

# HX - HYX - HXX SERIES HORIZONTAL FAN COIL UNITS

## INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS

### **\*\*WARNING TO INSTALLER, SERVICE PERSONNEL AND OWNER\*\***

Altering the product or replacing parts with non authorized factory parts voids all warranty or implied warranty and may result in adverse operational performance and/or a possible hazardous safety condition to service personnel and occupants. Company employees and/or contractors are not authorized to waive this warning. Current **Maintenance Program** is available at [www.firstco.com](http://www.firstco.com) under "Product Information".

### GENERAL

The manufacturer assumes no responsibility for equipment installed in violation of any code requirement.

These instructions give information relative to the installation of these fan coil units only. For other related equipment refer to the proper instructions.

Material in this shipment has been inspected at the factory and released to the transportation agency in good condition. When received, a visual inspection of all cartons should be made immediately. Any evidence of rough handling or apparent damage should be noted on the delivery receipt and the material inspected in the presence of the carrier's representative. If damage is found, a claim should be filed against the carrier immediately.

### FAN COIL UNIT

The installer must adhere strictly to all local and national code requirements pertaining to the installation of this equipment. These units are designed for installation in a horizontal position above a dropped ceiling.

#### **\*\*\*\*\* WARNING \*\*\*\*\***

***Extreme caution must be taken that no internal damage will result if screws or holes are drilled into the cabinet.***



Free return installation (non-ducted return air): The furred down area must be completely sealed (except return air grille) to ensure that all return air is pulled from the conditioned space and not from other areas of the building structure.

Access must be provided for servicing the unit. If this access is provided by a removable ceiling panel, ample space must be allowed for removal of the blower panels and to provide access to electrical and plumbing controls. While most fan coil units are U.L. Listed for installations with zero clearance to combustible materials, reference should be made to the marking on the particular unit being installed where specific information regarding clearances is provided.

#### **\*\*\*\*\* WARNING \*\*\*\*\***

***Unit must not be operated during building construction due to excessive airborne dust and debris. The unit must not be operated under any circumstances without an air filter in place.***

### AIR DISTRIBUTION DUCTS

All duct work must be installed in accordance with National Fire Protection Association Codes 90A and 90B. Ducts should be adequately insulated to prevent condensation during the cooling cycle and to minimize heat loss during the heating cycle. All return air must be filtered to prevent

dirt buildup on the coil surface. If there is no ducted return, applicable installation codes may limit the unit to installation only in a single story residence. In many cases it is acceptable to use ducting of the same size as the fan coil connections. However, unique arrangements or long duct runs must be confirmed by a local professional. The manufacturer will not be responsible for misapplied equipment.

## ELECTRICAL

All wiring must comply with local and national code requirements. Units are provided with wiring diagrams and nameplate data to provide information required for necessary field wiring. On some unit models remote control boxes are furnished for field installation. In these instances care should be taken to assure that the control box used is the same as that indicated by the marking on the unit. The control box should be located as near the unit as possible in a location readily accessible for servicing. Wiring between the control box and the unit must be in accordance with the diagrams provided. The field wiring between the control box and the motor junction box must be installed using either flexible metal conduit or armored cable with sufficient length to allow removal of the blower section for service access to the heater elements and thermal cutoffs.

**\*\*\*\*\* WARNING \*\*\*\*\***

***Any devices such as fan switches or thermostats that have been furnished by the factory for field installation must be wired in strict accordance with the wiring diagram that is supplied with the unit. Failure to do so could result in damage to components and will void all warranties.***

These units are provided with a Class 2 transformer for 24-volt control circuits. Should any add-on equipment also have a Class 2 transformer furnished, care must be taken to prevent

interconnecting outputs of the two transformers by using a thermostat with isolating contacts.

## INSTALLATION PRECAUTIONS

Installation of this fan coil should only be performed by a licensed contractor to ensure proper installation and the safety of the installer. The following are some precautions to be followed for typical installations.

- Always use proper tools and equipment.
- No wiring or other work should be attempted without first ensuring that the fan coil is completely disconnected from the power source and locked out. Always verify that a good ground connection exists prior to energizing any power sources.
- Always review the nameplate on each unit for proper voltage and control configurations. This information is determined from the components and wiring of the unit and may vary from unit to unit.
- When soldering or brazing to the unit, it is recommended to have a fire extinguisher readily available. When soldering close to metering devices or other components, heat shields or wet rags are required to prevent damage.

**\*\*\*\*\* WARNING \*\*\*\*\***

***Do not touch any rotating component with any object. Damage to the equipment and personal injury can occur.***

- When the fan coil unit is in operation components are rotating at high speeds.
- Units must be installed level to ensure proper drainage and operation.
- Check unit prior to operation to ensure that the condensate water will drain toward the drain connection. An overflow drain or an auxiliary drain pan under the fan coil may be required as a back up to a clogged primary drain.
- Be sure that the drain pan is free from foreign material prior to start up.
- Check filter media installation to ensure that it is installed correctly.

Use the directional arrows or other information on the filter to determine the proper flow direction.

- Ensure that the air distribution system does not exceed the external static rating of the unit.

