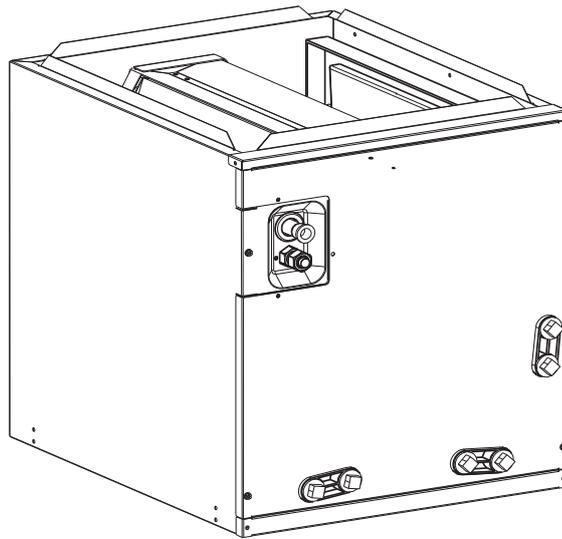


DiamondAir

INSTALLATION INSTRUCTIONS

Multi-Position Cased Coils

FEATURING R-410A



RECOGNIZE THIS SYMBOL AS AN INDICATION OF IMPORTANT SAFETY INFORMATION

WARNING

These instructions are intended as an aid to qualified licensed service personnel for proper installation, adjustment and operation of this unit. Read these instructions thoroughly before attempting installation or operation. Failure to follow these instructions may result in improper installation, adjustment, service or maintenance and possibly resulting in fire, electrical shock, property damage, personal injury or death.



DO NOT DESTROY THIS MANUAL

Please read carefully and keep in a safe place for future reference by a serviceman.

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1.0 SAFETY

When you see the symbols below on labels or in manual, be alert to the potential or immediate hazards of personal injury, property and/or product damage. It is the owner's or installer's responsibility to comply with all safety instructions and information accompanying these symbols.



WARNING

This is a safety alert symbol indicating a potential hazardous situation, which could result in personal injury, property and/or product damage or death.



CAUTION

This is a safety alert symbol indicating a potential hazardous situation, which could result in moderate personal injury, and/or property and product damage.



WARNING

Disconnect all power to the unit before starting any service and maintenance. Failure to do so could cause severe electrical shock resulting in personal injury or death.



WARNING

Installation or servicing of this unit can be hazardous due to parts, components and system pressure. Qualified and proper trained service personnel should perform installation and repair. Failure to do so could cause severe electrical shock resulting in personal injury or death.



WARNING

Check the electric wire, water and gas pipeline layout inside the wall, floor and ceiling before installation. Do not implement drilling unless confirm safety with the user, especially for the hidden power wire. An electroprobe can be used to test whether a wire is passing by at the drilling location, to prevent physical injury or death caused by insulation broken cords.

Check the power supply before installation. Ensure that the power supply must be reliably grounded following local, state and National Electrical Codes. If not, for example, if the ground wire is detected charged, installation is prohibited before it is rectified. Otherwise, there is a risk of fire and electric shock, causing physical injury or death.



CAUTION

Only use this unit in well-ventilated spaces and ensure that there are no obstructions that could impede the airflow into and out of the unit.

Do not use this unit in the following locations:

- Locations with mineral oil.
- Locations with saline atmospheres, such as seaside locations.
- Locations with sulphurous atmospheres, such as near natural hot springs.
- Where high voltage electricity is present, such as in certain industrial locations.
- On vehicles or vessels, such as trucks or ferry boats.
- Where exposure to oily or very humid air may occur, such as kitchens.
- In proximity to sources of electromagnetic radiation, such as high-frequency transmitters or other high strength radiation devices.

2.0 GENERAL

These cooling-only coils are approved for up flow or down flow, vertical installation only. For furnace applications, the coil must be installed downstream (in the air outlet) of the furnace.

2.1 CODES & REGULATIONS

This product is designed and manufactured to comply with national codes. Installation in accordance with such codes and/or prevailing local codes/regulations is the responsibility of the installer. The manufacturer assumes no responsibility for equipment installed in violation of any codes or regulations.

The United States Environmental Protection Agency(EPA) has issued various regulations regarding the introduction and disposal of refrigerants. Failure to follow these regulations may harm the environment and can lead to the imposition of substantial fines. Should you have any questions please contact the local office of the EPA.

