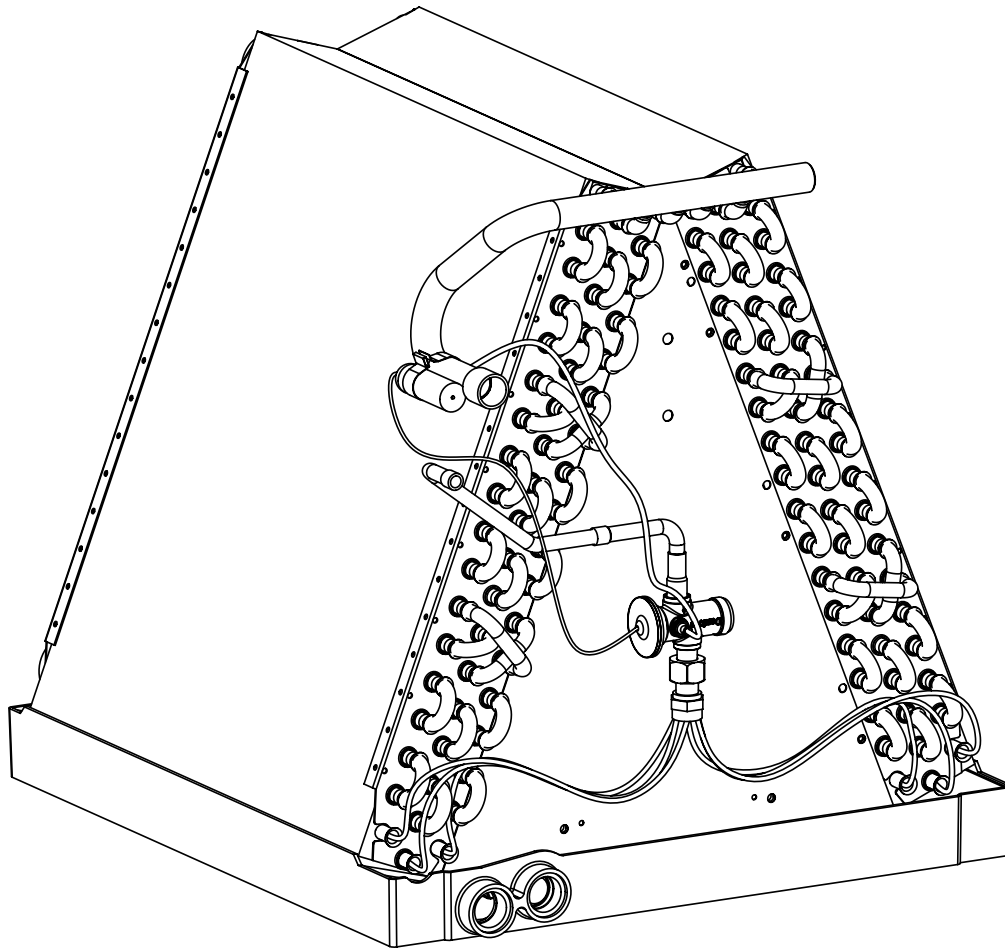


# INSTALLATION INSTRUCTIONS

## Split System C5 Uncased Indoor Coils



### IMPORTANT

#### ATTENTION INSTALLERS:

It is your responsibility to know this product better than your customer. This includes being able to install the product according to strict safety guidelines and instructing the customer on how to operate and maintain the equipment for the life of the product. Safety should always be the deciding factor when installing this product and using common sense plays an important role as well. Pay attention to all safety warnings and any other special notes highlighted in the manual. Improper installation of the furnace or failure to follow safety warnings could result in serious injury, death, or property damage.

These instructions are primarily intended to assist qualified individuals experienced in the proper installation of this appliance. Some local codes require licensed installation/service personnel for this type of equipment. Please read all instructions carefully before starting the installation. Return these instructions to the customer's package for future reference.

