

HE Plus Coils Manual

Supplemental Installation Manual for Accessories

HE07-

HE10-



Coil Casing Shown (Typ)

⚠ WARNING

Installation of this module should only be performed by a qualified professional who has read and understands these instructions, and is familiar with proper safety precautions. Improper installation poses serious risk of injury due to electric shock, and other potential hazards. Read this manual thoroughly before installing or servicing this equipment. ALWAYS disconnect power prior to working on module.

IMPORTANT**RECEIVING AND INSPECTION:**

Upon receiving unit, check for any interior and exterior damage, and if found, report it immediately to the carrier. Also, check that all accessory items are accounted for and are damage free.

IMPORTANT

Do not release refrigerant into the atmosphere! If required service procedures include the adding or removal of refrigerant, the service technician must comply with all federal, state, and local laws. The procedure discussed in this manual should only be performed by a qualified, EPA Certified technician.

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1.0 OVERVIEW

The HE Plus Coils is an engineered solution which consists of a RenewAir HE Series ERV with a VRF (Variable Refrigerant Flow) or DX (Refrigerant) coil. Each coil is accompanied by a document similar to Figure 1.0.0 that shows the specific data regarding the coil.

NOTE: This module is intended as an accessory to an Energy Recovery Ventilator, or ERV. It is commonly referred to throughout this manual as an ERV.

