8) Suction line
3) Adjustment stem cap	9) Freeze Stat (Anti-ice control)
4) Superheat adjustment stem	10) Low side access port
5) Thermal expansion valve (TX)	11) TX capillary tube
6) Refrigerant distributor	12) TX sensing bulb

Mounting Brackets

Mounting the cooling coil to the air handler can be done with the T brackets supplied (Fig. 02), ensure that no screws puncture the drain pan or coil. Use the provided mounting tape to air seal the RBM to the air handler. See specifications page for the dimensions of the air handler units and cooling modules.

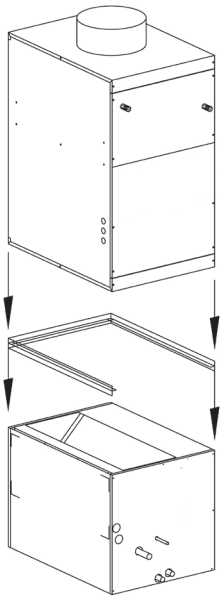


Fig. 02

Coil Configuration

The RBM module can be installed as a stand (return air base) for the air handler or as a side mounted coil. The module comes ready from the factory as left to up/right orientation (Fig. 03) but can easily be changed to a right to up/left orientation if desired. See page 3 for steps to adapt the coil to up/left.

Standard Configuration

A-B - Entering air in through the left, leaving through the top.

A-C - Entering air in through the left, leaving through the right.

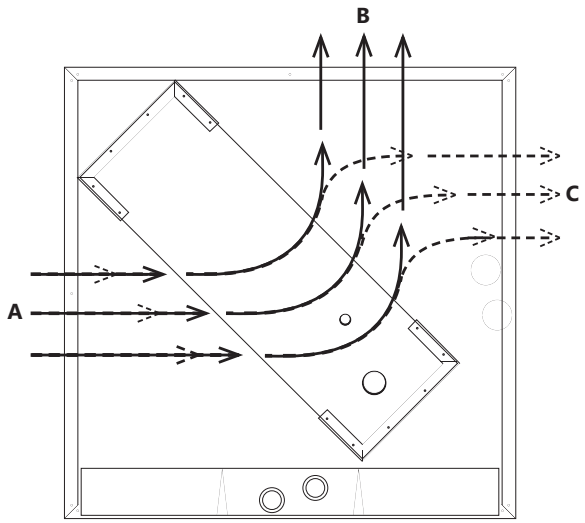


Fig. 03 - Standard Orientation for Left to Up or Left to Right Airflow

OR (WITH ADAPTATION)
(See page 3)

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Adapted Coil Configuration

If necessary, modules can be changed from left to up/right (standard) configuration to right to up/left (adapted) configuration, following the steps below.

D-E - Entering air in through the right, leaving through the top.
D-F - Entering air in through the right, leaving through the left.

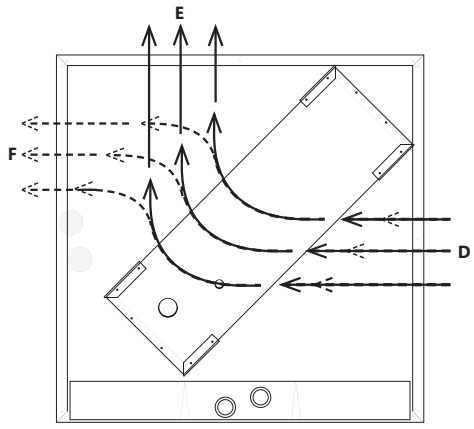


Fig. 04 - Adapted Orientation for Right to Up or Right to Left Airflow

Steps to Change Coil Configuration

1) Remove front door from cooling module. (Fig. 05)

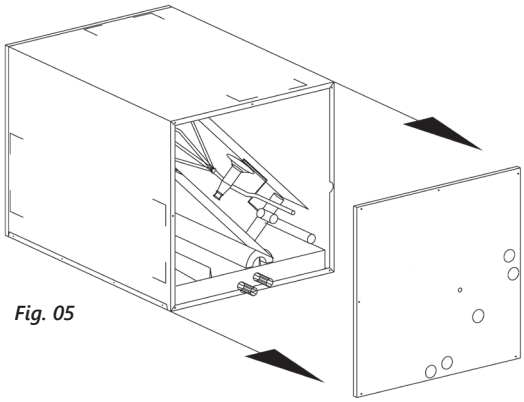


Fig. 05

2) Remove drain pan by sliding it out from the bottom of the coil casing, ensuring that the foam air dam is also removed. **(Figs. 05a, 05b)**

