

## C7BA & C7BH Series Split System Indoor Cased Coils

# INSTALLATION INSTRUCTIONS



## IMPORTANT

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.

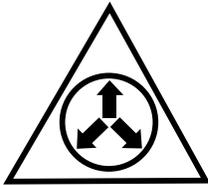
These instructions are primarily intended to assist qualified individuals experienced in the proper installation of this appliance. Some local codes require licensed installation/service personnel for this type of equipment. Please read all instructions carefully before starting the installation. Return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

**DO NOT DESTROY. PLEASE READ CAREFULLY & 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.

### **WARNING:**



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

**C7 coils are 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.**

### **PROPOSITION 65 WARNING:**

**WARNING: This product contains chemicals known to the state of California to cause cancer.**

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

### **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.**

### **WARNING:**

**This unit 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.**

- 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.
- 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.
- 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.

## 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 equipment.
- 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.

#### General Information

C7 Series indoor cased coils are designed for upflow, downflow, or horizontal applications and are equipped with braze type refrigerant connections for easy installation. If a TXV is not installed but required for your application, see [Table 1](#) to determine the proper kit based on tonnage and refrigerant type of the unit.

- 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 3](#), [Table 4](#), or [Table 5](#), (page 7) 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 3](#), [Table 4](#), or [Table 5](#) for available part numbers.

- 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.

#### 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 8) 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.

#### Horizontal Installations

C7 coils can be installed horizontally, but it is required that the furnace and coil cabinets be securely mounted together before setting in place. A horizontal drain pan kit must also be installed under the coil. Refer to [Table 3](#), [Table 4](#), or [Table 5](#) for available part numbers.

#### Horizontal Left Installations

1. Disconnect all electrical power to the furnace.
2. Remove the coil access door.
3. Remove the plug and knockout from one of the threaded holes in the horizontal drain pan.

### **CAUTION:**

The knockout must be removed and discarded to ensure proper condensate drainage. Improper drainage may result in structural damage, premature equipment failure, or possible personal injury.

4. Install plug (from horizontal drain pan) in the open drain hole in the drain pan at the bottom of the unit. This will block bypass air from entering the system.
5. Remove the drain line knockout from the coil access door. This will allow access to the horizontal drain.
6. Install drain pan extension (if supplied with unit).

	TXV KIT P/N	SIZE OF A.C. OR H.P. (TONS)
R-22 REFRIGERANT	920662A	1.5 or 2
	920663A	2.5
	920664A	3
	920665A	3.5
	920666A	4
	920667A	5
R-410A REFRIGERANT	920668A	1.5 or 2
	920669A	2.5
	920670A	3
	920671A	3.5
	920672A	4
	920673A	5

**Table 1. TXV Kit Part Numbers**

**NOTE:** The holes in the drain pan extension should be pressed over the nibs molded into the drain pan. Which pair of holes to use will depend on whether the unit is installed horizontal left or horizontal right. Verify proper positioning for clearance thru the top of the coil cabinet before affixing. The drain pan extension can be installed and removed after the ductwork has been attached to the cased coil.

7. Connect the refrigerant lines as outlined in the Refrigerant Lines Connection section.
8. Seal the enclosure as required to minimize air leakage.
9. Reinstall the coil access door.
10. Restore electrical power to the furnace.

### Horizontal Right Installations

1. Disconnect all electrical power to the furnace.
2. Remove the coil access door.
3. Remove the plug and knockout from one of the threaded holes in the horizontal drain pan.

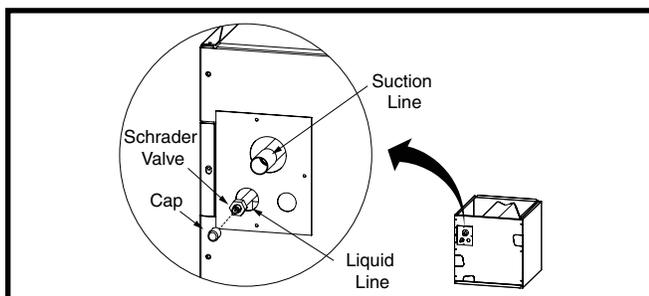
## ⚠ CAUTION:

**The knockout must be removed and discarded to ensure proper condensate drainage. Failure to do so may result in structural damage, premature equipment failure, or possible personal injury.**

4. Place the horizontal drain pan on the opposite side of the coil. **NOTE:** If unit has 2 sets of knockouts, remove the other set of knockouts in the coil spacing plates and insert support rod.
5. Install plug (from horizontal drain pan) in the open drain hole in the drain pan at the bottom of the unit. This will block bypass air from entering the system.
6. Slide the coil and the horizontal drain pan assembly back into the unit.
7. Remove the drain line knockout from the coil access door. This will allow access to the horizontal drain.
8. Install drain pan extension (if supplied with unit).