2.2 INSPECTION UPON UNIT ARRIVAL

As soon as unit is received, it should be inspected and noted for possible shipping damage during transportation. It is carrier's responsibility to cover the cost of shipping damage. Manufacturer or distributor will not accept a claim from contractors for any transportation damage.

2.3 CLEARANCES

Following clearances should be provided during installation

- a.Maintenance and service access, including coil cleaning and coil assembly removal
- b.Refrigerant piping and connections
- c.Condensate drain line

For ensure the proper installation, Select a solid and level site.
Ensure enough space required for installation and maintenance.

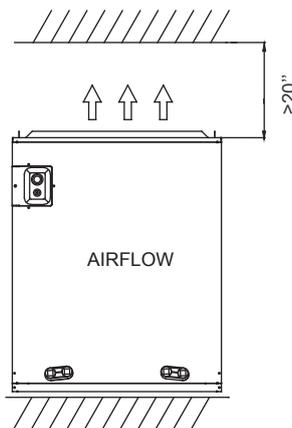


Fig. 1 Front view of the indoor unit clearance(including air duct).

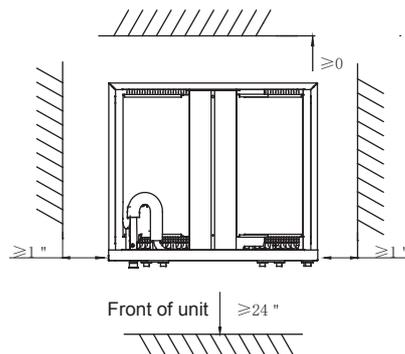
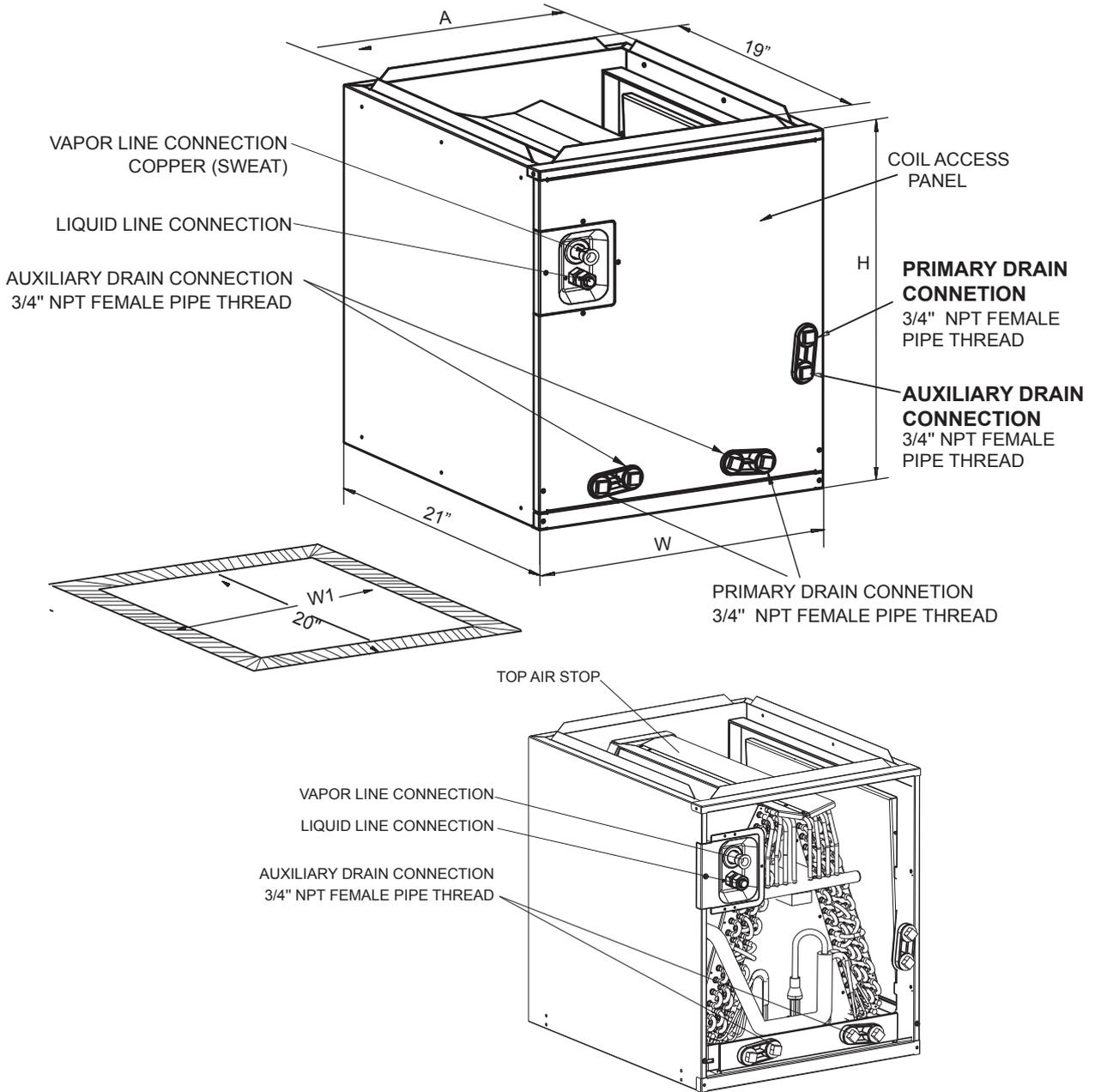