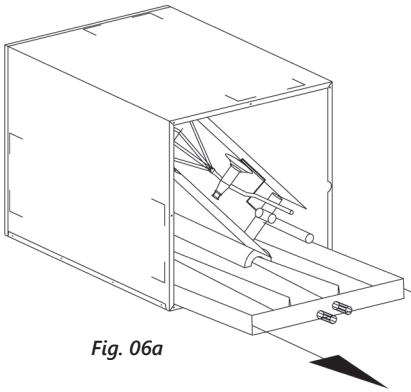


Fig. 06a

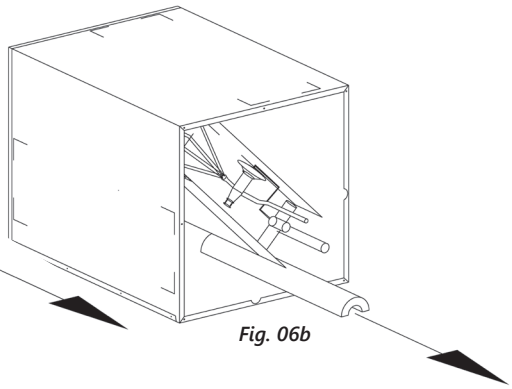


Fig. 06b

3) Rotate entire unit 90 deg. clockwise. **(Fig. 07)**

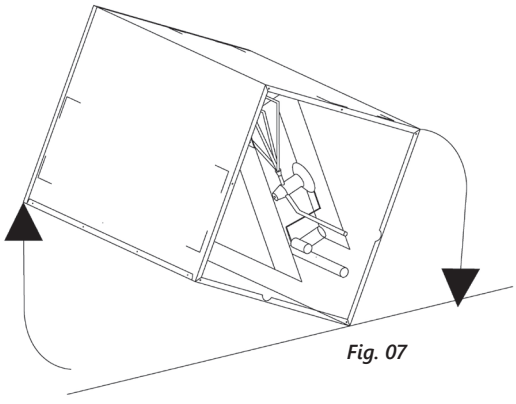


Fig. 07

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4) Position the blue horse hair filter in front of the drain line inlets, to filter condensate and prevent any air from bypassing under the coil through the gap in the drain pan's air dam **(Figs. 08a, 08b).**

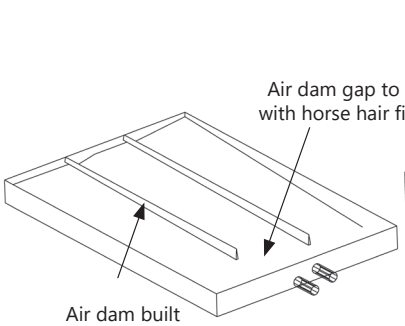


Fig. 08a

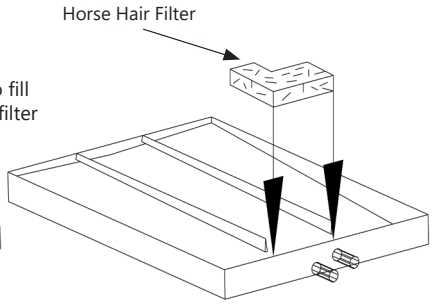


Fig. 08b

5) Replace the drain pan in (new) bottom location **(Fig. 09).**

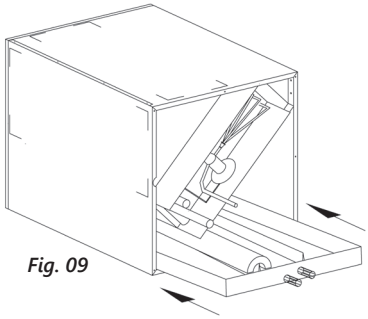


Fig. 09

6) Ensure the foam air dam is re-installed under the corner of the coil **in the correct orientation** to prevent air from bypassing under the coil **(Fig. 10).**

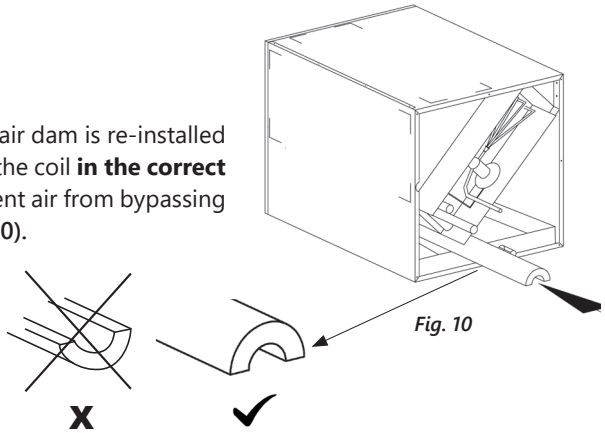


Fig. 10

7) Remove round knock-outs on the door to fit drain lines. Plug previously used drain holes with provided plugs **(Fig. 11).**

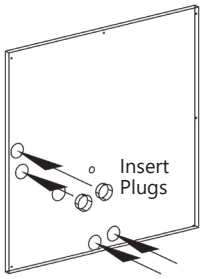


Fig. 11

8) Replace front door on module. **(Fig. 12).**

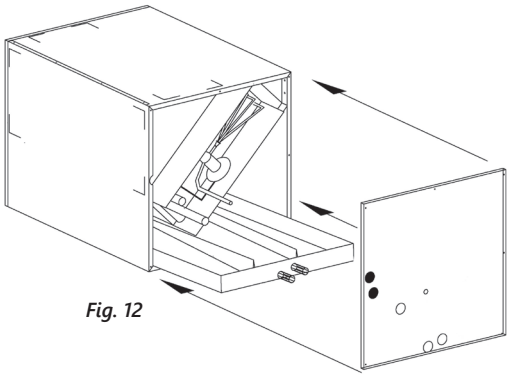


Fig. 12

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Return Air

When designing the return air for a Hi-Velocity System, there are a few things to consider. It is common to use centralized return air with systems that have rooms that are within a common area. Separate floors or rooms that have high loads and require a large amount of supply air flow should have their own return air, or be tied into the centralized return air to allow the air to return back to the air handler. Rooms or areas that cannot be tied into the return air should have an air transfer grill to allow the air to escape the room and flow back to a centralized return air. If a lack of R/A is suspected to be causing problems, ensure the R/A cut-out requirements have been completed (see page 6).