**NOTE:** The holes in the drain pan extension should be pressed over the nibs molded into the drain pan. Which pair of holes to use will depend on whether the unit is installed horizontal left or horizontal right. Verify proper positioning for clearance thru the top of the coil cabinet before affixing. The drain pan extension can be installed and removed after the ductwork has been attached to the cased coil.

9. Connect the refrigerant lines as outlined in the Refrigerant Lines Connection section.
10. Seal the enclosure as required to minimize air leakage.



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

11. Reinstall the coil access door.
12. Restore electrical power to the furnace.

### Downflow Installations

C7 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.

## REFRIGERANT LINE CONNECTIONS

### IMPORTANT NOTE TO INSTALLER

**C7 Coils are not factory charged with refrigerant. It will be necessary to evacuate the indoor coil and lineset prior to charging. Refer to the outdoor unit installation manual for detailed charging instructions.**

### 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.

### Installing the TXV

*(For Optional Bulkhead Mounted TXV's)*

1. Install the TXV retaining nut onto the inlet end of the TXV. See [Figure 6 \(page 8\)](#).
2. Add small amount of HVAC approved thread lock to the inlet end of the TXV.
3. Install the liquid line and accessory retaining nut onto the end of the TXV. For liquid line kit numbers, see [Table 2, \(page 5\)](#).

## ⚠ 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!**

4. Align the retaining nut on the TXV body and hand tighten both components. Mark a line on both bodies and then tighten an additional ¼ turn using two wrenches. See [Figure 2 \(page 5\)](#). **NOTE:** 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.

### 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 3](#), [Table 4](#), or [Table 5](#), (page 7). If the orifice must be replaced, follow steps 1 - 5.

**⚠ 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!

- Using two wrenches, loosen the nut and distributor body as shown in [Figure 2](#). Turn the assembly nut counter-clockwise until the orifice body halves are separated.
- 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](#).
- 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.
- Insert the new orifice into the distributor body, rounded end down. See [Figure 4](#).

**⚠ 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!

- 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.

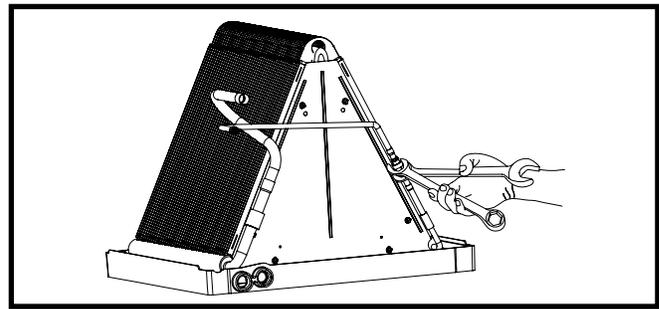
**Connecting the Linesets**

**NOTE:** If installing a TXV, please follow the instructions supplied with the kit. See [Table 2](#) for kit part numbers.

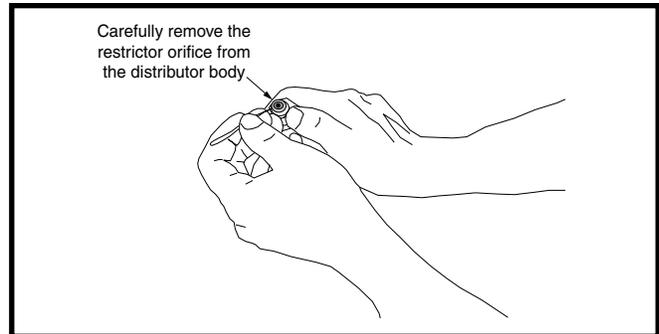
- Remove the grommet from the suction line, making note of its orientation and fit.
- Remove the coil access door.
- Remove the rubber plug from the suction line.
- Install the Thermal Expansion Valve (TXV). **Please follow the instructions supplied with the kit.**
- Route and cut both lineset tubes to proper length in accordance with the outdoor unit specifications. Verify the ends are round, clean, and free of any burrs.
- Place the grommet on the suction line of the lineset. **NOTE:** DO NOT install the grommet in the door cutout at this point. Allow sufficient distance to braze joint.
- Connect the suction and liquid lineset tubes.

