



# APR SUPPLY EVM4X Cased Cooling Only Evaporator Coil Multipoise Instruction Manual

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**APR SUPPLY EVM4X Cased Cooling Only Evaporator Coil Multipoise**



**NOTE:** Read the entire instruction manual before starting the installation.

## **Safety Considerations**

Improper installation, adjustment, alteration, service, maintenance, or use can cause an explosion, fire, electrical shock, or other conditions which may cause death, personal injury or property damage. Consult a qualified installer, service agency, or your distributor or branch for information or assistance. The qualified installer or agency must use factory-authorized kits or accessories when modifying this product. Refer to the individual instructions packaged with the kits or accessories when installing.

Follow all safety codes. Wear safety glasses, protective clothing, and work gloves. Use a quenching cloth for brazing operations. Have a fire extinguisher available. Read these instructions thoroughly and follow all warnings or cautions included in the literature and attached to the unit. Consult local building codes and the current editions of the National Electrical Code (NEC) NFPA 70. In Canada, refer to the current editions of the Canadian Electrical Code CSA C22.1.

Recognize safety information. When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury. Understand the signal words DANGER, WARNING, CAUTION, and NOTE. These words are used with the safety alert symbol. DANGER identifies the most serious hazards which will result in severe personal injury or death. WARNING signifies hazards that could result in personal injury or death. CAUTION is used to identify unsafe practices which may result in minor personal injury or product and property damage. NOTE is used to highlight suggestions that will result in enhanced installation, reliability, or operation.

## **WARNING**

### **PROPERTY DAMAGE HAZARD — FURNACE/COIL MATCHING**

Failure to follow this warning could result in property damage, personal injury, or death. This coil must be matched to heating equipment that meets all CSA/ANSI Z21.47 or cooling equipment that meets UL 1995 or UL 60335-2-40. Refer to the furnace/blower installation instructions for any potential considerations when installing coils with composite drain pans.

## **CAUTION**

## **PARTIAL UNIT REQUIREMENTS**

Failure to follow this warning could result in equipment damage. This family of evaporator coils are PARTIAL UNIT AIR CONDITIONER, complying with PARTIAL UNIT requirements of UL/CSA 60335-2-40 Standard, and must only be connected to other units that have been confirmed as complying to corresponding PARTIAL UNIT requirements of this UL/CSA 60335-2-40 Standard.

## **WARNING**

### **PERSONAL INJURY / PROPERTY DAMAGE HAZARD**

Failure to follow this warning could result in property damage, personal injury, or death. For continued performance, reliability, and safety, the only approved accessories and replacement parts are those specified by the equipment manufacturer. The use of non-manufacturer-approved parts and accessories could invalidate the equipment's limited warranty and result in fire risk, equipment malfunction, and failure. Please review the manufacturer's instructions and replacement part catalogs available from your equipment supplier.

## **WARNING**

### **ELECTRICAL SHOCK HAZARD**

Failure to follow this warning could result in personal injury or death. Before installing, modifying, or servicing the system, always turn off the main power to the system. There may be more than one disconnect switch. Lock out and tag the switch with a suitable warning label.

## **CAUTION**

### **UNIT DAMAGE HAZARD**

The coil is not approved for Heat Pump application. Unit damage may occur

## **WARNING**

### **PERSONAL INJURY HAZARD**

Failure to follow this caution may result in personal injury. This coil contains Nitrogen precharge of 7 – 10 PSIG. Release this pressure through the center of the rubber plugs before removing plugs.

## **WARNING**

### **EXPLOSION HAZARD**

Failure to follow this warning could result in death, serious personal injury, and/or property damage. Never use air or gases containing oxygen for leak testing or operating refrigerant compressors. Pressurized mixtures of air or gases containing oxygen can cause an explosion.

## **CAUTION**

### **CUT HAZARD**

Failure to follow this caution may result in personal injury. Sheet metal parts may have sharp edges or burrs. Use care and wear appropriate protective clothing and gloves when handling parts.

## **CAUTION**

### **UNIT OR PROPERTY DAMAGE HAZARD**

Failure to follow this caution may result in property damage. Make sure that Aluminum tubes do not come in direct contact or allow for condensate run off with a dissimilar metal. Dissimilar metals can cause galvanic corrosion and possible premature failure.

- **IMPORTANT:** Nitrogen can leak out through the hole that the needle pierced in the plugs. This does not indicate a leaking coil nor warrant return of the coil.
- **IMPORTANT:** Dry fit all connections to systems (electrical, drains, refrigerant lines, flue & intake, etc.) first to verify no interferences before final connections are made.

## Introduction

Use this instruction manual to install indoor coils on upflow, downflow, or horizontal furnaces in cooling applications only. Do not use these coils in heat pump applications. These coils are enclosed in a painted casing, have factory-installed TXVs, and are used with Puron® refrigerant R-410A systems.

## Installation

These units can be installed in upflow, downflow, or horizontal configurations. Before installation, there are several performance requirements that must be considered, because poor installation can negatively affect performance. This section will briefly discuss those factors.

### Airflow

Airflow amount and distribution are vital to adequate system performance. Problems that can be experienced with incorrect airflow include:

- low system performance
- restricted TXV
- frosted coil
- poor humidity control
- water blow-off

When attaching the coil and building the plenum, pay special attention to the effect these details will have on airflow. After system start-up, check the cfm to insure that it is correct. (Generally, the cfm should be 350 to 450 cfm/ton during normal cooling operation.)