Duct Sizing

The Return Air is to be sized on a 0.15 static pressure (37 pa) as compared to 0.10 static pressure (25 pa) for conventional forced air systems. The maximum length for an individual return air duct is fifty feet (15.24m).

Please note: It is VERY important NOT to undersize the return air, as this will create noise, increase motor power consumption, reduce airflow and increase the possibility of condensate carry-over.

Table 03 has recommended return air sizes for round and rectangular ducts. A variance of **+20%** is allowable for sizing return ducts that connect to the RBM or Hi-Velocity Systems unit.

Important: When connecting a round Return Air to the RBM coil, a round to rectangular transition is required.

Table 03 – Return Air Duct Sizes

Unit	Rigid Ø	Flex Ø	Min Sq. Inches (Sq. cm)
50/51/52	12″ (305mm)	14″ (356mm)	120 (774cm)
70/71	12″ (305mm)	14″ (356mm)	120 (774cm)
100/101	14″ (356mm)	16″ (406mm)	168 (1084cm)

Remember: When using flexible duct for return air, use one duct size larger due to the higher friction loss.

Where allowed by local codes, a single return air grill may be used. Note: Return air grill must have equal minimum of free air area to return air.

Important: When using flexible duct for return air, use one duct size larger due to the higher friction loss.

Important: Return Air must be filtered before entering the cooling module.

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Return Air Cutouts

Once the RBM coil configuration and placement of the return air ducting has been decided, the return air knockout(s) can be cut.

IMPORTANT: The inital (step 1) cuts for inlet and outlet can be made with a power tool with a maximum 5" blade, using the "L" shaped pre-measured guide cuts.

TO AVOID DAMAGE: A metal shear (tin snips) must be used to make the additional cuts (cutting up to the step 2 pre-measured guide cuts), to match more closely to the filter or return air ducting size (to maximize airflow capacity). Use this cut method for the inlet and outlet openings to avoid damage to the coil.

Standard Orientation

For left to up airflow, cut out A and B

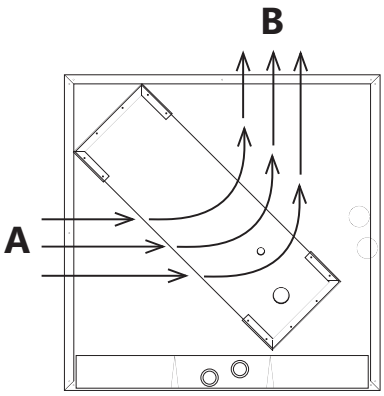
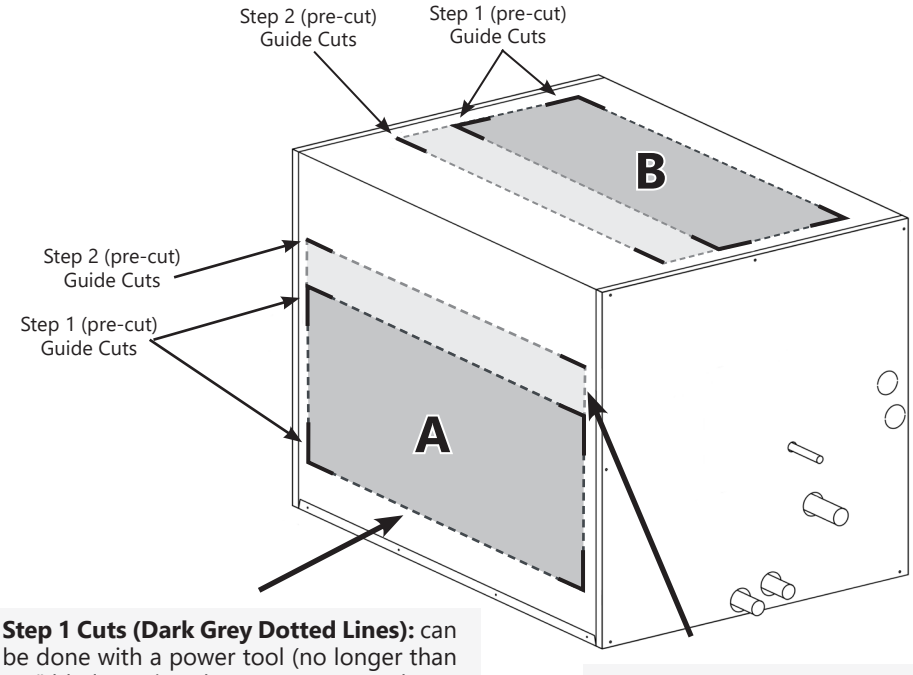


Fig. 13a - Left to Up



Step 1 Cuts (Dark Grey Dotted Lines): can be done with a power tool (no longer than a 5" blade), using the 4 pre-measured cuts as guides.

Step 2 Cuts (Light Grey Dotted Lines): must be made with a metal shear, cutting the hole to meet the 2nd set of pre-measured guide cuts.