**⚠ CAUTION:**

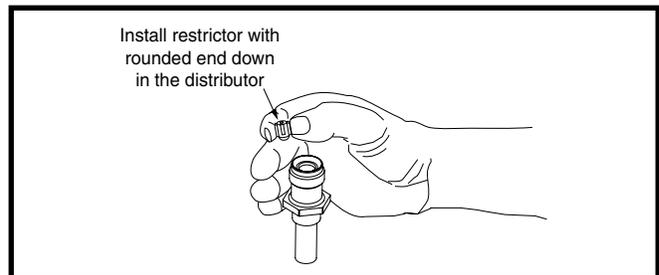
It is recommended that a wet rag be wrapped around the suction line in front of the close off plate before applying heat. Failure to keep components cool during brazing may result in structural damage, premature equipment failure, or possible personal injury.



**Figure 2. Loosening of Nut & Distributor Body**



**Figure 3. Removal of Orifice**



**Figure 4. Restrictor Insertion into Distributor Body**

COIL HEIGHT	CABINET	LIQUID LINE TUBE KIT
18"	A	921824
18"	B	921825
24"	B	921826
18"	C	921827
24"	C	921828
28"	C	921829
24"	D	921830
28"	D	921831

**Table 2. Liquid Line Tube kits**

8. Braze the individual connections with dry nitrogen flowing through the joints.

**IMPORTANT NOTE:**

**To prevent internal oxidation and scaling from occurring, braze all connections with dry nitrogen flowing through the joints.**

9. Install the grommet in the door cutout. Verify the grommet is evenly aligned around the tube and securely positioned in the door cutout.

## Condensate Drain

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 **CAUTION:**

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**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.**

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- 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 NOTE:**

**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, an air filter kit is available. Refer to the Replacement Parts List for available part numbers.

The 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.

## COMPLETING THE INSTALLATION

1. Check the system for leaks, including the lineset and the brazed joints.
2. Evacuate the system of moisture and non-condensables to prevent low efficiency operation or damage to the unit. The suggested range of evacuation is 350 - 500 microns.
3. Charge the system with refrigerant. **Please Refer to the outdoor unit installation manual for additional charging instructions.**
4. Install the coil access door (if removed).
5. Properly dispose of all removed parts.
6. Apply power to the unit.

## MAINTENANCE & SERVICE

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 **WARNING:**

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**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 equipment.**
  - **When servicing controls, label all wires prior to disconnecting. Reconnect wires correctly.**
  - **Verify proper operation after servicing.**
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 **CAUTION:**

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**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.**

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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.

	UPFLOW & DOWNFLOW UNITS											
	A-CABINETS		B-CABINETS			C-CABINETS				D-CABINETS		
	01824A	03036A	01824B	03036B	03642B	030C	03648C	048C	060C	042D	048D	060D
NOMINAL CAPACITY, MIN BTUH	18,000	30,000	18,000	30,000	36,000	30,000	36,000	48,000	60,000	42,000	48,000	60,000
NOMINAL CAPACITY, MAX BTUH	24,000	36,000	24,000	36,000	42,000		48,000					
INSTALLED ORIFICE SIZE (IN.)	.048	.061	.055	.067	.071	.061	.067	.077	.083	.071	.077	.083
NOMINAL AIRFLOW, MIN (CFM)	800	1,000	800	1,000	1,200	1,000	1,200	1,600	2,000	1,400	1,600	2,000
NOMINAL AIRFLOW, MAX (CFM)	800	1,000	800	1,200	1,400		1,600					
W - WIDTH (IN.)	14 1/2	14 1/2	17 1/2	17 1/2	17 1/2	21	21	21	21	24 1/2	24 1/2	24 1/2
H - HEIGHT (IN.)	20 3/4	20 3/4	20 3/4	20 3/4	26 3/4	26 3/4	26 3/4	30 1/4	30 1/4	30 1/4	30 1/4	30 1/4
HL - HEIGHT OF LIQUID LINE (IN.)	17 1/2	17 1/2	17 1/2	17 1/2	23 1/2	23 1/2	23 1/2	27	27	27	27	27
HS - HEIGHT OF SUCTION LINE (IN.)	15 1/2	15 1/2	15 1/2	15 1/2	21 1/2	21 1/2	21 1/2	25	25	25	25	25
CONNECTION - LIQUID LINE	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
CONNECTION - SUCTION LINE	3/4	3/4	3/4	3/4	7/8	3/4	7/8	7/8	7/8	7/8	7/8	7/8
HORIZONTAL DRAIN KIT (5)	920265	920265	920265	920265	920266	920266	920266	920267	920267	920267	920267	920267

