# MONACO Air Conditioning & Heat Pump Evaporator Coils
# INSTALLATION INSTRUCTIONS
**PLEASE READ INSTRUCTIONS COMPLETELY PRIOR TO INSTALLATION**

## INTRODUCTION
Thank you for your purchase! Monaco Multi-Positional Coils are designed specifically for use with various models of residential, gas, oil or electric furnaces or air handlers in downflow, upflow, or horizontal applications. These instructions are primarily intended to assist qualified individuals trained and experienced in the proper installation of this type of equipment. Some state codes require installation and service personnel to be licensed. Refer to authorities having jurisdiction for additional guidance. Remember that the Clean Air Act of 1990 requires a certified technician for handling refrigerant.

**NOTE: EFFICIENCY AND CAPACITY RATINGS ARE LISTED IN CURRENT ARI DIRECTORY FOR MONACO COILS MIX-MATCHED WITH MANY BRANDS OF OUTDOOR CONDENSING OR HEAT PUMP UNITS. AIR CONDITIONING COIL MIX-MATCHES ARE LISTED IN INDOOR COIL MANUFACTURER AIR CONDITIONING SECTION. HEAT PUMP COIL MIX-MATCHES ARE LISTED IN INDOOR COIL MANUFACTURER HEAT PUMP SECTION.**

## GENERAL COIL INSTALLATION NOTES

**CAUTION! ALL MONACO COILS ARE SHIPPED FROM OUR FACTORY PRESSURIZED WITH HCFC22.**

1. Most Monaco Coils are equipped with a Schrader Valve port to allow field installation of thermal expansion valve (TXV) without having to sweat it in. Prior to installation, the schrader valve should be used to verify coil is holding its charge. Unscrew the Schrader Valve cap and depress the valve stem quickly. A hiss should be heard indicating the coil is holding its charge. **IMPORTANT:** ***IF THERE IS NO PRESSURE PRESENT, THE COIL MAY HAVE DEVELOPED A LEAK DURING SHIPMENT. DO NOT INSTALL THE COIL. RETURN THE COIL TO THE POINT OF PURCHASE FOR EXCHANGE.***

2. The blower and duct system must be properly sized in order to provide adequate cooling and heating performance. Select the correct motor speed tap on the furnace to give the required CFM needed for rated cooling capacity. Return air filters of generous size must be provided, in order to avoid contaminating the coil, blower and ductwork, or restricting necessary airflow.

3. It is essential that the indoor coil and outdoor unit be properly matched.

4. Where ratings require addition of an expansion valve, kits are available that can normally be added to coils in the field without cutting or brazing. See instructions for coil with expansion valve.

5. For optimum performance and efficiency of air conditioning or heat pump coils, adjust system charge and/or superheat as recommended by manufacturer of the outdoor condenser.

6. It is recommended that coils be sprayed with a liquid detergent thoroughly and rinsed thoroughly before installation to assure proper drainage of condensate from the coil fins to eliminate blow-off and to assure maximum coil performance. If not sprayed, approximately 50 hours of break in time is required to achieve same results.

7. Always be sure coil is installed level or sloped slightly toward primary and secondary (the higher of the two) drain fittings. Connect both drain lines to open drain, but never to a closed sewer. Pitch drain lines away from drain pan. Always, test drain lines with water before operating. Reduction in size of drain lines is not recommended.

8. **A WATER TRAP** is recommended on all coil applications, and **IS REQUIRED ON PULL THROUGH INSTALLATIONS ON ELECTRIC FURNACES. FAILURE TO PROVIDE CAN RESULT IN IMPROPER DRAINAGE OR POTENTIAL SHOCK HAZARD.**

9. **CAUTION! IT IS MANDITORY TO USE AN EMERGENCY AUXILLIARY DRAIN PAN WITH ANY COIL INSTALLED IN AN ATTIC OR ABOVE A FINISHED CEILING. IT MUST HAVE ITS OWN DRAIN LINE (A WATER TRAP IS NOT NECESSARY) WITH ITS OUTPUT INTO AN OPEN DRAIN LINE (NOT A CLOSED SEWER). IT SHOULD ALLOW EASY VISUAL INSPECTION SO THAT IF CONDENSATE FLOW IS SEEN THE HOMEOWNER KNOWS THAT THE COIL DRAIN PAN LINES ARE PLUGGED AND NEED MAINTENANCE.**

10. Refrigerant piping is critical on any coil installation when the outdoor unit is to be located above the level of the coil. For proper piping design considerations, refer to the guidelines furnished by the manufacturer of the outdoor condenser unit.