For left to right airflow, cut out A (see above) and C

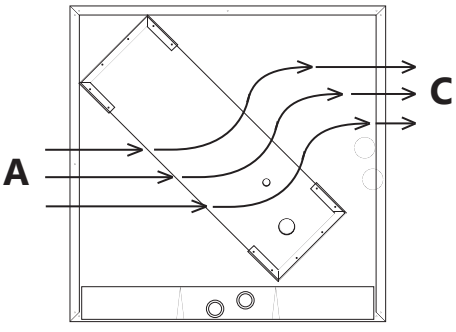
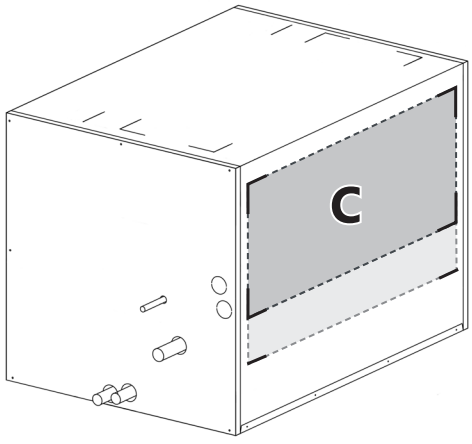
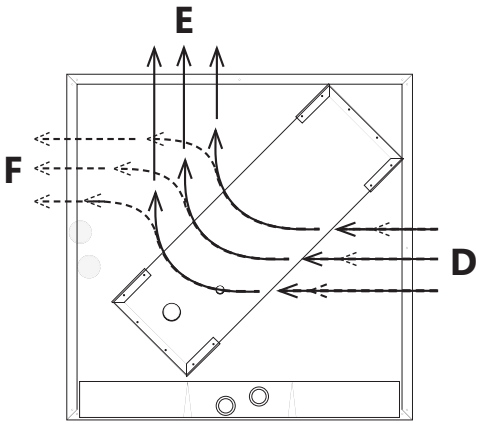


Fig. 13b - Left to Right



For modules that have been adapted as per Pg. 3, follow these same steps, cutting out **D and E** (right to up airflow) OR **D and F** (right to left airflow)



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Thermal Expansion Valve & Sensing Bulb

The Thermal Expansion (TX) Valve comes pre-installed inside the RBM Module. It is acccessible through the easy to remove front door or access hatch. The access hatch is used to access the TXV and the adjustment stem after the line sets are brazed on, and can be adjusted while the system is running. The TXV's sensing bulb is pre-installed on a clean, horizontal section of the suction line. It will be mounted on the top half of the pipe in the 2 o'clock or 10 o'clock position. (Fig. 14) When brazing near components always use a wet rag or heat dissipating paste to avoid damage or overheating any compontents. Failure to do so may void warranty.

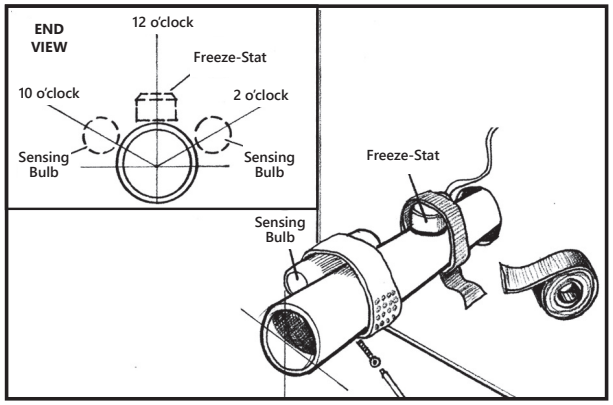


Fig. 14 - TX Sensing Bulb

Access Ports

When refrigerant lines are connected to the RBM coil, access port(s) must be connected as well. (Fig. 01 - reference 2 & 10) With the use of a tee and reducer this process is simplified. The access port(s) are required for system startup and for future trouble shooting or service. When reading refrigerant pressures/ temperatures, always read them at the evaporator access port.

External Equalizer Line

The external equalizer line comes pre-installed off of the TX Valve's body and runs to the suction line. It is required to compensate for refrigerant pressure drop through the coil.

Refrigerant Bypass

All RBM-A2L coils come with a pre-installed check valve ready TX valve, used for AC only or heat pump condensing units. Third party TX valves that do not have an internal check valve may require a bypass check valve. (Fig. 14)

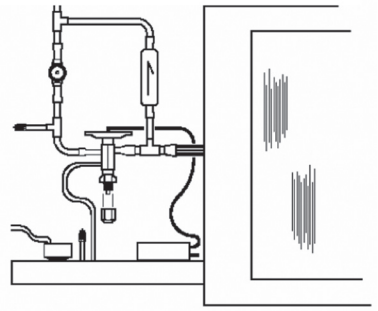


Fig. 15- Bypass check valve

Freeze Stat

The RBM comes with a Freeze Stat (anti-ice control). This freeze stat serves the purpose of preventing severe icing of the coil in the event of an undercharge or low load on the coil. This piece of equipment must be used at all times.

Install the Freeze-Stat above the center line of the suction line and connect the wires to the Freeze Stat terminals on the air handler circuit board.

Ensure that the Freeze Stat is fastened securely and are well insulated. Do not use a self-tightening clamp on the Freeze Stat control, as the control may be damaged by excessive tightening.