**Table 3. C7BA Coil Specifications (Orifice Only)**

	HORIZONTAL UNITS (3)												
	A-CABINETS			B-CABINETS			C-CABINETS				D-CABINETS		
	X24C-A	X30C-A	X36C-A	X24C-B	X30C-B	X36C-B	X30C-C	X36C-C	X42C-C	X48C-C	X60C-C	X48C-D	X60C-D
NOMINAL CAPACITY, BTUH	24,000	30,000	36,000	24,000	30,000	36,000	30,000	36,000	42,000	48,000	60,000	48,000	60,000
METERING DEVICE	TXV	TXV	TXV	TXV	TXV	TXV	TXV	TXV	TXV	TXV	TXV	TXV	TXV
NOMINAL AIRFLOW, (CFM)	800	1000	1000	800	1000	1200	1000	1200	1400	1600	2000	1600	2000
W - WIDTH (IN.)	14.5	14.5	14.5	17.5	17.5	17.5	21	21	21	21	21	24.5	24.5
H - HEIGHT (IN.)	20.75	20.75	20.75	20.75	20.75	20.75	26.75	26.75	26.75	26.75	30.25	30.25	30.25
HL - HEIGHT OF LIQUID LINE (IN.)	17.5	17.5	17.5	17.5	17.5	17.5	23.5	23.5	23.5	23.5	27	27	27
HS - HEIGHT OF SUCTION LINE (IN.)	15.5	15.5	15.5	15.5	15.5	15.5	21.5	21.5	21.5	21.5	25	25	25
CONNECTION - LIQUID LINE	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
CONNECTION - SUCTION LINE	3/4	3/4	3/4	3/4	3/4	3/4	3/4	7/8	7/8	7/8	7/8	7/8	7/8

**Table 4. C7BH Coil Specifications (TXV Only)**

	HORIZONTAL UNITS											
	A-CABINETS		B-CABINETS			C-CABINETS				D-CABINETS		
	01824A	03036A	01824B	03036B	03642B	030C	03648C	048C	060C	042D	048D	060D
NOMINAL CAPACITY, MIN BTUH	18,000	30,000	18,000	30,000	36,000	30,000	36,000	48,000	60,000	42,000	48,000	60,000
NOMINAL CAPACITY, MAX BTUH	24,000	36,000	24,000	36,000	42,000		48,000					
INSTALLED ORIFICE SIZE (IN.)	.048	.061	.055	.067	.071	.061	.067	.077	.083	.071	.077	.083
NOMINAL AIRFLOW, MIN (CFM)	800	1,000	800	1,000	1,200	1,000	1,200	1,600	2,000	1,400	1,600	2,000
NOMINAL AIRFLOW, MAX (CFM)	800	1,000	800	1,200	1,400		1,600					
W - WIDTH (IN.)	14 1/2	14 1/2	17 1/2	17 1/2	17 1/2	21	21	21	21	24 1/2	24 1/2	24 1/2
H - HEIGHT (IN.)	26 3/4	26 3/4	26 3/4	26 3/4	26 3/4	26 3/4	26 3/4	30 1/4	30 1/4	30 1/4	30 1/4	30 1/4
HL - HEIGHT OF LIQUID LINE (IN.)	23 1/2	23 1/2	23 1/2	23 1/2	23 1/2	23 1/2	23 1/2	27	27	27	27	27
HS - HEIGHT OF SUCTION LINE (IN.)	21 1/2	21 1/2	21 1/2	21 1/2	21 1/2	21 1/2	21 1/2	25	25	25	25	25
CONNECTION - LIQUID LINE	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
CONNECTION - SUCTION LINE	3/4	3/4	3/4	3/4	7/8	3/4	7/8	7/8	7/8	7/8	7/8	7/8

**Table 5. C7BH Coil Specifications (Orifice)**

**NOTES:**

- Individual restrictors are available by part number - PN664\*\*\* (where \*\*\* represents the size). Example: 664103 is a restrictor 0.103 in diameter.
- Refer to sales specification sheets for Listed/Certified combinations of equipment and required accessories.
- X in the model description designates factory installed TXV for R-410a refrigerant.
- Refer to the current AHRI Directory for certified ratings of split systems.
- Not required for "H" horizontal ready coils.