### TXV

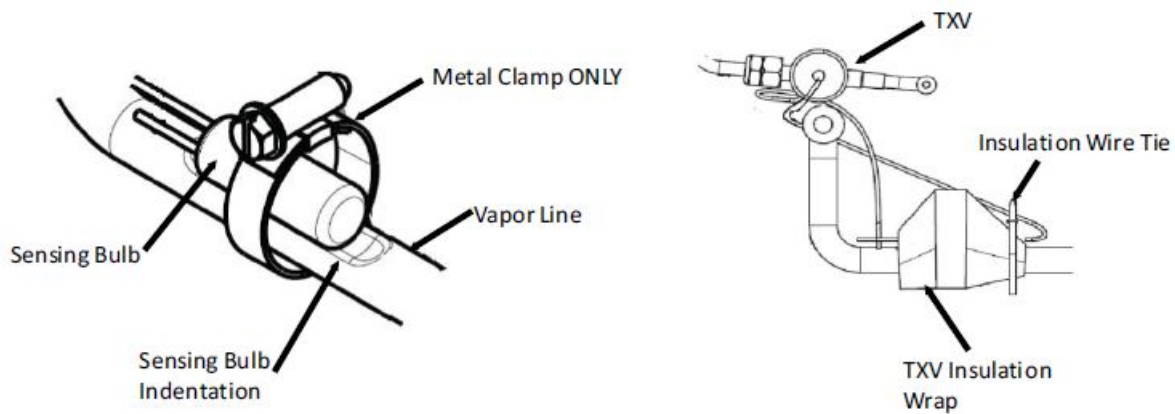
A thermal expansion valve is utilized in this coil design to optimize performance and comfort throughout the entire operating range of the system. Special attention needs to be taken to the TXV when installing the coil (Fig. 1):

- Do not overheat valve. Temperatures that exceed 212°F (100°C) can harm valve performance. Use a wet cloth or heat sink when brazing.
- Place liquid filter dryer near indoor unit to reduce the risk of debris clogging the valve.
- Make sure TXV bulb is securely fastened with a metal strap and wrapped in the indentation on vapor line tube.

These specific coils have a factory-installed hard-shutoff TXV designed only for use with R-410A refrigerant. Use only with outdoor units designed for R-410A.

### NOTE:

These TXVs are factory set at approximately 10° superheat measured at the suction service valve, and are not field adjustable.



**Fig. 1 – TXV Bulb**

A210138

### **Cabinet Sweating**

If this unit is installed in a garage, attic, or other unconditioned space, special attention needs to be given to the potential of cabinet sweating. A 6-in (152 mm) wide piece of insulation should be wrapped around the coil casing and supply duct connection point.

### **Inspect Equipment**

File a claim with the shipper if the equipment is damaged.

### **CAUTION**

#### **ENVIRONMENTAL HAZARD**

Failure to follow this caution may result in environmental damage. Federal regulations require that you do not vent refrigerant to the atmosphere. Recover during system repair or final unit disposal.

### **Select Installation Procedure**

- **NOTE:** Furnace coils are not approved to be used in fan coil or “draw-through” type applications.
- To install cased coils in up-flow applications, follow the instructions below.
- To install cased coils in downflow applications, follow the instructions below.
- To install cased coils in horizontal applications, follow the instructions below.
- See Table 1 for coil connection options. Refer to instructions for placement of coil casing on the furnace.
- **NOTE:** We recommend a 4" transition for peak performance, but it is not required unless stated.

### **CAUTION**

#### **PROPERTY DAMAGE HAZARD**

Failure to follow this caution may result in property damage. Installing coils rotated 90° from the front of the furnace, in upflow, downflow, or horizontal applications, may cause water blow-off or coil freeze-up due to the concentration of air on one slab of the coil or lack of air to a slab of the coil. It is required that on this type of application, a field-supplied adapter be placed between the coil and furnace to allow air to distribute properly between all slabs of the coil.

### **Upflow Coil Installation**

The cased coil is designed to fit furnaces of the same width.

1. Set coil in place on upflow furnace discharge air opening.
2. Ensure the coil is level for proper condensate drainage. Do not tip the coil toward the condensate drain. The coil casing does not need to be fastened or screwed to the furnace.
3. When installing a wider coil on the narrower furnace, it is recommended to use a transition adapter (Fig. 3).

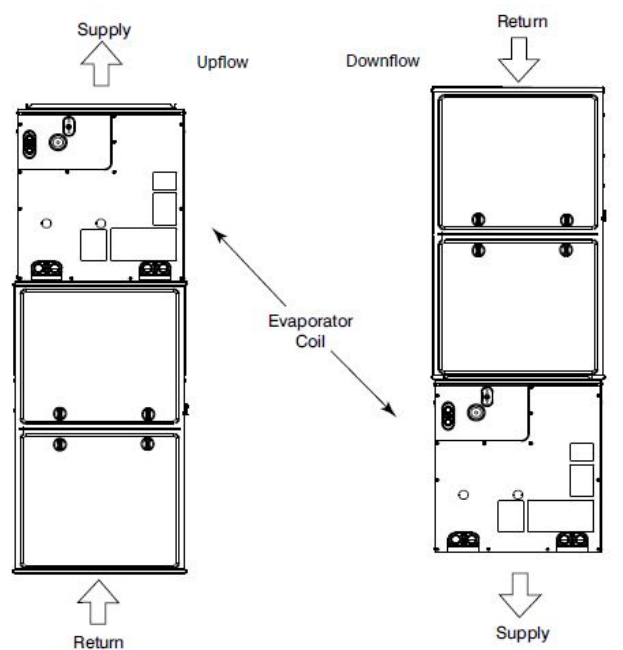
**NOTE:**

On upflow installations where the indoor coil is placed in an unconditioned space, a 6" wide piece of insulation should be applied and wrapped around the outside of the coil casing and supply duct contact point. Consult the furnace installation instructions for any special requirements when installing the coil to the furnace.