**DO NOT DESTROY. PLEASE READ CAREFULLY AND KEEP IN A SAFE PLACE FOR FUTURE REFERENCE.**

## IMPORTANT SAFETY INFORMATION

Please read all instructions before servicing this equipment. Pay attention to all safety warnings and any other special notes highlighted in the manual. Safety markings are used frequently throughout this manual to designate a degree or level of seriousness and should not be ignored. **WARNING** indicates a potentially hazardous situation that if not avoided, could result in personal injury or death. **CAUTION** indicates a potentially hazardous situation that if not avoided, may result in minor or moderate injury or property damage.

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### **WARNING:**

This coil must be installed in accordance with the instructions outlined in this manual during the installation, service, and operation of this unit. Unqualified individuals should not attempt to interpret these instructions or install this equipment. If you do not possess mechanical skills or tools, call your local dealer for assistance. Under no circumstances should the equipment owner attempt to install and/or service this equipment. Failure to follow safety recommendations could result in possible damage to the equipment, serious personal injury or death.

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### **WARNING:**

To prevent electrical shock, personal injury, or death, disconnect all electrical power to the HVAC system before performing any maintenance or service. The unit may have more than one electrical supply.

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### **WARNING:**

Read the Installation Instructions supplied with the furnace or air handler. Always observe all safety requirements outlined in this manual and on the furnace or air handler markings before installing the coil.

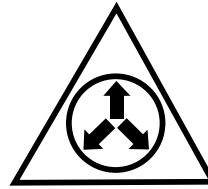
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### **WARNING:**

**PROPOSITION 65 WARNING:** This product contains chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

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### **WARNING:**



NITROGEN	
HEALTH	1
FLAMMABILITY	0
REACTIVITY	0
0 Minimal Hazard 1 Slight Hazard	

This coil is pressurized with Nitrogen at the factory. Avoid direct face exposure or contact with valve when gas is escaping. Always ensure adequate ventilation is present during the depressurization process. Any uncertainties should be addressed before proceeding.

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### **WARNING:**

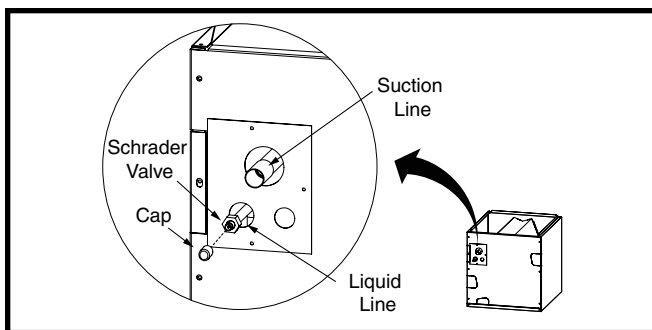
Improper installation, service, adjustment, or maintenance may cause explosion, fire, electrical shock or other hazardous conditions which may result in personal injury or property damage. Unless otherwise noted in these instructions, only factory authorized kits or accessories may be used with this product.

- The installer must comply with all local codes and regulations which govern the installation of this type of equipment. Local codes and regulations take precedence over any recommendations contained in these instructions. Consult local building codes for special installation requirements.
- Familiarize yourself with the controls that shut off the electrical power to the unit. If the unit needs to be shut down for an extended period of time, turn off electrical power at the circuit breaker. For your safety always turn off the electrical power before performing service or maintenance on the unit.
- Installation of equipment may require brazing operations. Installer must comply with safety codes and wear appropriate safety equipment (safety glasses, work gloves, fire extinguisher, etc.) when performing brazing operations.
- Follow all precautions in the literature, on tags, and on labels provided with the equipment. Read and thoroughly understand the instructions provided with the equipment prior to performing the installation and operational checkout of the equipment.
- Use caution when handling this equipment or removing components. Personal injury can occur from sharp metal edges present in all sheet metal constructed equipment.

## GENERAL INFORMATION

These C5 Series uncased flex coils are designed for upflow, downflow, or horizontal applications and are equipped with braze type refrigerant connections for easy installation.