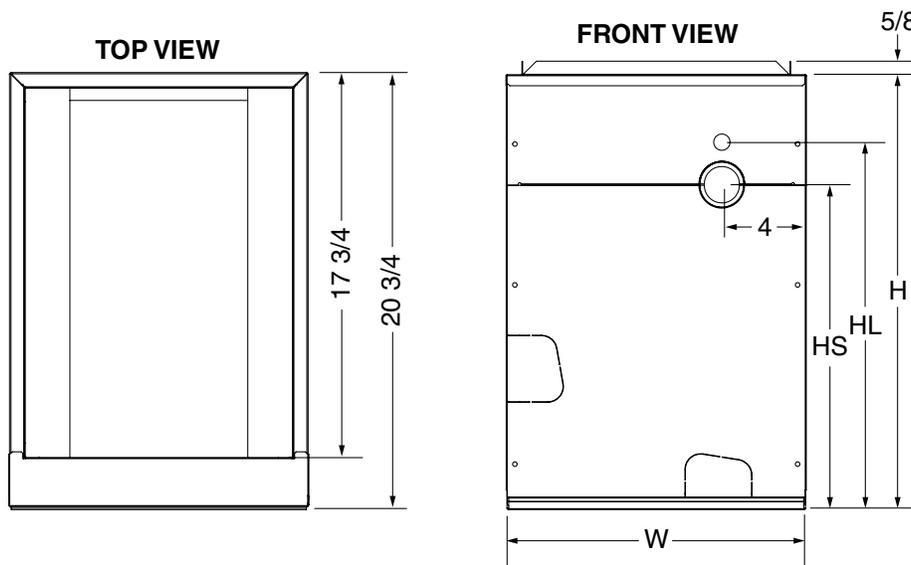


Figure 5. Coil Dimensions

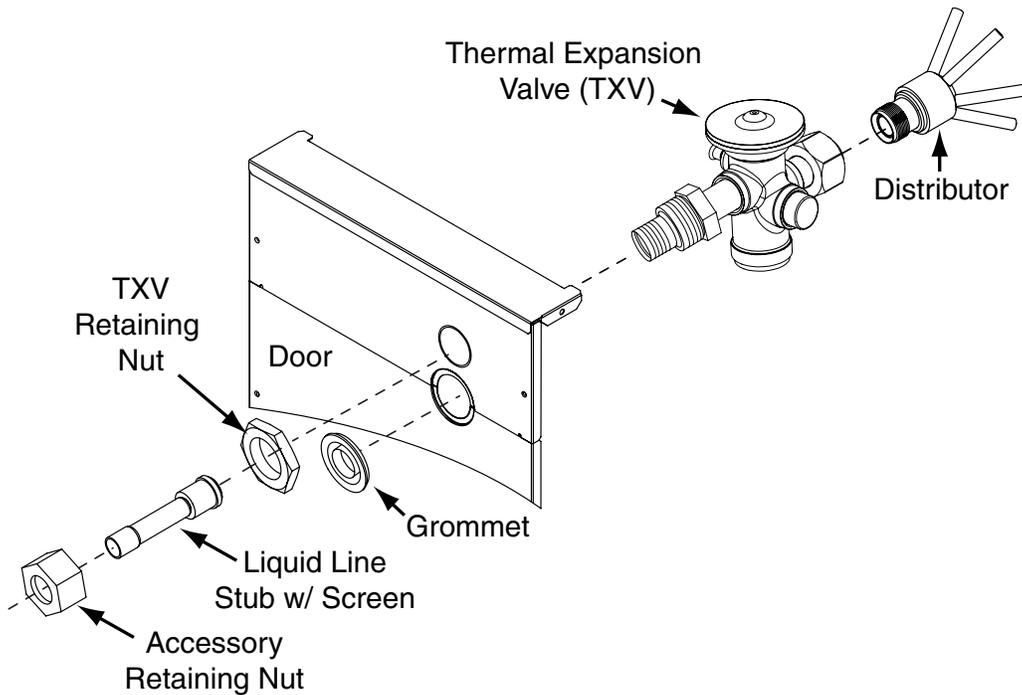


Figure 6. TXV Assembly