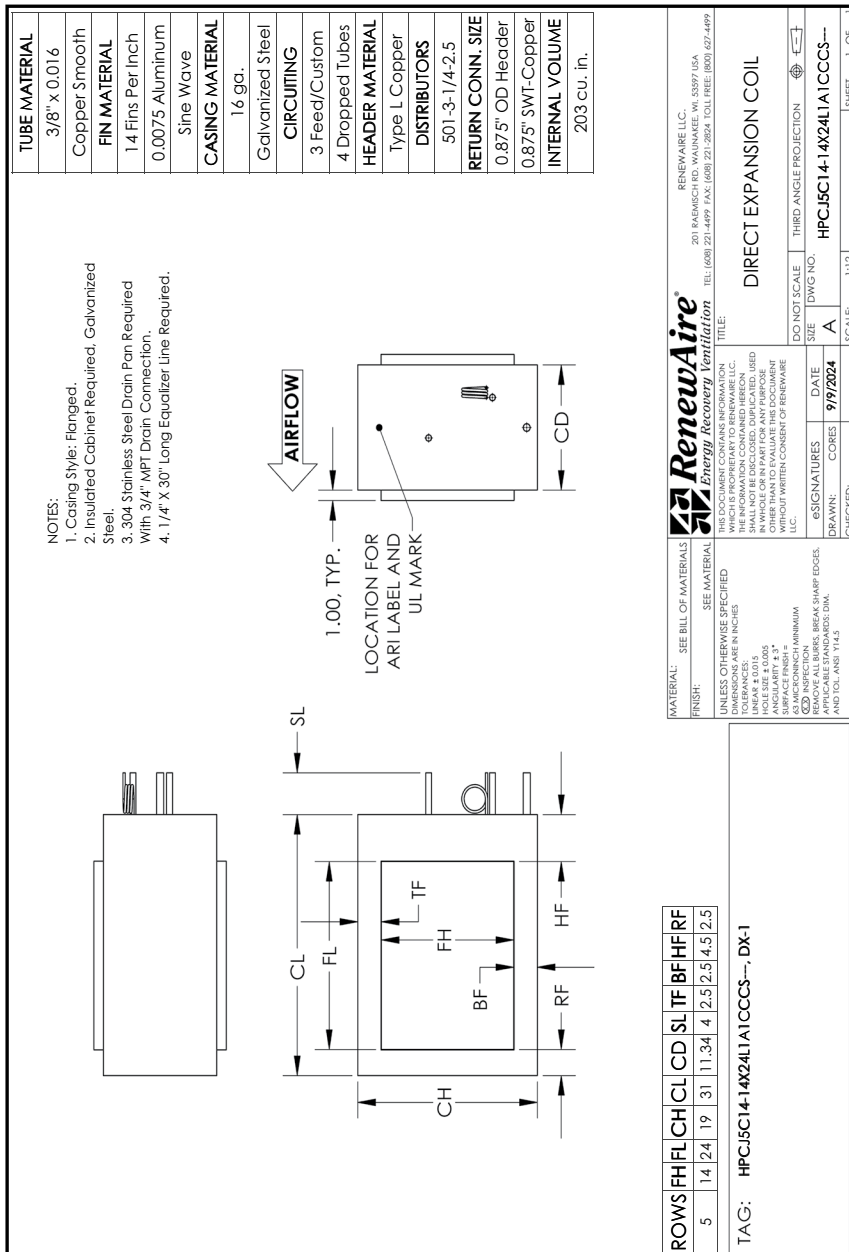


FIGURE 1.0.0 COIL MODULE DRAWING

The coil has a liquid (supply) line connection on the leaving air side of the coil. A suction line connection is on the entering air side of the coil. Both connections are copper. The suction header may be equipped with an external equalizer line if selected. No refrigerant control valve is provided and must be specified by the designer of the overall system for separate sourcing by others. Cooling coils are mounted above a condensate pan that must be trapped and winterized. The coil must be connected to separate, external equipment provided by others.

2.0 INSTALLATION RECOMMENDATIONS

2.1 GENERAL PLACEMENT

Carefully remove the coil from the shipping package to avoid damage to the finned area. Damaged fins can be straightened using an appropriate fin comb. Verify nitrogen charge shipped in the coil is present.

RenewAire recommends cleaning the coil with a commercially available coil cleaner prior to installation. Refer to Maintenance for cleaning recommendations.

Proper clearance should be maintained between the coil and other structures such as the fan, transition areas, etc. RenewAire recommends having at least 2.5 duct diameters equivalent length of straight duct before and after the coil. Shorter lengths of straight duct between the coil and any transition could increase the duct losses. Consider general service and installation space when locating unit. Two access panels should be designed in the ductwork to provide maintenance access.

2.1.1 Unit Placement

Coil Modules can be suspended from a ceiling (or other structural member), or placing the coil module on a solid surface (or base) during installation. In either case, it must be oriented with the drain pan on the bottom and both the liquid and suction line are accessible. It is also desirable that the coil is slightly pitched toward the condensate discharge because the built in condensate pan is not sloped. Maintain required service clearances.

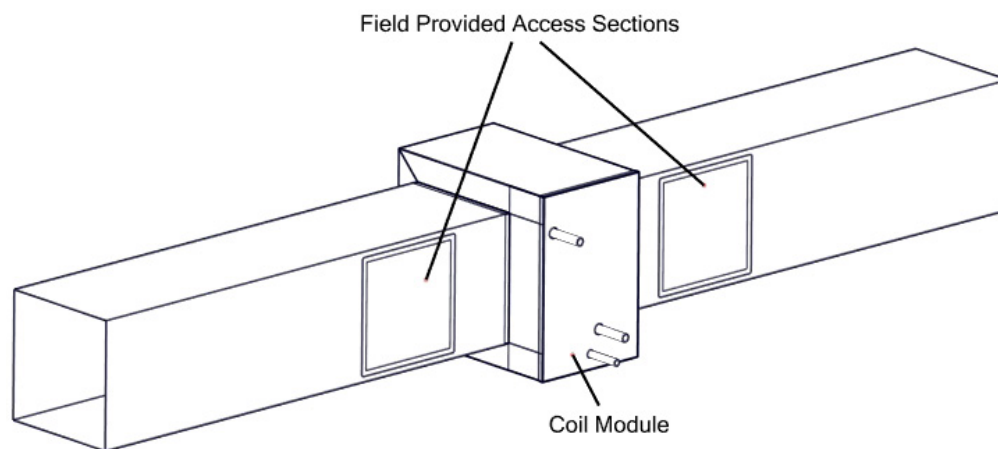


FIGURE 2.1.0 UNPACKAGED COIL MODULE

2.1.2 Required Access Sections

Coil Modules require access sections (by others) to be installed in the ductwork both upstream and downstream of the module. Upstream access allows for cleaning the face of the coil. Downstream access allows for drain pan cleaning and maintenance.