- Check the coils orifice size and confirm that it's suitable for application with the intended outdoor unit. Depending on application, additional installer supplied orifice or TXV may be required.
- Optional cooling/heating equipment must be properly sized and installed in accordance with the furnace manufacturer's specifications and approved recommendations.
- Heating Only furnace air circulators may have to be replaced with multi-speed Heating/Cooling blowers to upgrade the air delivery (CFM) when an add-on coil is installed. Refer to Table 1 (page 6) for coil specifications, recommended CFM, and allowances for pressure drop across the coil and filters.
- Verify that the air delivery of the furnace/air handler is adequate to handle the static pressure drop of the coil, filter, and duct work.
- If precise forming of refrigerant lines is required, a copper tubing bender is recommended. Avoid sharp bends and contact of the refrigerant lines with metal surfaces.
- Refrigerant lines should be wrapped with pressure sensitive neoprene or other suitable material where they pass against sharply edged sheet metal.
- Horizontal installations require a horizontal drain pan kit to be installed. See Table 2 (page 7) for part number.
- Close-off plates are available in some air filter kits. Refer to the Replacement Parts List for available part numbers. Install the necessary close-off plates around the refrigerant lines and drain line where required. Reinstall all inner and outer panels of the furnace/air handler that were previously removed when installing the indoor coil.



**Figure 1. Suction & Liquid Line Locations**

## COIL INSTALLATION

### **⚠ WARNING:**

#### **ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD**

**Failure to follow safety warnings exactly could result in serious injury or property damage.**

**Improper servicing could result in dangerous operation, serious injury, death or property damage.**

- **Before servicing, disconnect all electrical power to the furnace and outdoor condensing unit.**
- **When servicing controls, label all wires prior to disconnecting. Reconnect wires correctly.**
- **Verify proper operation after servicing.**

### **⚠ CAUTION:**

**The coil must be level to ensure proper condensate drainage. An unlevel installation may result in structural damage, premature equipment failure, or possible personal injury.**

#### **Upflow Installations**

1. Disconnect all electrical power to the furnace.
2. Install the coil case on the furnace air discharge opening and level it as needed to ensure proper condensate drainage. If needed, make a plate to adapt the coil to the air discharge opening. See Figure 5 (page 5) for coil dimensions.
3. Make and install the plenum over the coil. Insulate as required.
4. Seal the enclosure as required to minimize air leakage.
5. Connect the refrigerant lines as outlined in the Refrigerant Line Connection section.

#### **Downflow Installations**

These coils may be installed in downflow applications. It is required that the furnace and coil cabinets are securely mounted together before setting in place. Fossil fuel applications require the coil to be placed in the supply air stream only.

#### **Horizontal Installations**

These coils may be installed in the horizontal position. It is required that the furnace and coil cabinets are securely mounted together and that a horizontal drain pan kit be installed. See Table 2 for proper kit number.

## Refrigerant Line Connections

### System Depressurization

1. Remove the cap (Figure 1) from the end of the liquid line.
2. Verify pressurization by depressing the Schrader valve on the end of the liquid line. Listen for any escaping gas. If there is no pressure, test the coil for leakage.
  - If leakage is found, clearly mark the location of the leak and return the coil to the distributor for processing.
  - If no leaks are found, the coil may be installed.
3. Depress the valve to relieve all pressure from the coil.
4. Remove and discard the valve core and valve core holder on the liquid line.
5. Remove the rubber plug from the suction line.

### Orifice Removal & Installation

**NOTE:** Before proceeding, perform steps 1 - 3 in the System Depressurization section and confirm that the restrictor orifice size meets the requirements outlined in the outdoor unit installation manual.

Factory supplied orifice sizes are listed in Table 2 (page 7). If the orifice must be replaced, follow steps 1 - 5.