Important: The Freeze Stat (anti-ice control) must be used at all times. Failure to do so may void warranty.

During start-up, it is acceptable to jumper across the freeze stat. This will prevent the freeze stat from shutting the system off while charging a new system that may be low on refrigerant. Once charged and running, this jumper must be removed and the freeze stat connected to the FZ and FZ terminals on the Printed Circuit Board. Should wiring needs arise in which the outdoor unit is controlled through another means of wiring, the freeze stat should be connected in series on the input side of the control wiring. See freeze stat install location on page 2 (Fig. 01- reference 9).

NOTE: Do not remove protective bubble wrap from Freeze Stat



Drain Connections, P-Trap & Secondary Drain Pan

Important: Piping the condensate lines on a return side cooling coil can be dramatically different, be sure to read all info in this section.

The primary condensate drain **must have a minimum 3" P-Trap installed** (Fig. 15). The drain line must run at a slope of ¼" per foot in the direction of the drain. RBM modules come with a ¾" male CPVC primary and secondary outlet. It is good practice to install a clean out right above the P-Trap. Using a "tee fitting" and cap in the P-Trap's construction can be used as the clean out and as a way to prime the P-Trap if it ever dries out. A wet P-Trap is important. A dry P-Trap can be detrimental to proper drainage.

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Drain Connections, P-Trap & Secondary Drain Pan Cont'd

If code requires a secondary drain line, run the secondary line using the same method as primary. Otherwise, capping off the secondary drain line is acceptable. Do not run the secondary drain line to the secondary drain pan or use it as a vent to atmosphere! An equipment stand/riser or rubber equipment mat may be necessary to elevate the module off of the ground to allow for a P-Trap.

Any installation that has the potential of property damage due to condensate must have a secondary drain pan installed. If the unit is installed in a high heat and/or high humidity location, extra insulation around the unit casing may be required. This will prevent excessive condensate from forming on the outer surface of the casing.

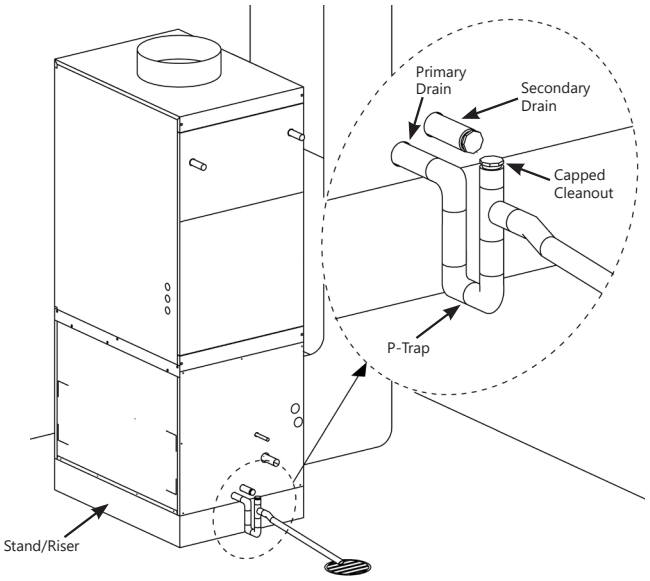


Fig. 16 - Example of Recommended Condensate Piping

Piping the RBM

Only refrigerant grade pipe and fittings are to be used with the RBM Module. Plumbing fittings may contain wax or other contaminants which are detrimental to the proper operation of the system. Insulate the suction line with a minumum of 3/8" insulation. In high heat areas, a minimum of 1/2" insulation may be needed. If the lines are run in an area where temperatures could exceed 120°F or runs longer than 50', then the liquid line may need to be insulated as well. Support the pipe every 5 feet, or whatever local code states.

Run the pipes in the most direct route possible, taking into account structural integrity, building details and local building codes. If the evaporator coil is located above the outdoor unit (condenser/heat pump), slope any horizontal runs toward the outdoor unit. If the outdoor unit is located above the evaporator coil, a P-trap must be installed at the bottom of the vertical riser. For long vertical risers, additional P-traps must be installed for every twenty feet. For lines running over 50', a suction line accumulator must be installed. Lines running over 100' are not recommended.

Pipe Sizing

Refer to the Outdoor Unit manufacturer's installation manual to select correct lineset diameters and total length constraints. Always adhere to the ODU manufacturer's piping specifications to ensure optimal oil return and system efficients.

Outdoor Unit Installation

Locate the outdoor unit in a suitable location, as close as possible to the air handler. Maintain the clearances recommended by the manufacturers of the outdoor unit, to ensure proper airflow. The outdoor unit must be installed level, in a properly supported location. A liquid line filter/drier is recommended to be installed on all outdoor units that aren't inverters or variable speed compressors.

Wiring Outdoor Unit

Make all connections to the outdoor unit with rain tight conduit and fittings. Most building codes require a rain tight disconnect switch at the outdoor unit as well (always check local codes). Run the proper size copper wires to the unit, and connect as per the manufacturer's recommendations.

Ensure that the unit is setup for a TX system. If not, a hard start kit may be required.