**Table 1 – Coil Connections / Orientations**

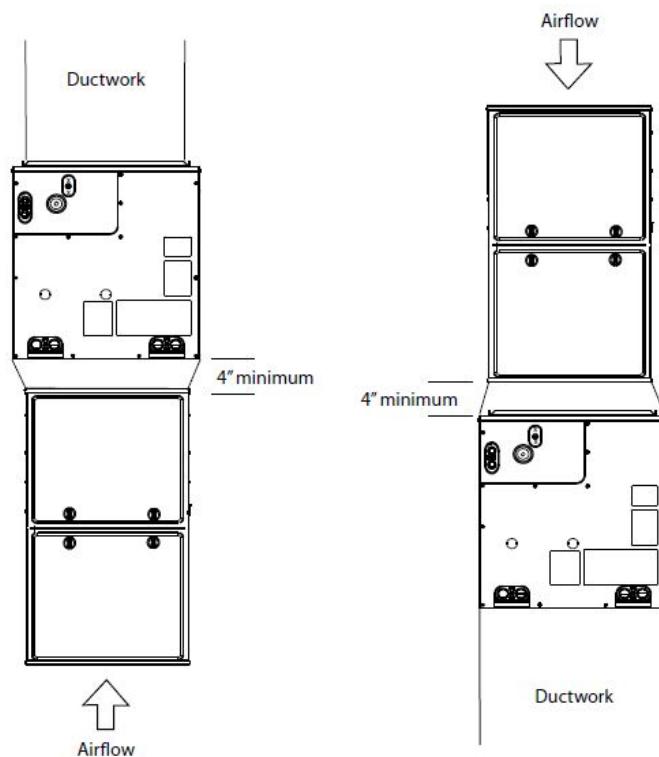
Model	No m. Ton s	Line Set Co nnection Tu be Size, in.		Flush Fit t o Furnace Width, in. (mm)	Fits Next Smaller F urnace Width			90°  Rotatio n to Fu rnace ( 4" Min. Transiti on Req uired)	180°  Rotati on to F urnace
		Sucti on	Liqu id		Equal Overh ang	Offs et L eft	Off set R ight		
EVM4X24M17A / WMVM24417XA	2	3/4	3/8	17-1/2 (445)	X	X	X		
EVM4X25M17A / WMVM25417XA	2	3/4	3/8	17-1/2 (445)	X	X	X		
EVM4X30M17A / WMVM30417XA	2.5	3/4	3/8	17-1/2 (445)	X	X	X		
EVM4X31M17A / WMVM31417XA	2.5	3/4	3/8	17-1/2 (445)	X	X	X		
EVM4X32M17A / WMVC32417XA	2.5	3/4	3/8	17-1/2 (445)	X	X	X		
EVM4X36M17A / WMVM36417XA	3	3/4	3/8	17-1/2 (445)	X	X	X		
EVM4X42M21A / WMVM42421XA	3.5	7/8	3/8	21 (533)	X	X	X		
EVM4X43M21A / WMVM43421XA	3.5	7/8	3/8	21 (533)	X	X	X		

EVM4X44M21A / WMVM44421XA	3.5	7/8	3/8	21 (533)	X	X	X	ALL  Upflow, Downflow , Horizontal Right, Horizontal Left
EVM4X48M21A / WMVM48421XA	4	7/8	3/8	21 (533)	X	X	X	
EVM4X49M21A / WMVM49421XA	4	7/8	3/8	21 (533)	X	X	X	
EVM4X60M21A / WMVM60421XA	5	7/8	3/8	21 (533)	X	X	X	
EVM4X60M24A / WMVM60424XA	5	7/8	3/8	24-1/2 (622)	X	X	X	
EVM4X61M24A / WMVM61424XA	5	7/8	3/8	24-1/2 (622)	X	X	X	



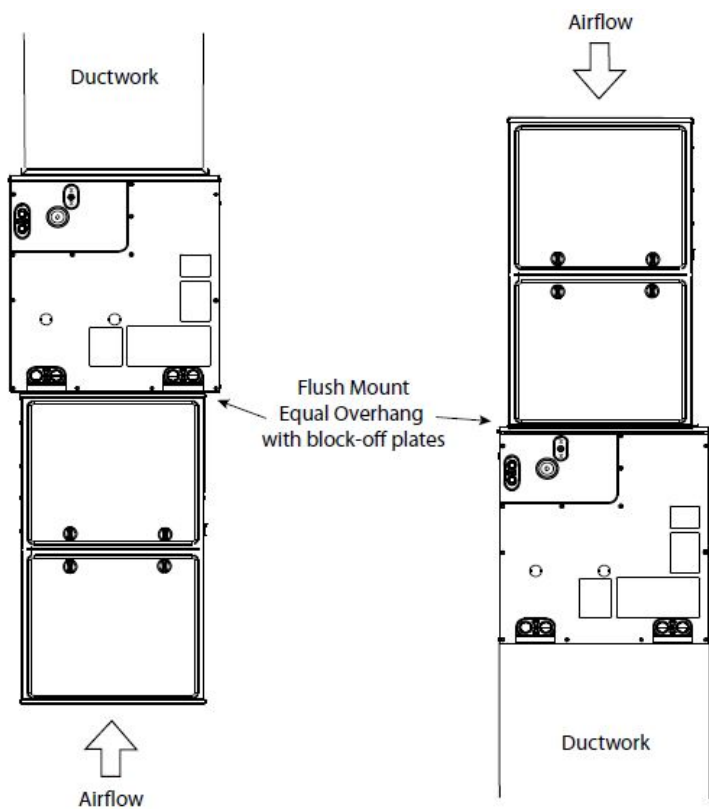
**Fig. 2 – Typical Flush-Fit Coil Installation on Furnace**  
(recommended)

