

Crown Boiler Company

EVAPORATOR COIL INSTALLATION INSTRUCTIONS

These instructions are for the use of qualified individuals trained and experienced in the installation of HVAC equipment and related components. Installation and service personnel are required by some states to be licensed. Unqualified personnel should not install this equipment nor interpret these instructions. These instructions must be used only in conjunction with the installation of Crown coils and are intended only to advise and assist the installer. Read them fully before attempting installation. This product is designed and manufactured to permit installation in accordance with the local and national building codes. It is the responsibility of the installer to install this unit in accordance with these codes. Improper installation may damage equipment, create a hazard, and void warranty.

Coil Preparation

This product has been manufactured to precise quality standards, however, damage may have occurred during transit, handling or storage. Inspect the coil to insure:

- * Drain connections are tight and openings are clear.
- * Straighten any bent or damaged fins.
- * Manifolds are intact and not damaged.
- * Any other apparent damage.
- * Unused drain ports must be capped or plugged.

Coils with Florator Restrictors

Coils are shipped with a bi-directional piston type florator refrigerant metering device. The piston is sized to the nominal tonnage of the coil as indicated in the model number of the coil. If possible, obtain the recommended piston size from the manufacturer of the outdoor unit. If this information is not available, then follow these instructions:

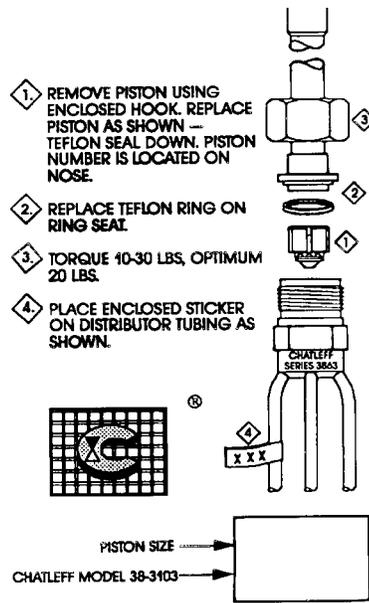
If the nominal tonnage capacity of the outdoor unit is not what is indicated on the coil model number, use the chart below to select the correct piston size to match the capacity of the outdoor unit. If the application requires, the installer must change the piston. Also, use the following chart to size the piston when matching the coil with an outdoor unit higher than 10 SEER.

Outdoor Unit Cap.	R-22 10 SEER Orifice Size	R-22 11+ SEER Orifice Size	R-410a Orifice Size
18,000	047	053	055
24,000	059	063	065
30,000	063	067	068
36,000	070	074	076
42,000	074	078	080
48,000	082	084	086
60,000	090	094	096

The piston should be sized according to the capacity of the outdoor unit. Failure to install the proper piston can lead to poor system performance and possible compressor damage.

To Change the Piston

1. The piston is located on the front panel of the coil case or in the case of the uncased coil, over the drain pan. Use a backup wrench and unscrew the two halves of the distributor (on cased coils, this step is not required).
2. Remove the piston shipped with the coil and install the correct piston in the distributor body, it should be free to slide inside the distributor body.
3. Do not overtighten the florator body when reassembling. Make sure the teflon seal is in place prior to mounting the stub to the distributor body. Tighten the connection to 20 foot pounds of torque.



Field Mounted Expansion Valves

Use only Crown Expansion Valve Kits. Refer to the installation instructions packaged in the expansion valve kit.