Evacuating

The system must be brazed under a nitrogen purge to prevent oxidation of the pipe during the brazing process. After the piping is installed and all components have been brazed together, a vacuum pump must be used to properly evacuate the system from both of the access ports to 1500 microns, to ensure system is free of contaminants. Add refrigerant to the system to bring the pressure above zero psig. After allowing the refrigerant to absorb moisture, repeat the above procedure. Evacuate the system to 500 microns on the second evacuation, and ensure that the system holds at the vacuum pressure. If not, check for leaks and evacuate again. If the vacuum holds, add refrigerant to raise the pressure to 2 psig. At this point open service valves on pre-charged condensing units.

The use of an electronic leak detector is recommended, as it is more sensitive to small leaks under the low pressures.

Important: Failure to follow the proper evacuating and charging procedures may void warranty.

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Charging

Once the system has been determined clean and ready for charging, refrigerant can be added. The service valves on the condenser must be open at this point. Never leave the system unattended when charging. With the system running, slowly add refrigerant. The typical operating point of an RBM coil is that of a saturated suction temperature of 34-40°F at 100-115 psig (1-4°C at 7-8 bar) and a suction line temperature of 38-44°F at 114-128 psig (3-7°C at 8-9 bar). In order to prevent overcharging during this stage, refrigerant should be added in steps. This will allow time for the system to settle and prevent 'overshooting' the ideal charge. Condenser pressures and temperatures remain similar to those in a conventional forced air system. It is recommended that the coil be charged on a high load day at the compressor's highest speed.

Most system start ups require only an adjustment to the refrigerant level of the system. Should further refinement be required, the TXV may be adjusted. A clockwise turn of the superheat adjustment stem (the direction in which the cap is screwed on) will result in a closing of the valve while a counterclockwise turn (the direction in which the cap was unscrewed) will result in opening of the valve. Always note system conditions before adjusting the valve and allow 5 minutes for the system to settle before making any further adjustments. Never adjust the TXV more than one quarter turn at a time. See charging guide on page 10.

See "Cooling Start-Up and Charging Guide" on page 7.

The RBM coil can operate at a level that is different from most other conventional system coils. Typically, superheat levels are slightly lower at 6-10°F (1 - 3°C) of superheat. Adjustment of the valve also differs somewhat. Rather than having a large effect on the range of superheat, adjustment of the valve has a larger effect on the system pressures; superheat maintaining a fairly constant point. Opening the valve will increase suction pressures and decrease liquid pressures, while closing the valve will decrease suction pressures and raise liquid pressures.

Typical Operating Ranges

Saturated Suction Temperature	34 - 40°F (1 - 4°C)
Suction Line Temperature	38 - 44°F (3 - 7°C)
Superheat	6 - 10°F (1 - 3°C)
Suction Line Pressure (R-454B/R-32)	110-124 psig (7.5-8.5 bar)
Liquid Line Pressure (R-454B/R-32)	250-300 psig (17-20.5 bar)

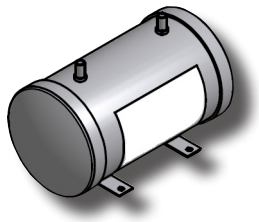
Heat Pumps

Traditionally, SDHV systems have been charged to special guidelines when used in conjunction with heat pumps. This charging procedure involved charging the units to normal cooling capacities and reviewing the operation in heating mode. If head pressures were found to be impinging on the high head pressure limits, a small amount of refrigerant was removed to prevent the unit from shutting down. The cause of high head pressures in heating mode is due to the disparity in sizes of the indoor and outdoor coils, along with the lower airflow rates of SDHV systems.

With the introduction of newer, larger heat pumps, this issue is more likely to be experienced. While some heat pump units may still be charged in the traditional method, the amount of refrigerant that is required to be removed for heating mode may leave the system drastically undercharged for cooling mode. For this reason it is highly recommended that a Bi-Flow Receiver be used with fixed speed heat pump applications. Inverter-Drive or Variable Speed outdoor units do not typically need a bi-flow receiver.

Bi-Flow Receiver

The Bi-Flow Receiver is designed for use with heat pump systems, up to 5 tons, and with any typical refrigerants. The receiver provides a location for the storage of excess refrigerant during the heating cycle, minimizing head pressures. During cooling mode, the receiver is empty, allowing the full refrigerant charge to be utilized for cooling.



The receiver is a horizontal tank with a pair of dip tubes extending to the bottom of the tank. These two tubes allow for liquid refrigerant to be drawn from the tank regardless of the direction of flow. For this reason, the receiver must be mounted so that the inlet/outlets of the tank come out of the top of the unit. Mounting brackets are located at the base of the unit for secure mounting. The receiver is to be located on the liquid line of the system, anywhere between the indoor and outdoor coils. As the unit is of a bi-flow design, it does not matter which end faces towards the indoor coil.

The inlet/outlet ports are constructed of steel and require the use of a 35-45% Silver Solder and Flux for brazing. The use of standard copper to copper solders may result in difficulty brazing and the potential for a failure at the weld. Ensure that the tank is protected from overheating while brazing and that any remaining flux is cleaned from the unit. If installing outdoors, ensure that the receiver is insulated and protected from the elements.

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Cooling Start-Up and Charging Guide

1. Pipe in the system using the provided components as described in the "TX" & "Access Ports" sections (Pg. 7). (Refrigeration gauges must be connected to these ports when taking pressure reading.)
IMPORTANT: Install a freeze stat on suction line as described in the "Freeze stat" section (Pg. 7).