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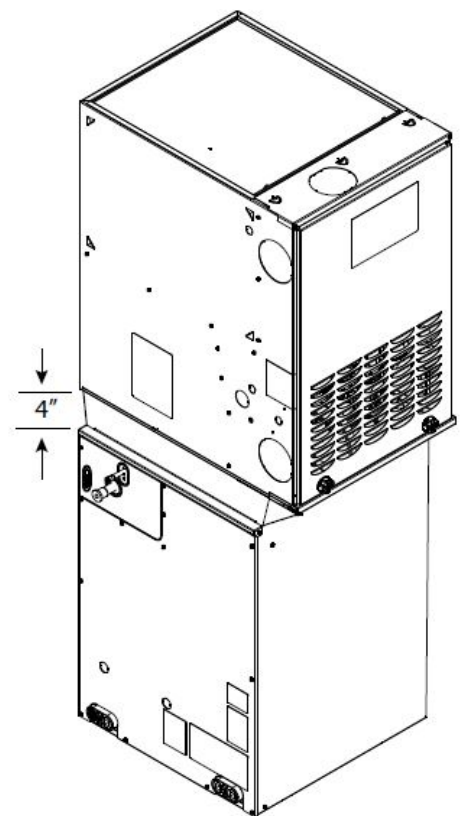
**Fig. 3 – Adapter(s) Installation When Coil is Larger than Furnace**  
(recommended)

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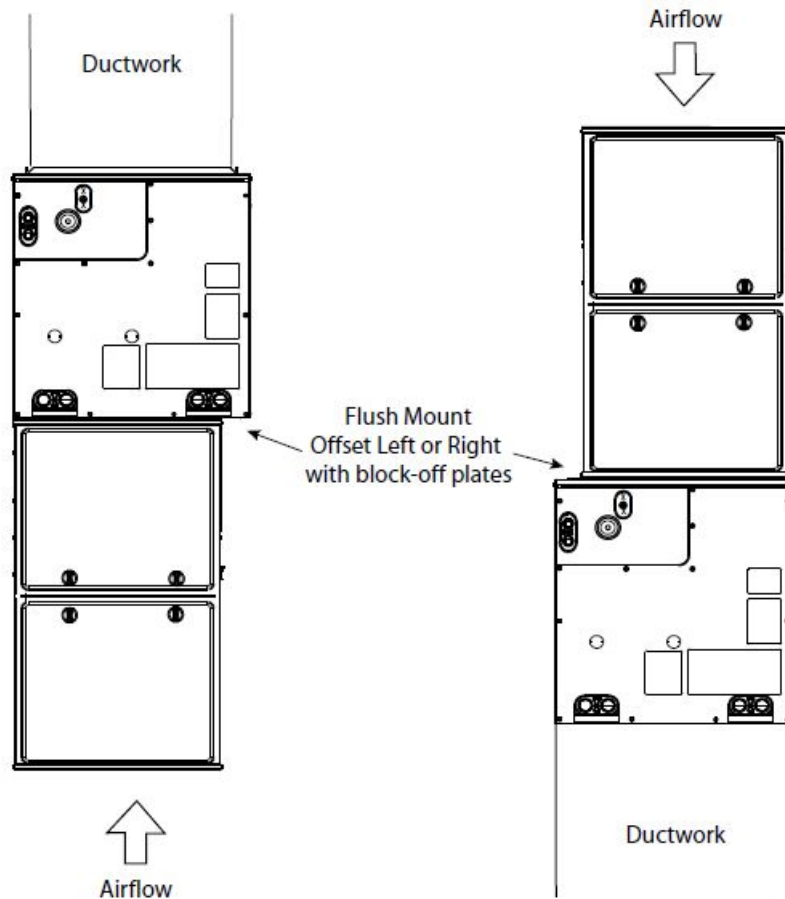


**Fig. 4 – Smaller Furnace, Equal Overhang, Flush Mount (not recommended)**

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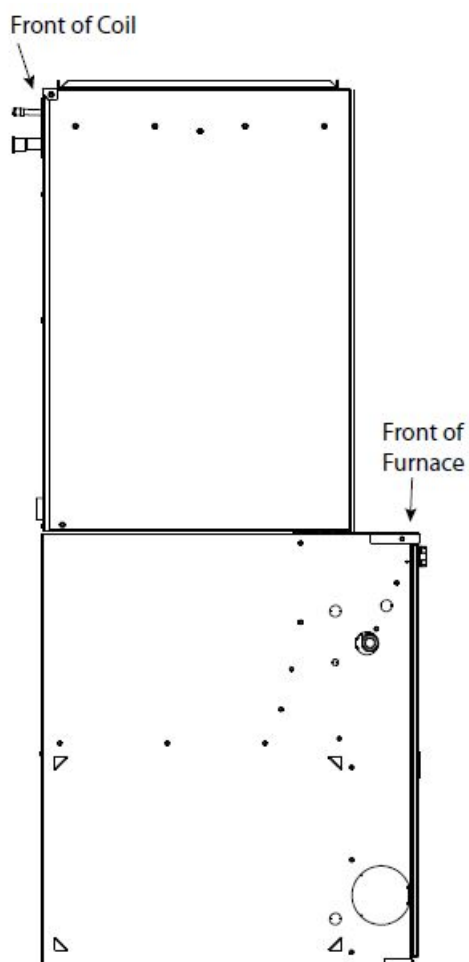
**Fig. 6 – 90° Rotation (shown in downflow) 4" Transition Required (not recommended)**



**Fig. 5 – Smaller Furnace, Offset, Flush Mount Right or Left (not recommended)**

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**Fig. 7 – 180° Rotation (shown in upflow)  
(not recommended)**

#### **IMPORTANT:**

Any installation configuration shown here that is noted as 'not recommended' indicates that this configuration has not been factory tested and therefore full performance specifications have not been certified. In instances where a 'not recommended' installation configuration is required, it is the responsibility of the installer to ensure all performance criteria is met.