Fig. 2 Top view of the indoor unit clearance(including air duct).



DIMENSIONAL DATA

Fig.3 CASED DIMENSIONS AND COMPONENT LOCATION

MODEL SIZE	Dimensions inch [mm]					WEIGHT/SHIPPING WEIGHT (LBS.[kg])
	UNIT HEIGHT "H"IN. [mm]	UNIT WIDTH "W" IN.[mm]	SUPPLY DUCT "A"	"W1" IN.[mm]	LIQUID LINE / VAPOR LINE	
DCC1836ALA	20"[508]	14-1/2"[368]	13"[330]	13-1/2"[343]	3/8" / 3/4"	44.1/51.4[20/23.3]
DCC1836ALB	20"[508]	17-1/2"[445]	16"[407]	16-1/2"[419]	3/8" / 3/4"	46.7/54.5[21.2/24.7]
DCC4248ALB	30"[762]	17-1/2"[445]	16"[407]	16-1/2"[419]	3/8" / 7/8"	67.7/76.5[30.7/34.7]
DCC4248ALC	30"[762]	21"[533]	19-1/2"[495]	20"[508]	3/8" / 7/8"	71.4/81.6[32.4/37.0]
DCC4248ALD	30"[762]	24-1/2"[622]	23"[584]	23-1/2"[597]	3/8" / 7/8"	75.0/86.0[34.0/39.0]
DCC4860ALC	30"[762]	21"[533]	19-1/2"[495]	20"[508]	3/8" / 7/8"	82.2/91.3[37.3/41.4]
DCC4860ALD	30"[762]	24-1/2"[622]	23"[584]	23-1/2"[597]	3/8" / 7/8"	86.4/95.2[39.2/43.2]

3.0 INSTALLATION INSTRUCTIONS

3.1 PARTS

Contact your distributor for authorized replacement parts.

3.2 PRE-INSTALLATION INSTRUCTIONS

Carefully read all instructions for installation prior to installing product. Make sure each step or procedure is understood and any special considerations are taken into account before starting installation. Assemble all tools, hardware and supplies needed to complete the installation. Some items may need to be purchased locally. Make sure everything needed to install the product is on hand before starting.

3.3 INSTALLATION AND TRAP CONNECTION

1. See Fig.4 for coil installation and drain connection.
2. Installation steps for cased coil:
 - A. Shut off or disconnect gas furnace's power and remove gas pipe if necessary;
 - B. Disconnect and remove a sufficient portion of the supply ductwork to provide clearance for the cased coil ;
 - C. Ensure that the coil is leveled well and seal the gap between coil and furnace. See Figure 4. In case that coil and furnace sizes are not matched, use proper size of sheet metal or other material to fill the gap and seal the gap to prevent air leak ;
 - D. Reconnect the ductwork to the coil case, and seal any leakage ;
 - E. Reconnect power line on gas furnace, turn on the furnace to check any sign of leakage .