11. Check all field installed refrigerant connections with electronic leak detector, halide torch, or soap bubbles.

12. Refer to installation instructions provided with the outdoor unit, furnace, or air handler and line sets for completion of system installation.

## INSTRUCTIONS FOR COILS WITH PISTON FLOWRATORS [ Models: WMQ and WPQ ]

The piston meters the amount of refrigerant supplied to the coil and is sized based strictly on the rated capacity of the outdoor unit and coil match. Monaco provides capacity performance ratings that match both same sized and upsized coils with a specific manufacturer's outdoor units. The piston is selected and factory installed in each coil for the specific range of cooling capacities likely to be encountered. The factory installed piston size is marked on the flowrator body and on the front of the coil carton.

## INSTRUCTIONS FOR COILS REQUIRING "FIELD INSTALLED" THERMAL EXPANSION VALVES

For indoor coil applications requiring expansion valves, both bleed and non-bleed types are available in several sizes. The expansion valve used is externally equalized and the superheat is non-adjustable. All Monaco expansion valves have a built-in check valve making them heat pump compatible. Thermal expansion valves are normally available in kit form for field installation. For the kit version, follow the installation instructions provided with the kit. Normally, these can be field installed before system is operating without requiring cutting or brazing.

**CAUTION! BE SURE THAT THE REFRIDGERANT IS RECOVERED PRIOR TO REMOVING THE PISTON FROM THE FLOWRATOR DISTRIBUTOR BODY TO INSTALL THE THERMAL EXPANSION VALVE.**

Be sure that the expansion valve provided is the proper size and type required to achieve rating. If a non-bleed type valve is to be used, the outdoor unit must be equipped with a hard start kit allowing the outdoor unit to start under loaded conditions. Check with our Customer Service Department if necessary.

## INSTRUCTIONS FOR CHARGING HEAT PUMPS

*Specific detailed instructions for refrigerant charging of a heat pump system as recommended by the outdoor unit manufacturer should be followed. These instructions will differ between manufacturers, but in general, are as follows:*

**1. FOR FLOWRATOR PISTON INDOOR COIL, USE SUPERHEAT METHOD IN COOLING MODE.** Measure following values from system: outside ambient temperature, suction pressure at gauge, and suction line temperature at condensor**. Adjust charge to achieve recommended superheat.**

**2. FOR THERMAL EXPANSION VALVE INDOOR COIL, USE SUBCOOLING METHOD IN COOLING MODE.** Measure following values from system: outside ambient temperature, liquid line pressure at gauge, and liquid line temperature at condensor. **Adjust charge to achieve recommended subcooling.**

*If the installer encounters a problem using the outdoor condenser manufacturer's suggested charging method, he should contact our customer service department for assistance.*

## SPECIAL INSTRUCTIONS FOR UPFLOW, HORIZONTAL, AND DOWNFLOW APPLICATIONS

**1. PLEASE NOTE: UPFLOW OIL FURNACE APPLICATIONS REQUIRE COIL TO BE MOUNTED 6" ABOVE THE OUTLET OPENING DUE TO HIGH PLENUM TEMPERATURES.**

2. Monaco Multi-Positional Coils are designed to eliminate the need to transition between the coil and furnace in most new applications. In blow-through applications, the furnace and the coil must be sufficiently matched to allow uniform air distribution across the coil surface. If this cannot be achieved with a direct connection, then a maximum of 18" length transition must be supplied between the furnace and coil housing.

**CAUTION! IT IS MANDATORY TO USE AN AUXILLIARY DRAIN PAN WITH ANY COIL INSTALLED IN AN ATTIC OR ABOVE FINISHED CEILING.**

3. Monaco Multi-Positional Coils that fit flush with Multi-Position furnaces sometimes have marginal air openings. In applications where the highest airflow for a given furnace width as listed in furnace manufacturer's specification are desired, we recommend the use of a wider coil cabinet or reducing motor speed tap so as not to exceed 400 CFM per 12,000 BTUH of rated cooling capacity. Reducing the airflow to cooling capacity will also lower the sensible to total ratio with better humidity control without reducing efficiency.