#### **Downflow Coil Installation**

##### **NOTE:**

In downflow installation with 4-way multiple furnaces, break off perforated duct flanges on the furnace. See furnace Installation Instructions.

#### **Horizontal Coil Installation**



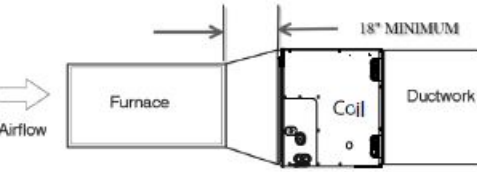
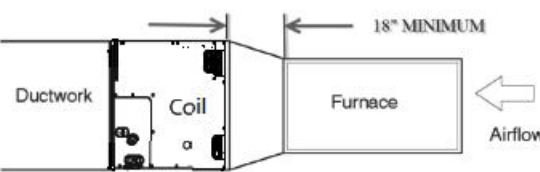
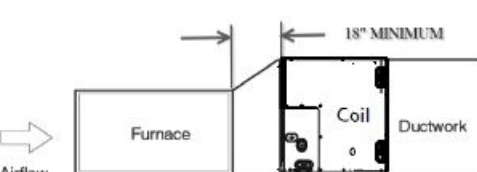
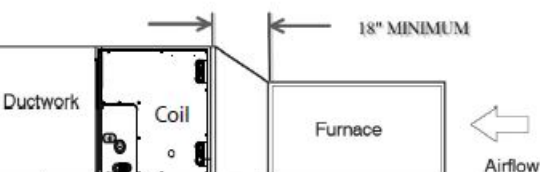
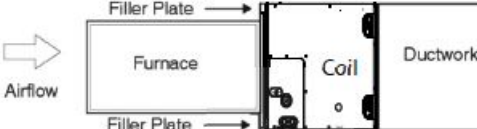
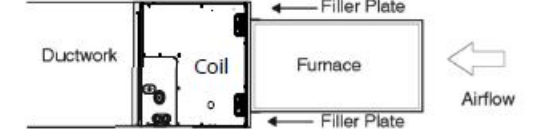
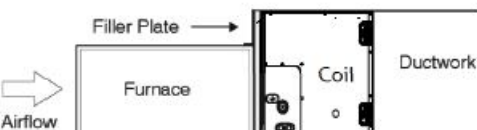
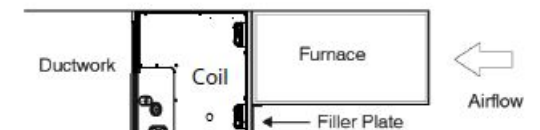
In a horizontal installation with a 4-way multi-poise furnace, break off perforated duct flanges on the furnace. See furnace Installation Instructions. For condensate connections, use the correct drain lines per Fig. 14.

The unit can be installed on a work platform, secured to roof truss in attic, suspended from hangers on floor joists in the crawl space, or installed on blocks. It is designed to allow airflow in either direction, to mate with horizontal-left or horizontal-right furnace installations. Ensure the coil cabinet is level side to side and front to back. It is allowable to add up to 1/2-in. additional slope over length and depth of coil cabinet in the direction of drain pan connection (Fig. 8).

##### **NOTE:**

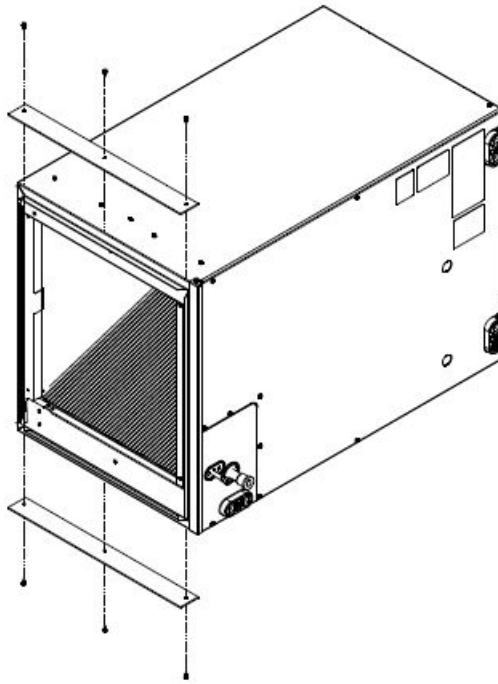
In horizontal applications, the vertical condensate drain ports must be plugged. When connecting condensate drain lines to the horizontal drain ports, transfer the horizontal drain plugs to the vertical drain pan ports to assure

that all vertical drain ports are plugged.

<b><u>HORIZONTAL RIGHT INSTALLATIONS</u></b> Acceptable for Air Conditioner Only Applications	<b><u>HORIZONTAL LEFT INSTALLATIONS</u></b> Acceptable for Air Conditioner Only Applications
 <p>Application A</p>	 <p>Application F</p>
 <p>Application B</p>	 <p>Application G</p>
 <p>Application C</p>	 <p>Application H</p>
<p>Applications Below are allowed in some cases but not recommended</p>	
 <p>Application D</p>	 <p>Application I</p>
 <p>Application E</p>	 <p>Application J</p>

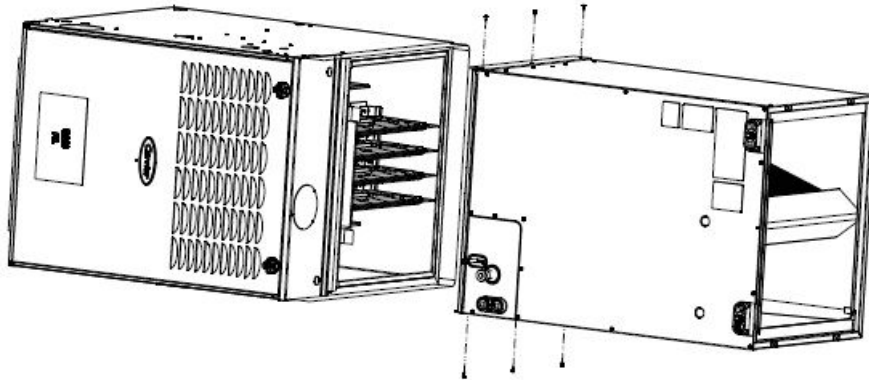
### Horizontal Right Installation

1. Use field-fabricated attachment plates to secure coil to the furnace (Fig. 9).
2. Use self-tapping screws to mount attachment plates to the coil casing. Install screws no more than 1" from the outer edge to avoid contacting or interfering with internal components.
3. Connect the furnace snugly against coil casing.