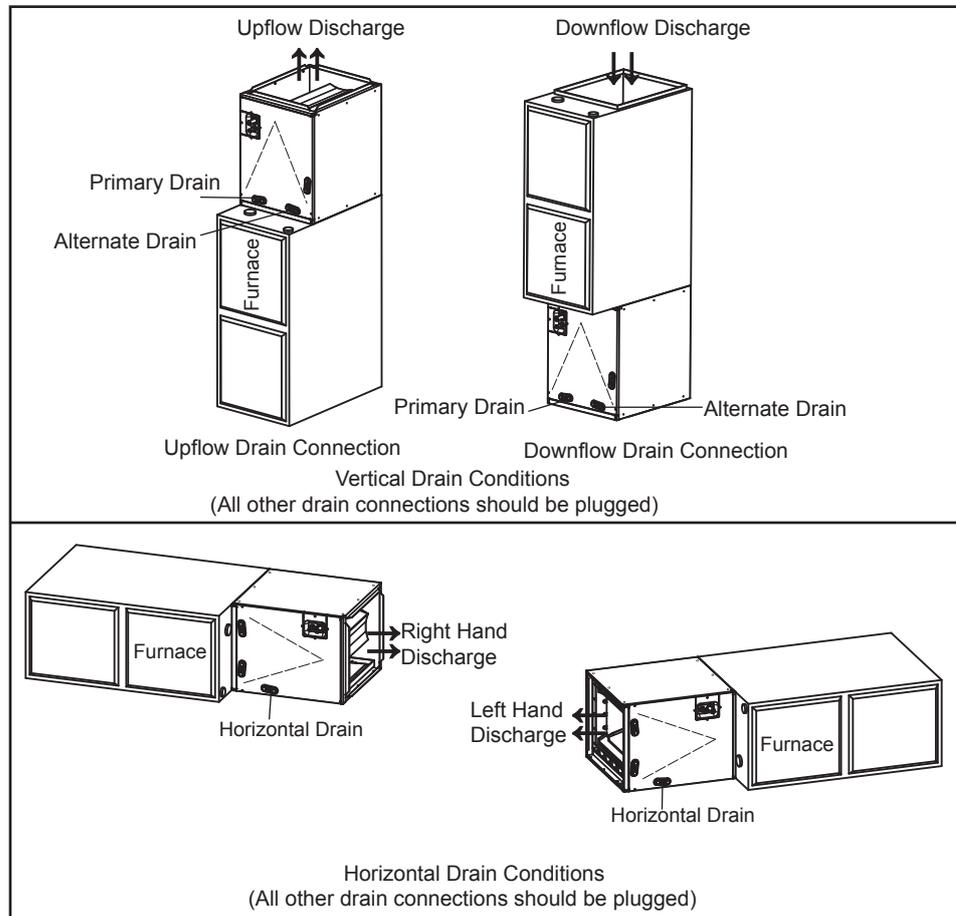


Fig.4 INSTALLATION OF CASED COIL

4.0 DRAIN APPLICATION

4.1 CONDENSATE DRAIN PIPING

Consult local codes for special requirements.

To provide extra protection from water damage, it is always recommended to install an additional drain pan, provided by installer under the entire unit with a separate drain line. Manufacturer will not be responsible for any damages due to the failure to follow these recommendations.

4.2 PLASTIC DRAIN PAN INSTALLATION



WARNING

Do not use the coil pan shipped with the unit on OIL furnaces or any application where the temperature of the drain pan may exceed 275°F. A field fabricated metal drain pan can also be used for these type of applications. Failure to follow this warning may result in property damage and/or personal injury.

The coil drain pan has a primary and an optional secondary drain with 3/4" NPT female connections; use either PVC or copper pipe and hand tighten to a torque of approximately 37 in-lbs. to prevent damage to the drain pan connection. An insertion depth between .355 to .485 inches (3-5 turns) should be expected at this torque setting.

Use male 3/4" NPT threaded fitting for outside connection and make sure the drain holes are not blocked.