2.2 DRAIN TRAP INSTALLATION

There is one field plumbing connection required for proper coil operation. This is located by the drain pan, under the cooling coil. Depending on the size of the unit, the coil can generate 5 gallons of water per hour. It is imperative that the plumbing is sized accordingly. Also, it is recommended that all plumbing connections be sealed with Teflon tape or pipe dope. Install the condensate trap to 3/4" MPT drain connection.

Drain traps should be constructed in accordance with local building codes, using Industry Best Practices. Drain traps are essential to allow water to flow out of the drain pan(s). More important, though, when there is negative internal static within the unit, the trap prevents outside air from being pulled into the unit and consequently splashing water inside the unit. Drain trap design is dependent on the static pressure at the drain location and also whether the pressure is negative or positive. For all drain traps, RenewAire recommends the installation of threaded plugs at several locations to permit periodic cleaning and filling of the trap. Also recommended is the use of a vacuum breaker if water is being discharged from the trap into a drain pipe. The vacuum breaker can be omitted if the condensate is being drained directly onto the ground. See illustration below.

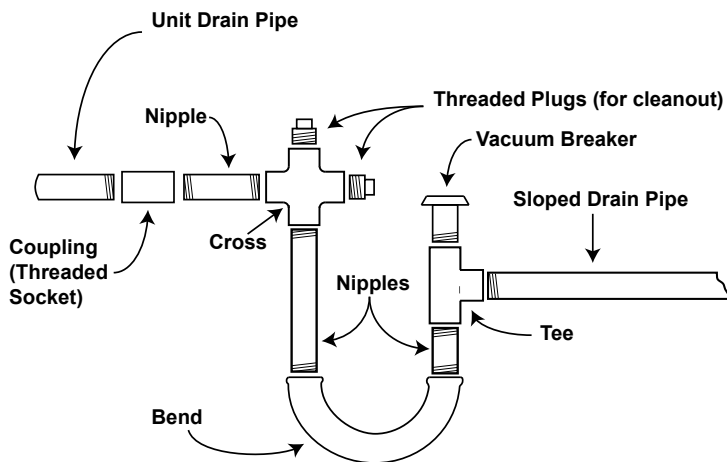
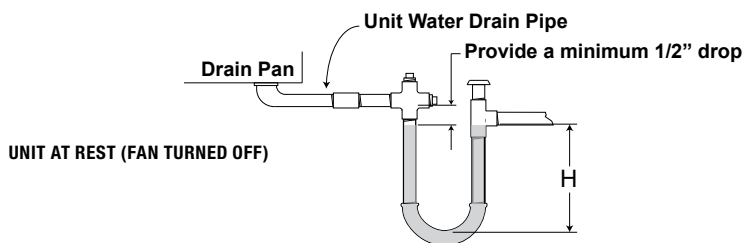


FIGURE 2.2.0 TYPICAL DRAIN TRAP CONSTRUCTION

In order to properly design drain traps, certain information must be obtained. First, carefully check the drawings to find the number and locations of all drain traps. Also from the drawings, determine if the drain traps will be positive or negative pressure.

If a positive pressure trap is needed, fabricate the trap as shown in the drawing below.



Dimension "H" equals the positive pressure in inches of water column PLUS a minimum of 1/2 inch

FIGURE 2.2.1 POSITIVE PRESSURE DRAIN TRAP CONSTRUCTION

When fabricating a positive pressure drain trap, dimension “H” equals the Static Pressure in inches of water column plus a minimum of 1/2”.

Be sure that the offset distance between the height of the condensate inlet and the condensate outlet is at least 1/2”.

2.2.1 Waterless Drain Traps

As an alternative to a field-fabricated and installed condensate P-trap, RenewAire offers an HVAC waterless trap. The advantages to a waterless trap are that they may require less vertical clearance for (negative pressure) installations, they generally do not require winterization and they do not require priming at the beginning of the cooling season.