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#### **⚠ CAUTION:**

**To prevent damage to the unit or internal components, it is recommended that two wrenches be used when loosening or tightening nuts. Do not over tighten!**

1. Using two wrenches, loosen the nut and distributor body as shown in Figure 2. Turn the assembly nut counter-clock-wise until the orifice body halves are seperated.
2. Insert a light-gauge wire hook between the distributor body and the restrictor orifice while being careful not to scratch either part. Carefully remove the restrictor orifice from the distributor body. See Figure 3.
3. Check the actual size of the new orifice. The size is stamped on its side. Do not use pin gauges to measure the orifice diameter.
4. Insert the new orifice into the distributor body, rounded end down. See Figure 4

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#### **⚠ CAUTION:**

**To prevent damage to the unit or internal components, it is recommended that two wrenches be used when loosening or tightening nuts. Do not over tighten!**

5. Realign the assembly nut on the distributor body and hand tighten both components. Mark a line on both bodies and then tighten an additional 1/4 turn using two wrenches. The movement of the two lines will show how much the nut is tightened. If a torque wrench is used, tighten to 10-12 ft. lbs. or 14-16 Nm.

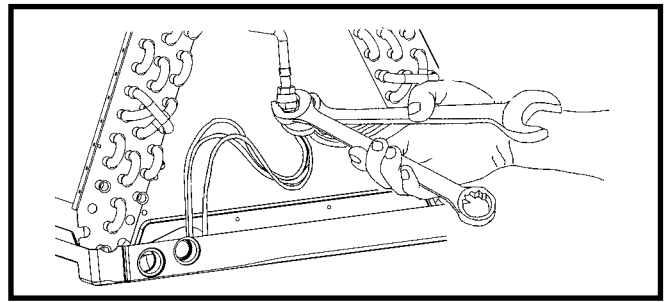


Figure 2. Loosening of Nut & Distributor Body

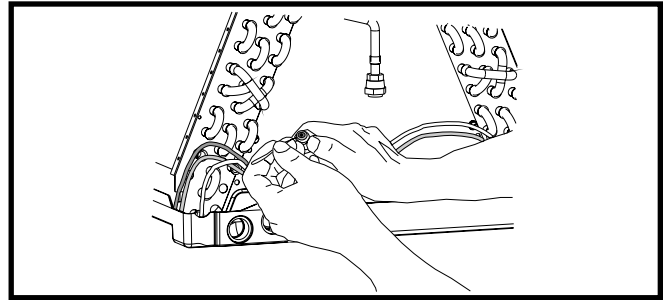


Figure 3. Removal of Orifice

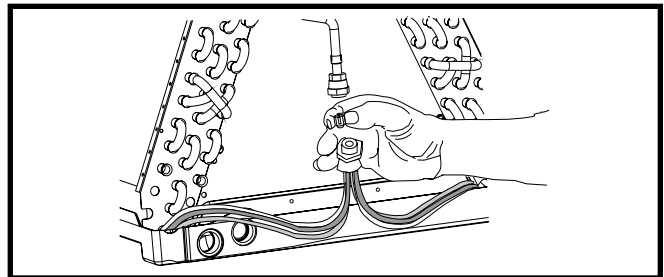


Figure 4. Restrictor Insertion into Distributor Body

### Connecting the Linesets

1. Route and cut both lineset tubes to proper length in accordance with the outdoor unit specifications. Verify the ends are round, clean, and free of any burrs.
2. Connect the suction and liquid lineset tubes.

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#### **⚠ CAUTION:**

**It is recommended that a wet rag be wrapped around the suction line in front of the close off plate before applying heat. Failure to keep components cool during brazing may result in structural damage, premature equipment failure, or possible personal injury.**

3. Braze the individual connections with dry nitrogen flowing through the joints. This will prevent internal oxidation and scaling from occurring.
4. Wrap the refrigerant lines with pressure sensitive neoprene or other suitable material especially where the lines enter the opening in the sheet metal.