## NOISE

These fan coil units are designed for quiet operation, however, all air conditioning equipment will transfer some amount of noise to the conditioned space. This should be taken into consideration when planning the location of the equipment.

## MOUNTING

It is important to ensure that the fan coils are securely mounted and the structure is sufficient to support the weight of the equipment. All anchors for mounting the equipment must be placed and sized to ensure a safe and durable installation.

These units are provided with four (4) mounting slots. Metal washers and nuts of the proper size are to be provided by the installer. When necessary use shims to obtain the proper level. This will ensure that the condensate will drain from the unit.

**\*\*\*\*\* WARNING \*\*\*\*\***

***When connecting piping to fan coil units, do not bend or reposition the coil header tubing for alignment purposes. This could cause a tubing fracture resulting in a refrigerant leak when pressure is applied to the system.***

## COOLING COIL PIPING

The HX fan coil units are supplied with a direct expansion refrigerant coil. The suction and liquid refrigerant lines must be sized in accordance with the outdoor unit manufacturer's recommendations.

Condensate drain lines must be installed with adequate slope away from the unit to assure positive drainage. Since the drain pan is located on the suction side of the blower, a negative pressure exists at the drain pan and a minimum trap of 1 inch must be provided in the drain line to assure proper drainage.

\*\*\*\*\* **WARNING** \*\*\*\*\*

- Always wear eye protection.
- When fan coil is operating, some components are operating at high speeds. Personal injury can result from touching these items with any object
- All electrical and service access panels must be returned and secured in their proper place.
- Clear surrounding area of all tools, equipment and debris.
- Check the entire unit to ensure it's cleanliness.

**NOTE:** If a Condensate Overflow Shut-off Switch, that is designed to be installed in the drain line, is used in place of a secondary drain line, then the cut-off switch should be located in the primary drain line between the fan coil unit and the P-trap.

## OPERATION AND MAINTENANCE

### Pre-start Check

- Check that supply voltage matches nameplate data.
- Ensure that the unit is properly grounded.
- With power off, check blower wheel set screws for tightness and ensure that the blower wheels rotates freely and quietly.
- Check that the refrigerant coil connections and piping have been leak checked and insulated as required.

### Start-up and Maintenance

Before start-up, all of the compo-

\*\*\*\*\* **WARNING** \*\*\*\*\*

**The manufacturer does NOT WARRANT equipment subjected to abuse. Metal chips, dust, drywall tape, paint over spray, etc. can void warranties and liability for equipment failure, personal injury and property damage.**

nents should be given a thorough check. Optimal operation of this equipment requires cleanliness. Often after installation of this equipment additional construction activities occur. Care must be taken to protect the equipment from debris during these construction phases. All access panels and filters must be in place before operation of the units.

### Fan

The fan should be inspected and cleaned, in conjunction with maintenance of the motor and bearings. It is important to keep the wheels clean in order to avoid imbalance and vibration.

### Motor

Check motor connections to ensure that they are secure and made in accordance with the wiring diagram.

The blower motor should be cleaned annually.

**With DC motors, high voltage power is applied at all times.**

### Filter

The air filter should be cleaned or replaced every 30 days or more frequently if severe conditions exist. Always replace the filter with the same type as originally furnished.

### Coil

Any dust or other contaminants which accumulate on the heat transfer surfaces interferes with the air flow and impairs heat transfer. The coil must be kept clean by any of the following methods.

- Cleaning with low pressure compressed air.
- Flushing or rinsing with water (a detergent is advisable for greasy surfaces).

### Drain Piping

The drain should always be:

- Connected or piped to an acceptable disposal point sloped away from the unit at least 1/8" per foot
- Checked before summer operation
- Periodically checked during summer operation

### Preventative Maintenance

To achieve maximum performance and service life of each piece of equipment a formal schedule of regular maintenance should be established and maintained.

**\*\*MAINTENANCE UPDATES\*\***

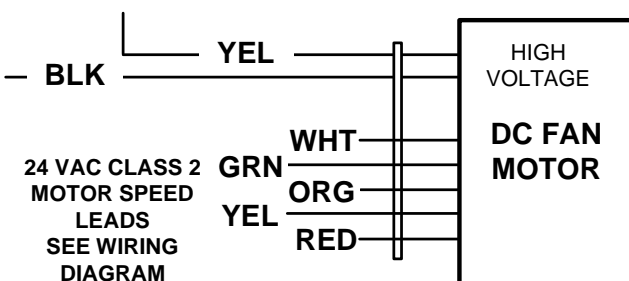
For a current copy of the Maintenance Program log on to [www.firstco.com](http://www.firstco.com) and look under "Product Information"

\*\*\*\*\* **WARNING** \*\*\*\*\*

**R-410a systems operate at much higher pressures than systems using former refrigerants. Use only equipment certified for use with R-410a.**

\*\*\*\*\* **WARNING** \*\*\*\*\*

**R-410a can become combustibile if mixed with air at elevated temperatures and/or pressures. Property damage, personal injury or death could result if this warning is ignored.**



**BRUSHLESS DC MOTOR CONNECTIONS**  
IF SO EQUIPPED