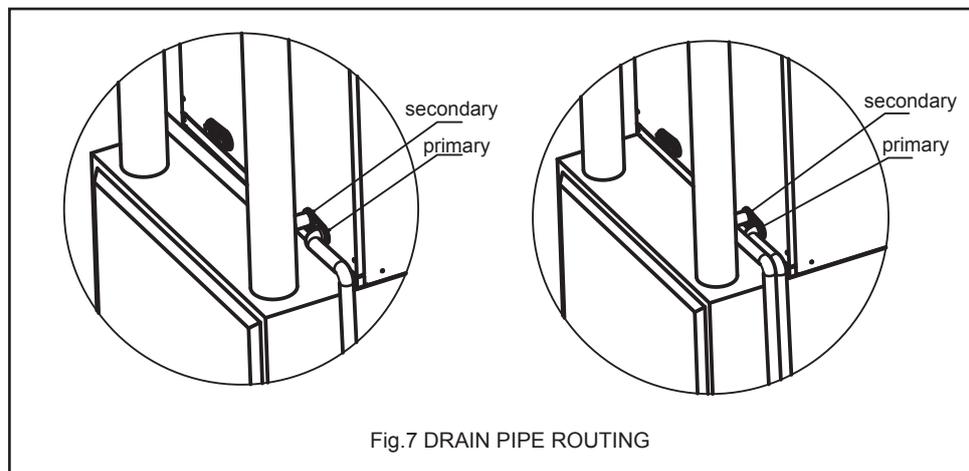
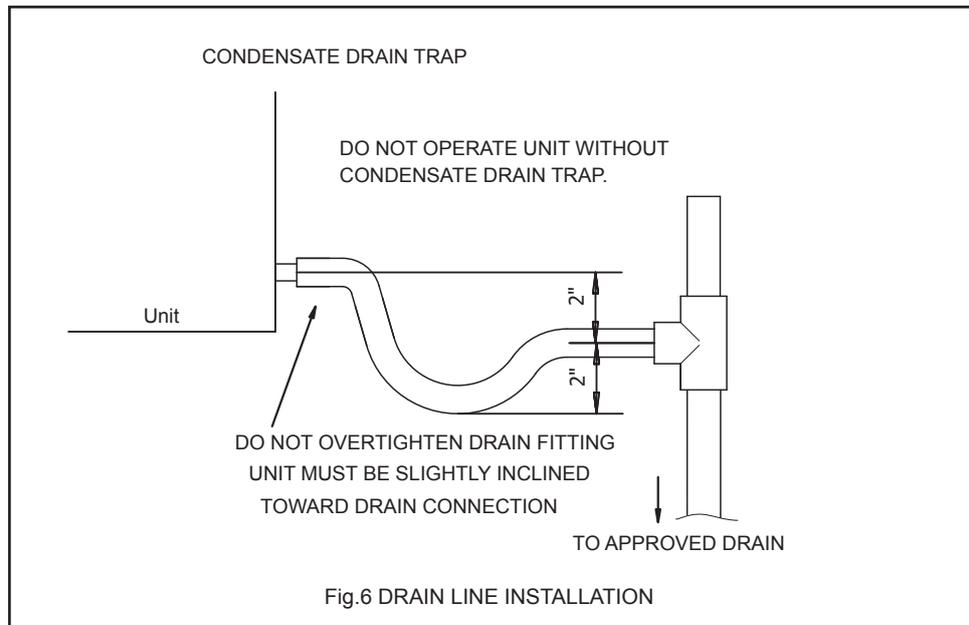
Insulation may be needed for drain line to prevent sweating.

Drain pan has two drain connections on each side to provide flexibility of connection and drainage. Make sure pan has proper pitch and plugged if second connection is not used.

If the secondary drain line is required, run the line separately from the primary drain and terminate it where it can be easily seen.

NOTE: Water coming from this line means the coil primary drain is plugged and needs clearing.

Install a trap in the drain line below the bottom of the drain pan. If using a copper drain line, solder a short piece of pipe to the connector before installing a drain fitting. DO NOT over torque the 3/4" copper connector to the plastic drain connection. Use a wet rag or heatsink material on the short piece to protect plastic drain pan, complete the drain line installation (Fig.4). Use (Fig.6) as a template for typical drain pipe routing. This figure shows how to avoid interference with vent piping.



5.0 REFRIGERANT CONNECTIONS



CAUTION

Gently remove the sealing plug of vapor line, use one wrench to fix the valve base, loose the nut with another wrench, take out the flange pad and and sealing ring. The nitrogen pressure is about 10 PSIG.

To prevent refrigerant leak, use proper tools to ensure clean, burr-free cut.



CAUTION

TXV bulb **MUST** be protected (wrapped with wet rag) or removed, while brazing the tubing. Overheating of the sensing bulb will affect the functional characteristics and performance of the comfort coil.

Use brazing shield when welding close to the cabinet surface and wet rag to protect rubber grommet.