5. Evacuate the system of moisture and non-condensables to prevent low efficiency operation or damage to the unit. The suggested range of evacuation is 250 - 500 microns.
6. Charge the system with refrigerant. **Please Refer to the outdoor unit installation manual for additional charging instructions.**
7. Check the system for leaks, including the lineset and the brazed joints. **NOTE:** Apply a soap and water solution on each joint or union with a small paintbrush. If bubbling is observed, the connection is not adequately sealed.
8. Properly dispose of all removed parts.

## Condensate Drain

### CAUTION:

**The coil must be level to ensure proper condensate drainage. Improper condensate disposal may result in structural damage, premature equipment failure, or possible personal injury.**

- Methods for disposing of condensate vary according to local codes. Refer to local codes or authority having jurisdiction for restrictions and proper condensate disposal requirements.
- All condensate pans have primary and secondary drain connections to meet FHA requirements. If the application is located in or above a living space where damage may result from condensate overflow, a separate 3/4 inch drain must be provided from the secondary drain connection and a secondary drain pan must be installed under the entire unit. Run secondary drain lines to a place where they are noticeable if used.
- The coil condensate pan is designed with 3/4" NPSC drain connections. Use a PVC or similar material fitting to attach the drain line to the pan. **NOTE:** The fitting should be hand tightened only. Overtightening may crack the drain pan and cause condensate to leak.
- The drain pan **MUST** be drained with field supplied tubing or PVC pipe and adequately trapped.

**IMPORTANT: Failure to install a trap may result in condensation overflowing the drain pan, resulting in substantial water damage to surrounding area.**

- Prime the trap with water. Insulate the drain if it is located in an unconditioned space, and test the condensate line for leaks. Consult local codes for additional restrictions or precautions.
- Route the lines to a suitable drain, avoiding sharp bends and pinching of the lines. The drain should maintain a minimum horizontal slope in the direction of discharge of no less than 1" vertical for every 10 ft of horizontal run.
- During system checkout, inspect the drain line and connections to verify proper condensate drainage.

## Air Filter

Air filters are not supplied as an integral part of this coil; however, a filter must be installed upstream of the coil and inspected frequently. When the filter becomes clogged with dust or lint, it should be replaced (disposable type) or cleaned (washable type). It is recommended that filters be inspected and replaced at least twice during the year. Generally it is best to replace or clean the filters at the start of each heating and cooling season.

## MAINTENANCE & SERVICE

### WARNING:

**ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD**

**Failure to follow safety warnings exactly could result in serious injury or property damage.**

**Improper servicing could result in dangerous operation, serious injury, death or property damage.**

- **Before servicing, disconnect all electrical power to the furnace or air handler.**
- **When servicing controls, label all wires prior to disconnecting. Reconnect wires correctly.**
- **Verify proper operation after servicing.**