4. Monaco multi-positional coils are designed for right to left horizontal, upflow, and downflow applications. When fastening the coil to the furnace, care should be taken to ensure no internal damage to the coil or furnace. Also, care should be taken to ensure no internal damage is done to the coil or furnace when suspending the coil and air handler or furnace assembly *(always support both coil and air handler/furnace SEPARATELY).* **Never use screws longer than ½" in length and always determine what is on the opposite side of the penetration prior to inserting the screw.**

5. For horizontal applications where the air enters the open end of the "A" and the apex of the coil is downstream from the air inlet, a condensate blow-off guard is provided to be attached to the drain pan to catch any condensation blow-off. The grooves in the guard slip over the side of the drain pan (see Figure 1 on Page 3 for more details).

6. Coils used for downflow applications, require a slight field modification to properly redirect airflow. The top cap must be removed, reshaped, and repositioned (see Figure 2 on Page 3 for more details)

**Figure 1.** Field Adjustments for Monaco Evaproator Coils in ***Horizontal Applications***.

Attach Blow-Off Guard to horizontal drain pan using slots on the Blow-Off Guard. Blow-Off Guard is to be attached so that any moisture blown from the coil, rolls back into the drain pan.

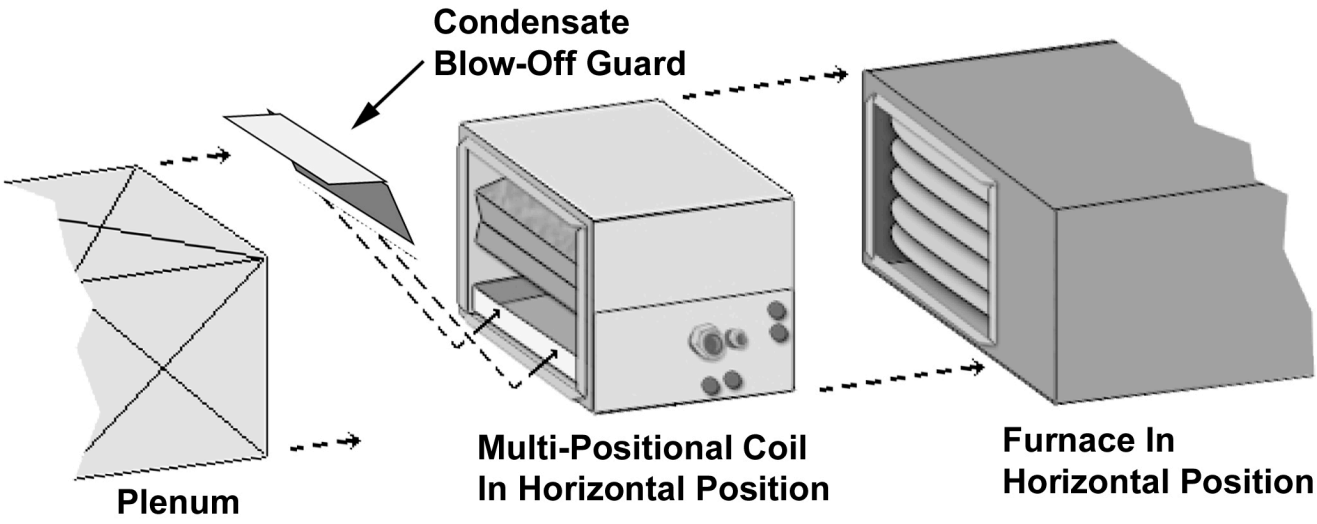
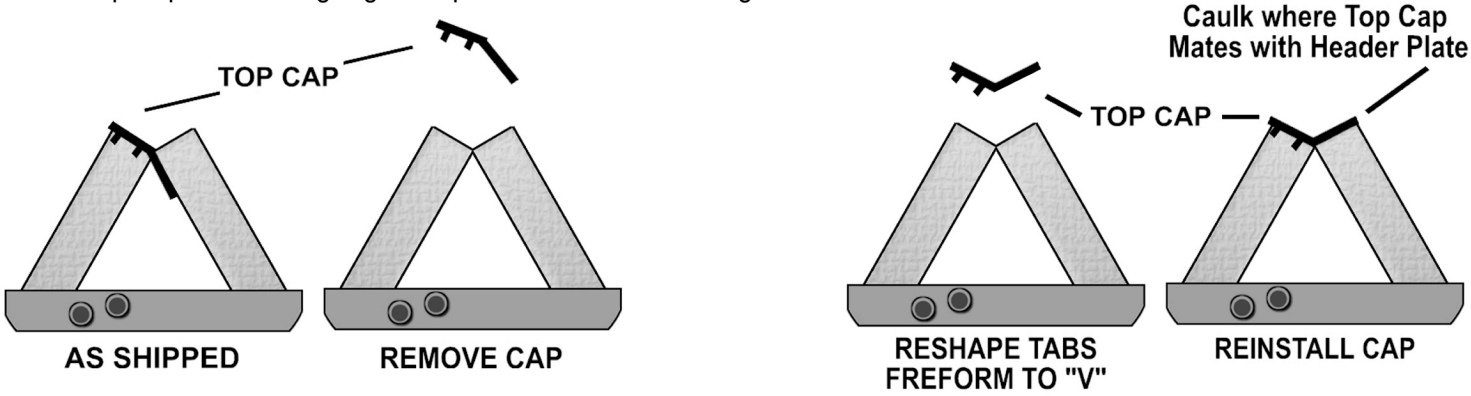