2. Leak check and evacuate system as described in the "Evacuating" section of manual (Pg. 8).

3. Check indoor unit operation with power to the outdoor unit off (can use service disconnect switch). It is critical to ensure you have adequate airflow. (For the HE-Z Series, the Y fan speed must be between 55 to 66Hz as displayed on VFD.)

4. (For A2L (R-32/R454B) Refrigerant Coils only) Check refrigerant detection system is installed correctly and confirm the verification procedure.

5. Connect refrigeration gauges to evaporator access ports and open outdoor unit service valves. If required, weigh in the condensers recommended refrigerant charge, taking into consideration:

- Condensers charging chart for varying outdoor temperatures
- Indoor wet bulb temperature

6. Turn on power to the outdoor unit and start system operation.

7. Depending on your evaporator's model number, adjust the system's refrigerant charge as needed to obtain the suggested superheat range in the chart below. (If SH is too high, add refrigerant, if SH is too low, remove refrigerant.) Also, ensure the system is not excessively hunting (+/- 10 PSIG). A secondary airflow adjustment maybe needed after the charge adjustment.

8. If you cannot reach recommended superheat range/pressure range with charge adjustment, TX valve adjustment maybe required. **Important:** Never adjust the TX valve more than 1/4 turn at a time(2).

- Opening TXV (Counter-Clockwise) - Increases suction temp. / Lowers superheat
- Closing TXV (Clockwise) – Decreases suction temp. / Raises superheat

9. If you still cannot reach recommended superheat ranges and/or excessive fluctuations/hunting persists, more unconventional problems have occurred. Please call **tech support 1-888-652-2219**(1).

Suggested Superheat Ranges

RBM	6-10°F
RCM	8-12°F

Typical Operating Ranges (at ideal outdoor charging temperatures)

Saturated Suction Temperature	34-40°F
Suction Line Temperature	38-44°F
Suction Line Pressure	R-454B/R-32/R-410a: 110-130 PSIG
Liquid Line Pressure	R-454B/R-32/R-410a: 250-300 PSIG

Notes:

1. Before calling tech support please be sure to have the following info ready:
   a) Airflow or fan speed (Hz on the VFD) b) Liquid line pressure c) Suction line pressure d) Suction line temperature e) Return air static pressure f) Supply air static pressure
2. Document all TX valve stem adjustments (number of ¼ turns, open/closed) for supporting info when contacting tech support.
3. It is recommended that the coil be charged on a high load day at the compressor's highest speed.
4. When adjusting charge or TX valve positioning, wait 5 minutes between adjustments for system to settle.
5. If the system is not charged on a high load day the suggested temperatures may vary. Use your own discretion.
6. 55 Hz (fan speed) displayed on the VFD drive may not be enough airflow for some systems.

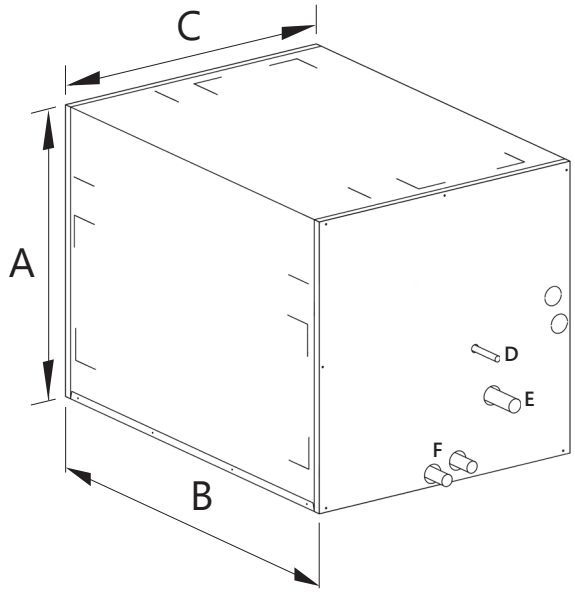
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RBM Series Sizing

Specifications		RBM-50	RBM-70	RBM-100
Part Number		41090300050	41090300070	41090300100
Matching Air Handler		HE-Z/HE-B/HE/HV-50/51 CU-51 LV-Z/LV-B-750/751 LV-50	HE-Z/HE-B/HE/HV-70/71 LV-Z/LV-B-1050/1051 LV-70	HE-Z/HE-P/HE-B/HE/ HV-100/101 HE-P-240/241 (x2 Coils)
Tons[1]		1.5 - 2.0 (5.3 - 7.0 kW)	2.5 - 3.0 (8.8 - 10.6 kW)	3.5 - 5.0 (12.3 - 17.6 kW)
Refrigerant Type		R-410A	R-410A	R-410A
TX Cooling MBH[2]		18-24 (5.3-7.0 kW)	30-36 (8.8-10.6 kW)	42-60 (12.3-17.6 kW)
Latent Cooling MBH		6.8-8.9 (2.0-2.6 kW)	11.7-13.7 (3.4-4.0 kW)	16.0-22.2 (4.7-6.5 kW)
Fin Material		Aluminum	Aluminum	Aluminum
Tubing Material		Copper	Copper	Copper
Type of Fins		.006 Al (0.1524mm)	.006 Al (0.1524mm)	.006 Al (0.1524mm)
Connection Sizes	Liquid Line (Lq)	3/8″ (9.5mm)	3/8″ (9.5mm)	3/8″ (9.5mm)
	Suction Line (S)	7/8″ (22.3mm)	7/8″ (22.3mm)	7/8″ (22.3mm)
	Drain Connection	3/4″ M CPVC (19mm)	3/4″ M CPVC (19mm)	3/4″ M CPVC (19mm)
TXV with Built in Check Valve & Bypass		Pre-Installed	Pre-Installed	Pre-Installed
Freeze Stat		Yes	Yes	Yes
Access Ports		Yes	Yes	Yes
Shipping Weight		35 lbs (15.9 kg)	45 lbs (20.4 kg)	55 lbs (24.9 kg)
Module Size (L x W x H)		14 1/2″ x 18 1/4″ x 18 1/4″ (368mm x 464mm x 464mm)	19 1/2″ x 18 1/4″ x 18 1/4″ (495mm x 464mm x 464mm)	25 1/2″ x 18 1/4″ x 18 1/4″ (648mm x 464mm x 464mm)