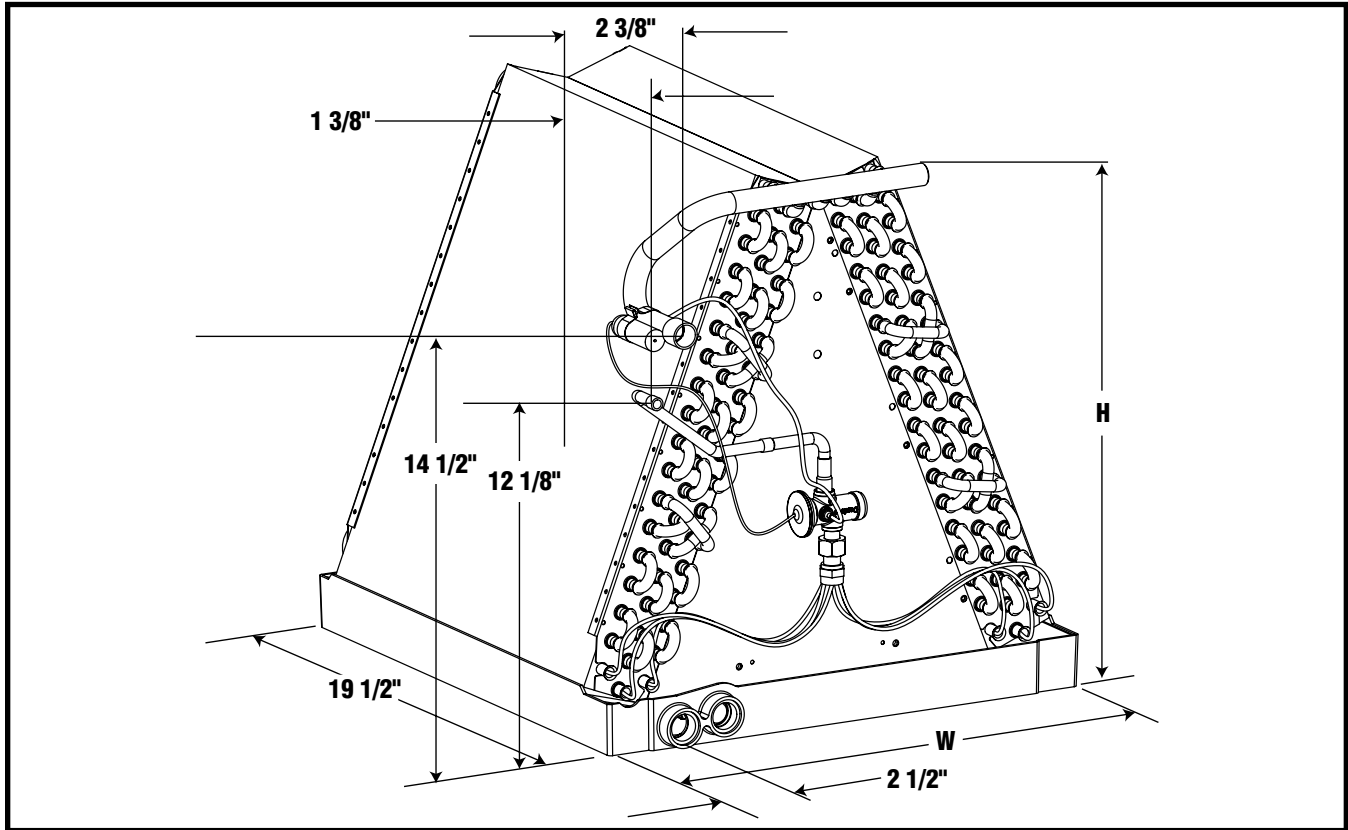
### CAUTION:

**Do not operate the system without a suitable filter in the return air duct system. Always replace the filter with the same size and type.**

To ensure optimum performance and to minimize possible equipment failure, the following maintenance tasks should be performed periodically on this equipment:

1. The air filter installed with the system should be checked and cleaned or replaced twice per year.
2. Check the coil, drain pan, and condensate drain line for cleanliness at the start of each heating and cooling season. Clean as needed.

## COIL SPECIFICATIONS & DIMENSIONS



**Figure 5. Coil Dimensions**

C5BA-	O24U-A	O25U-A	O30U-A	O24U-B	O25U-B	O36U-B	O48U-B	O48U-C	O60U-C
	919131D	919132D	919133D	919134D	919135D	919137D	919139D	919140D	919142D
Nominal Capacity, Min (BTUH)	24,000	24,000	30,000	24,000	24,000	30,000	36,000	48,000	48,000
Nominal Capacity, Max (BTUH)	24,000	24,000	30,000	24,000	24,000	36,000	48,000	48,000	60,000
Nominal Airflow, Min (CFM)	800	800	1,000	800	800	1,000	1,200	1,600	1,600
Nominal Airflow, Max (CFM)	800	800	1,000	800	800	1,200	1,600	1,600	2,000
W - Width (in.)	12 3/4	12 3/4	12 3/4	18 1/8	18 1/8	18 1/8	18 1/8	21	21
H - Height (in.)	19	19	19	19	19	19	25	25	28 3/4
Connection - Liquid Line (in.)	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Connection - Suction Line (in.)	3/4	3/4	3/4	3/4	3/4	3/4	7/8	7/8	7/8

**NOTES:**

- (1) Refer to sales specification sheets for Listed/Certified combinations of equipment and required accessories.
- (2) Refer to the current AHRI directory for certified ratings of split systems.
- (3) Based on a nominal 0.3" W.C. pressure drop across the coil.
- (4) TXV valve may be required to achieve AHRI rating.