Model No.	Part No.	Application
ASTX-V3	31030	1.5 - 3 Ton A/C R22
ASTX-V4	31050	3.5 - 4 Ton A/C R22
ASTX-V5	31063	5 Ton A/C R22
ASTXP-V3	31031	1.5 - 3 Ton HP R22
ASTXP-V5	31051	3.5 - 5 Ton HP R22
AS410A-250	31061	1.5 - 3 Ton A/C R410A
AS410A-500	31062	3.5 - 5 Ton A/C R410A

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Factory Installed Expansion /Check and Expansion Valves

- * The TXV sensing bulb is shipped attached to the suction line stub. The bulb should carefully be repositioned to allow the field suction line to be connected to the coil. Once this connection has been welded and allowed to cool, then position the expansion valve sensing bulb on the suction line (preferably in a horizontal run just outside the cabinet). The sensing bulb must make direct contact to the suction line.
- * Utilizing the mounting straps, secure the bulb to the suction line. The bulb must be mounted at the 10 or 2 o'clock location for optimum performance, this mounting location guards the sensing bulb from false readings due to air or liquid in the suction line.
- * Insulate the suction line and the sensing bulb to prevent ambient air from causing false readings.
- * Coils with non-equalizing expansion valves may require the use of a hard start or start assist kits. Follow the outdoor unit manufacturer's guidelines.

Coil Installation

- * Coils must be installed on the discharge side of a gas furnace or an uninsulated air handler.
- * Install:
 1. Cased vertical coils on a level flat surface.
 2. Uncased vertical and horizontal coils on a level flat surface, then raise the rear of the coil one-half inch to provide positive drainage to the drain connection.
 3. Condensate drain(s) in accordance with local building code requirements. **Use teflon tape to connect the drain line to the plastic condensate connection on the coil. Do not use solvent base pipe dope. Hand tighten the connection. Do not use excessive force.**
 4. If a secondary drain is required, it must be run separately from the primary drain and should terminate in a highly visible location.
 5. When a coil is installed on the negative pressure side of a blower, the drains must be trapped to insure condensate drainage.
 6. When coils are installed above ceilings or in other locations where damage from condensate overflow may occur, it is required that an auxiliary drain pan be installed under the coil cabinet. Drain lines from an auxiliary drain pan must be installed, but should not be connected to the primary drain line of the coil.
 7. Drain lines must be installed with a 1/4" per foot pitch away from the coil to provide free drainage. A condensate trap should be installed to ensure proper drainage. If installed, the trap should be located in the drain line below the bottom of drain pan.
 8. Drain lines must be adequately supported such that the weight of the drain line is removed from the coil drain

connection. Long horizontal runs of drain lines located above a finished area should be insulated to prevent sweating and dripping.

9. Refrigerant lines should be sized by the outdoor unit manufacturer's recommendations.
10. Braze all refrigerant connections while flowing nitrogen through the pipe. Make certain that a liquid line drier is present in the system.
11. Prior to charging the system, leak check the entire installation utilizing nitrogen or other suitable means. Dehydrate the system by pulling a deep vacuum sufficient to remove any moisture that may have entered the system.
12. If a time relay is utilized, adjust it for the optimum delay recommended by the outdoor unit manufacturer.
13. Seal the coil cabinet and all connections to create an air-tight seal. Insulate the suction line.

System Charging

Follow the instructions provided with the outdoor equipment manufacturer. If they are not available, follow the guidelines listed below:

- * Set the airflow of the air handling unit to the recommended level. If uncertain, set air flow to 400 CFM per nominal ton of capacity of the outdoor unit. Do not allow static pressure drop across the coil to exceed .30".
- * Florator coils. Add refrigerant until the superheat measured at the outdoor unit suction line matches the superheat from the chart below.
- * Expansion Valve Coils. Add refrigerant until the subcooling measured at the outdoor unit liquid line matches the subcooling from the chart below. If you have an adjustable TXV, adjust superheat on TXV to obtain superheat according to chart below.

OAT deg.F db	SUPERHEAT deg. Fahrenheit db			SUBCOOLING deg. Fahrenheit db		
	MIN	NOM	MAX	MIN	NOM	MAX
65	35	40	45	5	10	15
70	31	35	39	5	10	15
75	26	30	34	5	10	15
80	22	25	28	5	10	15
85	17	20	23	5	10	15
90	13	15	17	5	10	15
95	8	10	12	5	10	15
100	4	5	6	5	10	15

Contact Crown if you have any Questions. Please provide information on coil, outdoor unit, outdoor ambient temperature, metering device, pressures, superheat and subcooling., airflow and indoor temperature.