(1) Minimum of **four HE outlets** per ton of cooling needed. (2" Duct = Minimum **eight outlets** per ton)
(2) Smaller condensers may be matched to the air handler when needed (match TXV to condenser size)

MBH - Thousand British Thermal Units per Hour
TX - Thermal Expansion
TXV - Thermal Expansion Valve



Item	Length	Width	Height	Liquid Line	Suction Line	Drain Conn.
Refrigerant Modules	B	C	A	D	E	F
RBM-50	14 1/2″ (368mm)	18 1/4″ (464mm)	18 1/4″ (464mm)	3/8″ o.d.	7/8″ o.d.	3/4″ M CPVC
RBM-70	19 1/2″ (495mm)	18 1/4″ (464mm)	18 1/4″ (464mm)	3/8″ o.d.	7/8″ o.d.	3/4″ M CPVC
RBM-100	25 1/2″ (648mm)	18 1/4″ (464mm)	18 1/4″ (464mm)	3/8″ o.d.	7/8″ o.d.	3/4″ M CPVC

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NOTES

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WARRANTY

Energy Saving Products Ltd. is proud to offer a limited warranty. This warranty applies strictly to the first purchaser at wholesale level and only to the Air Handler unit and module. It does not include connections, attachments and other products or materials furnished by the installer.

This warranty 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 Air Handler. This warranty does not cover defects caused by failing to adhere to local building codes and following good industry standards. Failure to correctly install the Air Handler, or material related to the unit, may result in improper system performance and/or damages and will void this warranty. This warranty does not cover material installed in or exposed to a corrosive environment. This warranty does not cover products subjected to abnormal use, misuse, improper maintenance, or alteration of the product. Using the Air Handler and/or module as a source of temporary heating/cooling during construction will void this warranty.

A Five (5) Year Limited Warranty is extended on:

Motors, Blowers, Motor & Blower Assemblies, WEG Controllers, Circuit Boards, Dampers, Zoning Controls, Heating Coils, Chilled Water Coils, Electric Strip Heaters, Air Conditioning Coils, HEPS Air Purification Systems and Inverter Drive Heat Pumps

A One (1) Year Limited Warranty is extended on:

Replacement parts not listed above

Products sold by Energy Saving Products but manufactured by others, will carry the original manufacturer's warranty.

Note: If any product is installed in or exposed to a corrosive environment, warranty will be void.

TERMS & CONDITIONS

- **Warranty will not be considered unless a contractor has contacted Energy Saving Products Ltd. Technical Support department for assistance, and received a tech code.**
- Any repair performed under warranty must be approved by Energy Saving Products Ltd. for this warranty to be valid.
- The liability of Energy Saving Products Ltd. is limited to and shall not exceed the cost of pre-approved replacement parts.
- This warranty does not cover shipping costs to and from the factory, labor costs or any other cost associated with the installation of the replacement part.
- Inoperative parts must be returned to Energy Saving Products Ltd. with an ESP RMA Form that includes model, serial number, and a detailed description of the entire problem. Inoperative parts must be returned in testable condition.
- Energy Saving Products Ltd. is not liable for any other damages, personal injury, or any other losses of any nature.

Follow these steps for Service or Repair:

1. Contact the installer of the product or a licensed service company
2. Contact the distributor
3. Contact Energy Saving Products Ltd. Mon-Fri 8 am – 4:30 pm MT 1-888-652-2219

This warranty replaces all other warranties expressed or implied.

www.hi-velocity.com

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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.

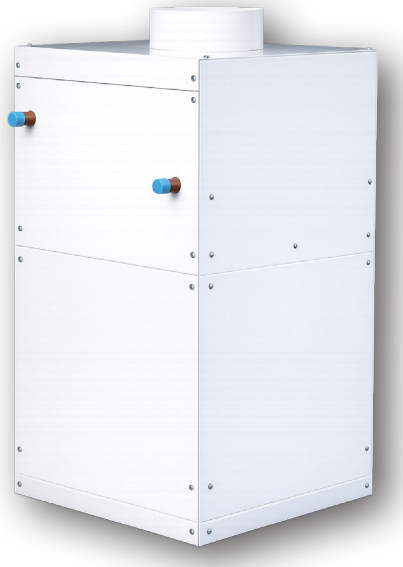
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