**Table 1. Coil Specifications**

FACTORY INSTALLED ORIFICE VS. FLEXIBLE COIL PLUS ORIFICE										
Factory Installed Orifice	Uncased SKU	Cased SKU	Horiz. SKU	Flex Coil		Horiz. Kit	Coils Made Before Aug. 1, 2009		Coils Made After Aug. 1, 2009	
				Model	SKU		Installed Orifice	Supplied Orifice	Installed Orifice	Supplied Orifice
C5B(A,H)-O24(U,C)-A	919131D	919143D	919155D	C5BA-O24U-A	919131D	919318	0.050	-	0.055	0.050
C5B(A,H)-O25(U,C)-A	919132D	919144D	919156D	C5BA-O25U-A	919132D	919318	0.060	0.053	0.061	0.053
C5B(A,H)-O30(U,C)-A	919133D	919145D	919157D	C5BA-O30U-A	919133D	919318	0.065	-	0.065	0.061
C5B(A,H)-O24(U,C)-B	919134D	919146D	919158D	C5BA-O24U-B	919134D	919318	0.050	-	0.055	0.050
C5B(A,H)-O25(U,C)-B	919135D	919147D	919159D	C5BA-O25U-B	919135D	919318	0.060	0.053	0.061	-
C5B(A,H)-O30(U,C)-B	919136D	919148D	919160D	C5BA-O36U-B	919137D	919318	0.065	-	0.073	0.065
C5B(A,H)-O36(U,C)-B	919137D	919149D	919161D				0.075			
C5B(A,H)-O37(U,C)-B	919425D	919426D	919427D				0.078			
C5B(A,H)-O41(U,C)-B	919496D	919497D	919498D							
C5B(A,H)-O42(U,C)-B	919138D	919150D	919162D	C5BA-O48U-B	919139D	919319		-	0.089	0.078
C5B(A,H)-O43(U,C)-B	919502D	919503D	919504D							
C5B(A,H)-O48(U,C)-B	919139D	919151D	919163D							
C5B(A,H)-O48(U,C)-C	919140D	919152D	919164D	C5BA-O48U-C	919140D	919319	0.089	-	0.080	0.090
C5B(A,H)-O49(U,C)-C	919141D	919153D	919165D				0.089	0.099	0.089	0.099
C5B(A,H)-O60(U,C)-C	919142D	919154D	919166D	C5BA-O60U-C	919142D	919320	0.089	0.099	0.089	0.099

**NOTES:**

- Individual restrictors are available by part number - PN664\*\*\* (where \*\*\* represents the size). Example: 664103 is a restrictor 0.103 in diameter.
- Installed orifices are sized for most common R-410a 13 SEER matches. Always consult outdoor unit documentation for verification of orifice size.
- Depending on application, additional installer-supplied orifice or TXV may be required.