Two different models are offered, both the N-type for negative pressure applications and the P-type for positive pressure applications. Both models are rated for a maximum of 12 In. W.C.. All waterless traps have a clean-out port for annual maintenance. RenewAire recommends that waterless traps be installed with a screen union kit to permit removal of the trap for maintenance, which consists of back-flushing with water or compressed air. RenewAire also recommends installation of a condensate pan overflow switch to shut down the ERV if the condensate level should rise to unacceptable levels.

Type “P” waterless traps are typically installed vertically and require a 1” sweep on both the top and bottom. If screen-unions are used (recommended), that will increase the overall height clearance of the device slightly.

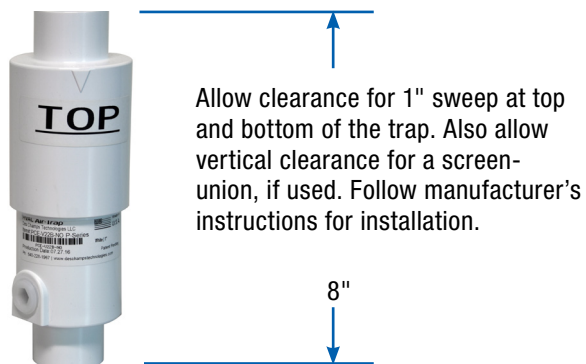


FIGURE 2.2.2 TYPE “P” POSITIVE PRESSURE WATERLESS TRAP

2.3 INSTALL CONDENSING UNIT

Read the customer supplied Condenser Installation manual before attempting to install, pipe, or wire the unit. The manufacturer of the Condenser may have special instructions for installing that is not covered by this document. Contact the Condenser manufacturer with any installation questions.

- ♦ Mount the condenser in a location where adequate air flow and service space is available.
- ♦ The condensing unit comes with a factory refrigerant charge. Do not open the ball valves until the plumbing has been completed and tested for leaks.
- ♦ Refer to the condenser manual for suction and liquid line sizes and maximum lengths.
- ♦ Refer to the condenser manual for general wiring practices. All wiring must comply with all local and national codes.
- ♦ Refer to the Premium Controls Interface section in the *Premium Controls IOM* for instructions on connecting to the controls.

2.4 REFRIGERATION LINES

These are general guidelines and all work should be done by an experienced professional.

- ♦ All field brazing and welding should be performed using high quality materials and an inert gas purge (such as nitrogen) to reduce oxidation of the internal surface of the coil.
- ♦ Connect the suction line and suction connection.
- ♦ Install the expansion valve. Follow the valve manufacturer's recommendations for installation to avoid damaging the valve.
- ♦ Connect the liquid line to the expansion valve. Pressurize the coil, expansion valve assembly and suction connection to 100 psig with dry nitrogen or other suitable gas. The coil should be left pressurized for a minimum of 10 minutes.
- ♦ If the coil holds pressure, the hook-up can be considered leak free. If the pressure drops by 5 psi or less, re-pressurize the coil and wait another 10 minutes. If the pressure drops again, there are more than likely one or more small leaks, which should be located and repaired. Pressure losses greater than 5 psi would indicate a larger leak, which should be isolated and repaired. Be sure to check valves and fittings as potential sites for leakage or bleed. If the coil is found to be leaking, contact Technical Sales Support (TSS). Unauthorized repair of the coil may void the coil's warranty.
- ♦ Use a vacuum pump to evacuate the coil and any interconnecting piping that has been open to atmosphere. Measure the vacuum in the piping using a micron gauge located as far from the pump as possible (the vacuum at the pump will be greater than the rest of the system). Evacuate the coil to 500 microns or less then close the valve between the pump and the system. If the vacuum holds to 500 microns or less for one minute, the system is ready to be charged or refrigerant pumped down in another portion of the system can be opened to the coil. A steady rise in microns would indicate that moisture is still present and that the coil should be further vacuumed until the moisture has been removed.
- ♦ Failure to obtain a high vacuum is indicative of a great deal of moisture or a small leak. Break the vacuum with a charge of dry nitrogen or other suitable gas and recheck for leaks (soapy water works well). If no leaks are found, continue vacuuming the coil until the desired vacuum is reached.
- ♦ All field piping must be self-supporting.