**Fig. 9 – Horizontal Right Attachment Plates**

4. Use self-tapping screws to attach the furnace (Fig. 10).



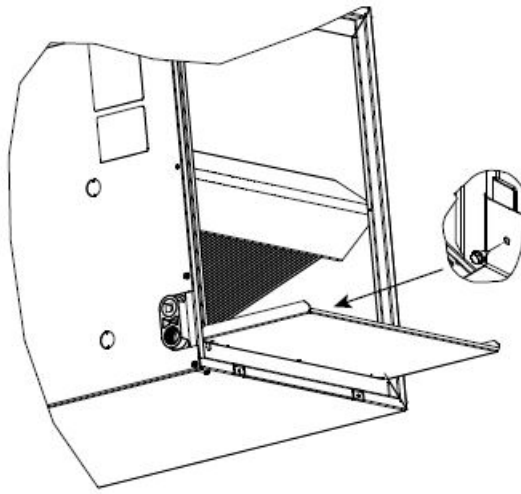
**Fig. 10 – Horizontal Right Installation**

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5. Seal the joint between the coil casing and furnace to create an air-tight seal using locally approved materials.
6. If the coil is wider than the furnace, use 4-in minimum transition and self-tapping screws to attach the furnace (Fig. 8).

#### **Horizontal Right with Pan Extension (6124 Size Only)**

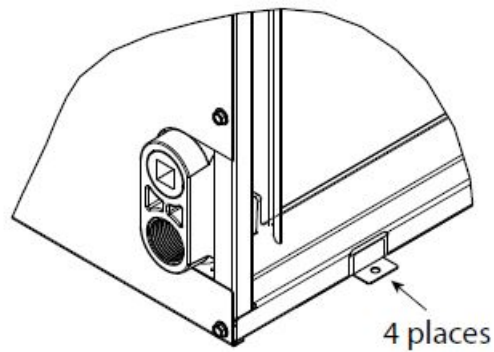
The pan extension is shipped with the unit. There should not be any gaps between the plastic condensate pan and the pan extension. All condensate should flow from the pan extension to the plastic condensate pan and not leak into the coil cabinet or duct. Install the pan extension onto the right end of the horizontal-condensate pan. The pan extension is slotted to fit onto the condensate pan edge and will extend into the supply plenum (Fig. 11).



**Fig. 11 – Horizontal-Right Pan Extension (6124 size only)** <sup>A221204</sup>

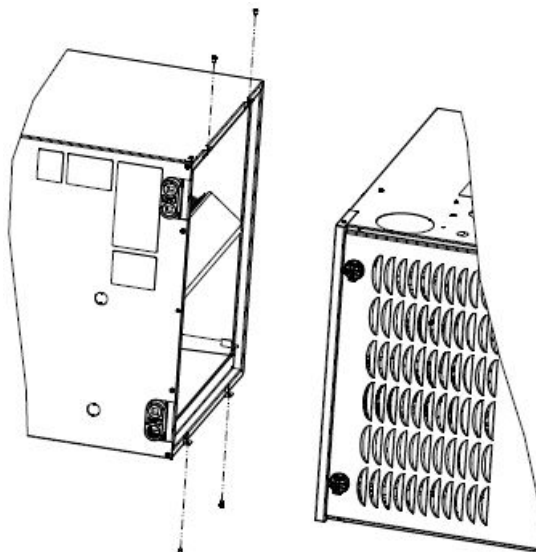
#### Horizontal Left Installation

1. Unbend the 4 tabs on the right side of the casing (Fig. 12).
2. Connect the furnace snugly against the coil casing.



**Fig. 12 – Horizontal Left Installation**

3. Use self-tapping screws to attach the furnace (Fig. 13).
4. Seal the joint between the coil casing and furnace to create air tight seal using locally approved materials.
5. If the coil is wider than a furnace, use a 4-in. minimum transition and self-tapping screws to attach the furnace (Fig. 8).



**Fig. 13 – Horizontal Left Installation**

## Refrigerant Line Connections

### CAUTION

#### WATER MANAGEMENT HAZARD

Failure to follow this caution could cause product and/or property damage. The furnace coil door must be properly installed when the coil is in operation. To ensure proper condensate water management, the drain pan must not touch the coil. When properly installed the furnace coil door will correctly align the condensate pan with the coil.

### WARNING

#### PERSONAL INJURY HAZARD

Failure to follow this warning could result in personal injury. Wear eye protection. The coil is factory charged with 7–10 psi nitrogen. The coil is under pressure and the TXV screen is in place behind the liquid line plug. DO NOT remove the liquid line plug first, always remove the suction line plug first to depressurize the coil.

#### NOTE:

Factory nitrogen charge may escape past rubber plugs during storage. This does not indicate a leaking coil nor warrant the return of the coil. Size and install refrigerant lines according to information provided with the outdoor unit. Coil connection tube sizes are shown in Table 1. Route refrigerant lines to the coil in a manner that will not obstruct service access to the unit or removal of the filter.