**Table 2. Orifice Sizes**

CROSS REFERENCE: FACTORY INSTALLED TXV VS. FLEXIBLE COIL PLUS TXV KIT							
Factory Installed TXV Coil	Uncased SKU	Cased SKU	Horiz. SKU	Flex Coil		Horiz. Kit	TXV Kit PN
				Model	SKU		
C5B(A,H)-T24(U,C)-A	919167D	919179D	919191D	C5BA-O24U-A	919131D	919318	920662
C5B(A,H)-T25(U,C)-A	919168D	919180D	919192D	C5BA-O25U-A	919132D	919318	920662
C5B(A,H)-T30(U,C)-A	919169D	919181D	919193D	C5BA-O30U-A	919133D	919318	920663
C5B(A,H)-T24(U,C)-B	919170D	919182D	919194D	C5BA-O24U-B	919134D	919318	920662
C5B(A,H)-T25(U,C)-B	919171D	919183D	919195D	C5BA-O25U-B	919135D	919318	920662
C5B(A,H)-T30(U,C)-B	919172D	919184D	919196D	C5BA-O36U-B	919137D	919318	920663
C5B(A,H)-T36(U,C)-B	919173D	919185D	919197D	C5BA-O36U-B	919137D	919318	920664
C5B(A,H)-T37(U,C)-B	919428D	919429D	919430D	C5BA-O48U-B	919139D	919319	920664
C5B(A,H)-T41(U,C)-B	919499D	919500D	919501D	C5BA-O48U-B	919139D	919319	920665
C5B(A,H)-T42(U,C)-B	919174D	919186D	919198D	C5BA-O48U-B	919139D	919319	920665
C5B(A,H)-T43(U,C)-B	919505D	919506D	919507D	C5BA-O48U-B	919139D	919319	920665
C5B(A,H)-T48(U,C)-B	919175D	919187D	919199D	C5BA-O48U-B	919139D	919319	920666
C5B(A,H)-T48(U,C)-C	919176D	919188D	919200D	C5BA-O48U-C	919140D	919319	920666
C5B(A,H)-T49(U,C)-C	919177D	919189D	919201D	C5BA-O60U-C	919142D	919320	920666
C5B(A,H)-T60(U,C)-C	919178D	919190D	919202D	C5BA-O60U-C	919142D	919320	920667

**Table 3. C5 Coil with R22 Refrigerant**

CROSS REFERENCE: FACTORY INSTALLED TXV VS. FLEXIBLE COIL PLUS TXV KIT							
Factory Installed TXV Coil	Uncased SKU	Cased SKU	Horiz. SKU	Flex Coil		Horiz. Kit	TXV Kit PN
				Model	SKU		
C5B(A,H)-X24(U,C)-A	919509D	919612D	919203D	C5BA-O24U-A	919131D	919318	920668
C5B(A,H)-X25(U,C)-A	919626D	919613D	919625D	C5BA-O25U-A	919132D	919318	920668
C5B(A,H)-X30(U,C)-A	919510D	919614D	919204D	C5BA-O30U-A	919133D	919318	920669
C5B(A,H)-X36(U,C)-A	919679D	919678D	919680D	C5BA-O30U-A	919133D	919318	920670
C5B(A,H)-X24(U,C)-B	919511D	919615D	919205D	C5BA-O24U-B	919134D	919318	920668
C5B(A,H)-X25(U,C)-B	919628D	919616D	919627D	C5BA-O25U-B	919135D	919318	920668
C5B(A,H)-X30(U,C)-B	919512D	919617D	919206D	C5BA-O36U-B	919137D	919318	920669
C5B(A,H)-X36(U,C)-B	919513D	919618D	919207D	C5BA-O36U-B	919137D	919318	920670
C5B(A,H)-X37(U,C)-B	919630D	919619D	919629D	C5BA-O48U-B	919139D	919319	920670
C5B(A,H)-X42(U,C)-B	919514D	919620D	919208D	C5BA-O48U-B	919139D	919319	920671
C5B(A,H)-X48(U,C)-B	919515D	919621D	919209D	C5BA-O48U-B	919139D	919319	920672
C5B(A,H)-X48(U,C)-C	919516D	919622D	919210D	C5BA-O48U-C	919140D	919319	920672
C5B(A,H)-X49(U,C)-C	919517D	919623D	919211D	C5BA-O60U-C	919142D	919320	920672
C5B(A,H)-X60(U,C)-C	919518D	919624D	919212D	C5BA-O60U-C	919142D	919320	920673

**Table 4. C5 Coil with R410A Refrigerant**