**Figure 2.** Field Adjustments for Monaco Evaproator Coils in ***Downflow Applications***.

Remove Top Cap from coil. Flip Top Cap over and reform into “V” shape. Repositon Top Cap to cover both sides of coil top. Secure Top Cap to coil using High-Temperature silicone caulking.




## ADDITIONAL INFORMATION FOR ALL MONACO COILS

- CAP THE UNUSED DRAIN FITTINGS
- HORIZONTAL DRAIN PAN MAY BE REMOVED IF NOT USED (NOT REQUIRED)
- PROPERLY SEAL THE GAP BEWTEEN THE COIL AND AIR HANDLER OR FURNACE TO MINIMIZE AIR LEAKAGE.
- PROTECTIVE PLASTIC FILM MAY BE REMOVED FROM THE CASE.
- COIL MAY BE REMOVED FROM THE CASE WHEN INSTALLING IN EXISTING PLENUM.

## SPECIAL INSTRUCTIONS FOR MONACO MULTI-POSITIONAL COILS WITH "FACTORY INSTALLED" THERMAL EXPANSION VALVES (TXV) [ Model: WTQ ]

**Refer to Figures 3a, 3b, and 3c below.**

When the expansion valve is factory installed, the sensing bulb will be seen on the front of the coil near the suction line fitting. There will also be a bag containing: 1-clamp, 2-square nuts, and 2-bolts to secure the sensing bulb to the suction line. Secure the bulb, using the clamp, on a straight, horizontal section of the copper suction line as close to the indoor coil as possible. Position the bulb at the 4 or 8 o'clock position (not on bottom), assure good contact and tighten clamp. Fold excess portion of clamp and cover with pipe wrap insulation (field supplied).

Follow all other general coil installation instructions as outlined on the previous pages.


**Figure 3a**
Full-cased indoor evaporator coil with factory supplied TXV Valve Kit.

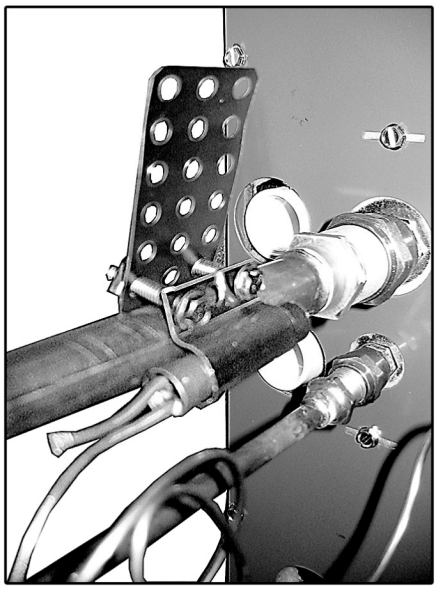


**Figure 3b**
Mount the TXV Bulb using the kit and instructions provided.

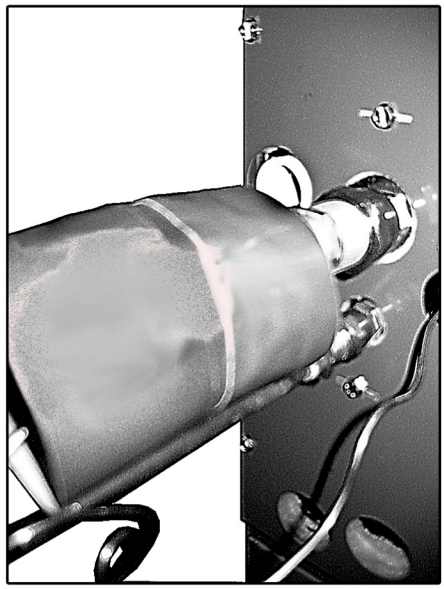


**Figure 3c**
Wrap the TXV Bulb with field supplied pipe wrap insulation.