Do not use damaged, dirty, or contaminated tubing because it may plug refrigerant flow-control device. ALWAYS evacuate the coil and field-supplied tubing before opening outdoor unit service valves.

#### Connect Refrigerant, Liquid, and Suction Lines

For matched and mismatched systems, use line sizes recommended in outdoor unit Installation Instructions.

### CAUTION

#### UNIT OR PROPERTY DAMAGE HAZARD

Failure to follow this caution may result in property damage. Take precautions to ensure Aluminum tubes do not come in direct contact or allow for condensate runoff with a dissimilar metal. Dissimilar metals can cause galvanic corrosion and possible premature failure.

The coil can be connected to outdoor units using field-supplied tubing of refrigerant grade. Always evacuate the tubing and reclaim refrigerant when making connections or flaring tubing. Leak check connections before insulating the entire suction line. See Table 1 for coil connection tube size.

1. Remove the cabinet access door.
2. Remove rubber plugs, suction plugs then liquid plug, from coil stubs using a pulling and twisting motion. Hold coil stubs steady to avoid bending or distorting.
3. Remove the fitting door with rubber grommets and slide the fitting door with grommets onto the refrigerant lines (field line-set), away from braze joints.

### CAUTION

#### UNIT DAMAGE HAZARD

Failure to follow this caution may result in damage. All aluminum tubing and coils must be adequately shielded from any copper braze splatter.

4. Fit refrigerant lines into coil stubs. Wrap a heat-sinking material such as a wet cloth behind braze joints.
5. Wrap TXV and nearby tubing with a heat-sinking material such as a wet cloth.

6. Use 1/2 psig Nitrogen purge in the suction and out the liquid line.
7. Braze using a Sil-Fos or Phos-copper alloy. Do not use soft solder.
8. After brazing, allow joints to cool. Carefully remove the TXV bulb insulation and verify that the TXV bulb is securely fastened with a hose clamp. Tighten the screw a half-turn past hand tight with the TXV bulb placed in the indentation with full contact with the vapor line tube. Re-wrap the TXV bulb with insulation.
9. Leak check connections before insulating the entire suction line.
10. Slide fitting door with rubber grommets over joints. Position tubing at the center of each grommet to ensure an air seal around the tube. Reinstall the cabinet door.

## **CAUTION**

### **UNIT DAMAGE HAZARD**

Failure to follow this caution may result in product damage. To avoid valve damage to the refrigerant control device while brazing, valves must be wrapped with a heat-sinking material such as a wet cloth.

### **Refrigerant Metering Device**

These Coils have a factory-installed hard shut-off TXV designed only for use with R-410A refrigerant. Use only outdoor units designed for 410A.

### **NOTE:**

These TXVs are factory set at approximately 10° superheat measured at the suction service valve and are not field adjustable. These furnace coils use an R410A TXV. The TXVs are preset at the factory and do not need adjustment for reliable operation. Reference the outdoor unit instructions to properly charge the unit to the correct subcooling. Let the system stable out approximately 15 minutes after each charge adjustment.

## **CAUTION**

### **UNIT DAMAGE HAZARD**

Failure to follow this caution may result in product damage. DO NOT BURY MORE THAN 36 IN. OF REFRIGERANT TUBING IN THE GROUND. If any section of tubing is buried, there must be a 6-in. vertical rise to the valve connections on the outdoor unit. If more than the recommended length is buried, the refrigerant may migrate to cooler buried section during extended periods of unit shutdown, causing refrigerant slugging and possible compressor damage at start-up.

### **Condensate Drain Line Connection**

## **CAUTION**

### **PROPERTY DAMAGE HAZARD**

Failure to follow this caution may result in property damage. It is required that all drain connections that are not being used be fitted with 3/4-inch male PVC plugs. When installing over a finished ceiling and/or living area, install a field-fabricated secondary condensate pan under the entire unit.

The coil is designed to dispose of accumulated water through built-in condensate drain fittings. It is recommended that PVC fittings be used on the condensate pan. Do not over-tighten. Finger tighten plus 1-1/2 turns. Be sure to install PVC plugs in all unused condensate drain fittings (if not factory supplied). Six (6) 3/4-inch female threaded pipe connections are provided in each coil condensate pan.

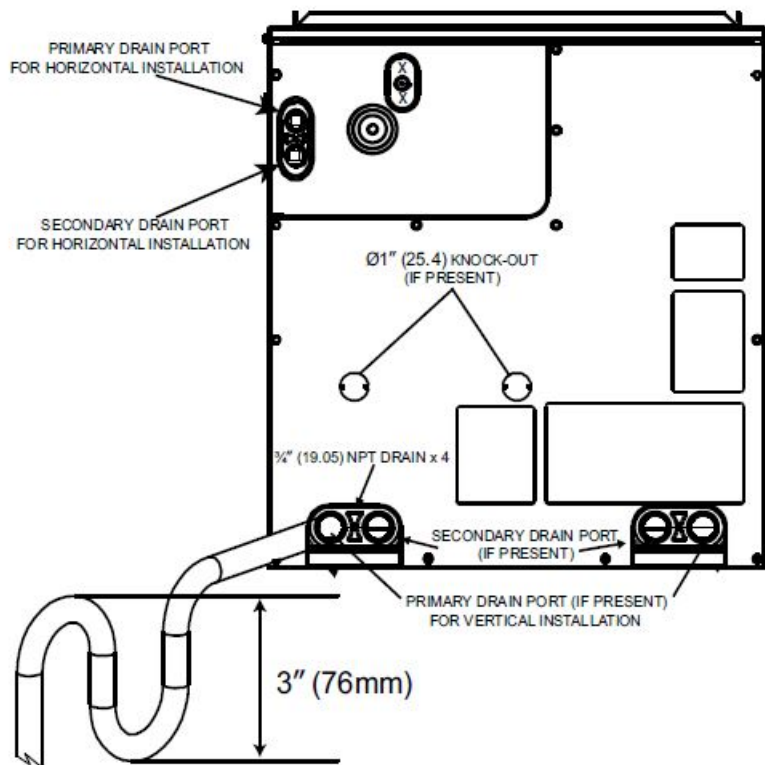
It is highly RECOMMENDED and in some locals is it a code requirement to install a trap on the drain line(s). Please use the following guidelines to assure proper drainage:

- Install a trap in the condensate line of coil as close to the coil as possible.
- Make trap at least 3 inches (76 mm) deep and no higher than the bottom of unit condensate drain opening (Fig. 14).
- Pitch condensate line 1 inch (25.4 mm) for every 10 ft. of length to an open drain or sump.
- Make sure that the outlet of each trap is below its connection to the condensate pan to prevent condensate from overflowing the drain pan.
- Prime all traps, test for leaks, and insulate traps and lines if located above a living area.

## CAUTION

### PROPERTY DAMAGE HAZARD

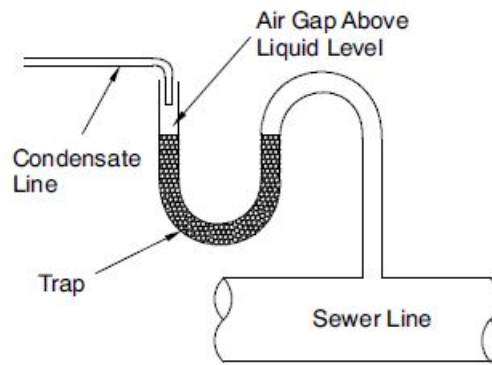
Failure to follow this warning could result in property damage. Provide trap with air gap in drain line when connecting to waste (sewer) line.



**Fig. 14 – Condensate Trap (shown in vertical configuration)** <sup>A221126</sup>

### NOTE:

If unit is located in or above a living space, where damage may result from condensate overflow, a field-supplied, external condensate pan should be installed underneath the entire unit, and a secondary condensate line (with appropriate trap) should be run from the unit into the pan. Any condensate in this external condensate pan should be drained to a noticeable place. As an alternative to using an external condensate pan, some localities may allow the running of a separate ¾-inch (19 mm) condensate line (with appropriate trap) per local code to a place where the condensate will be noticeable. The owner of the structure must be informed that when condensate flows from secondary drain or external condensate pan, the unit requires servicing or water damage will occur. To further protect against water damage, install a float switch to shut the unit off if the water in the secondary pan gets too high.



**Fig. 15 – Condensate Drain to Waste Line**

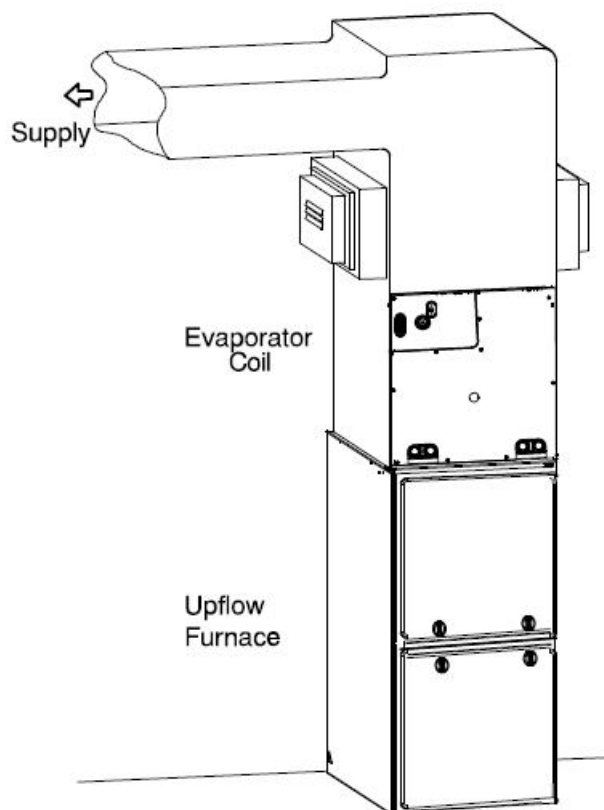
### **Waste Line Connection**

If the condensate line is to be connected to a waste (sewer) line, an open trap must be installed ahead of the waste line to prevent the escape of sewer gases (Fig. 15).

### **Humidifier Application**

When installing a humidifier in a system that contains a V-coil, consideration must be given to the location of coil slabs (Fig. 16).

1. The humidifier should be mounted to the supply plenum or return duct whenever possible.
2. Ensure that the humidifier has adequate airflow.



**Fig. 16 – Humidifier Application**

### **Care and Maintenance**

To continue high performance and minimize possible equipment failure, it is essential that periodic maintenance be performed on this equipment. Consult your local dealer as to the proper frequency of maintenance, but it should be done at least annually.



The ability to properly perform maintenance on this equipment requires certain mechanical skills and tools. If you do not possess these, contact your dealer for maintenance. The only consumer service recommended or required is filter replacement or cleaning on a monthly basis.

**CAUTION**


**ENVIRONMENTAL HAZARD**

Failure to follow this caution may result in environmental damage. Remove and recycle all components or materials (i.e., oil, refrigerant, etc.) before unit final disposal.

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The manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

**Documents / Resources**

	<p><a href="#">APR SUPPLY EVM4X Cased Cooling Only Evaporator Coil Multipoise</a> [pdf] Instruction Manual</p> <p>EVM4X, WMVM, EVM4X Cased Cooling Only Evaporator Coil Multipoise, EVM4X, Cased Cooling Only Evaporator Coil Multipoise, Cooling Only Evaporator Coil Multipoise, Evaporator Coil Multipoise, Coil Multipoise, Multipoise</p>
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