NOTE: Whenever using cleaning agents inside an unit, thoroughly wash down the area with fresh water when finished. Make sure that all residue, including cleaning chemicals, has been removed from the unit.

3.0 MAINTENANCE

- Periodic inspection of the coil for signs of corrosion and for leaks is recommended. Small leaks can be detected using a Halide torch. Repair and replacement of the coil and the connecting piping, valves, etc., should be performed as needed by a qualified individual(s).
- Should the coil surface need cleaning, caution should be exercised in selecting the cleaning solution as well as the cleaning equipment. Improper selection can result in damage to the coil and/or health hazards. Clean the coil from the leaving air-side so that foreign material will be washed out of the coil rather than pushed further in.
- Drain pans and drain traps are places that are subject to bacteria growth. Each month, drain pans and drain traps should be inspected and drain traps should be filled. Inspect both the traps and the pans for evidence of bacteria or algae. If there is any evidence, clean thoroughly and treat with an appropriate growth inhibitor. If evidence of algae or bacterial growth is found, inspect and treat weekly until the problem is solved. At the start of each heating season, drain traps should be filled with a glycol solution and if there is an electric heater (heat tape) on the trap or drain trap discharge pipe, it should be tested to make sure it functions properly.
- The use of filter-dryers in the system piping is recommended along with a sight glass that has a moisture indicator. Replace the filter dryer(s) as needed.

4.0 WARRANTY

Standard warranty applies.

Product must be installed properly and by a licensed or otherwise qualified HVAC technician.

THIS WARRANTY DOES NOT COVER:

1. Labor or other costs incurred for diagnosing, repairing, removing, installing, shipping, servicing or handling of either defective parts, or replacement parts, or new units.
2. Any product not installed to applicable regional efficiency standards issued by the Department of Energy.
3. Normal maintenance as outlined in the installation and servicing instructions or Owner's Manual, including filter cleaning and/or replacement and lubrication.
4. Failure, damage or repairs from faulty installation, misapplication, abuse, improper servicing, unauthorized alteration or improper operation.
5. Failure or damage due to floods, winds, fires, lightning, accidents, corrosive environments (rust, etc) or other conditions beyond the control of RenewAire.
7. Electricity or fuel costs or increases in electricity or fuel costs for any reason whatsoever, including additional or unusual use of supplemental electric heat.
8. Any cost to replace, refill or dispose of refrigerant, including the cost of refrigerant.
9. ANY SPECIAL, INDIRECT OR CONSEQUENTIAL PROPERTY OR COMMERCIAL DAMAGE OF ANY NATURE WHATSOEVER. Some states or provinces do not allow the exclusion of incidental or consequential damages, so the above limitation may not apply to you. This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state or province to province.



About RenewAire

For over 40 years, **RenewAire has been a pioneer in enhancing indoor air quality (IAQ)** in commercial and residential buildings of every size. This is achieved while maximizing sustainability through our fifth-generation, static-plate, enthalpic-core **Energy Recovery Ventilators (ERVs) that optimize energy efficiency**, lower capital costs via load reduction and decrease operational expenses by minimizing equipment needs, resulting in significant energy savings. Our ERVs are competitively priced, simple to install, easy to use and maintain and have a quick payback. They also enjoy the industry's best warranty with the lowest claims due to long-term reliability derived from innovative design practices, expert workmanship and **Quick Response Manufacturing (QRM)**.

As the pioneer of static-plate core technology in North America, RenewAire is the largest ERV producer in the USA. We're **committed to sustainable manufacturing** and lessening our environmental footprint, and to that end our Waunakee, WI plant is 100% powered by wind turbines. The facility is also one of the few buildings worldwide to be LEED and Green Globes certified, as well as having achieved ENERGY STAR Building status. In 2010, RenewAire joined the Soler & Palau (S&P) Ventilation Group in order to provide direct access to the latest in energy-efficient air-moving technologies. For more information, visit: renewaire.com

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