Brazing alloy should be at least 5% silver content.

6.0 PISTON/TXV INSTALLATION

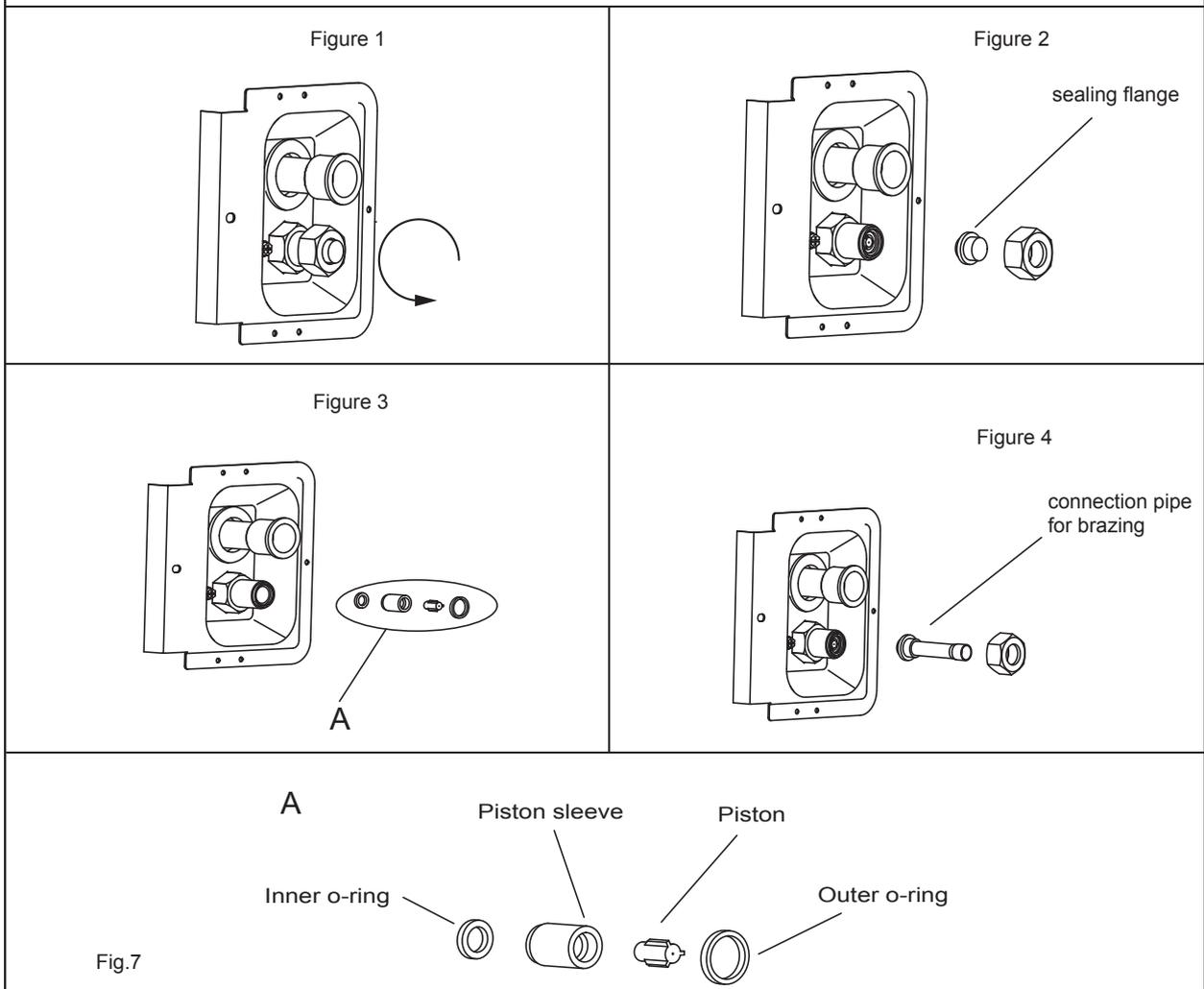
Note: A piston is not come pre-installed and needs to be installed in the field. The piston must be removed before installing a TXV.

Piston installation

1. Using a wrench to loosen the nut. Remove the nut and sealing flange. As shown in fig.7
2. Check the piston sizes for each outdoor/coil combination and choose the correct piston size for your combination.
3. If a different size piston is needed for your system combination, remove the pre-installed piston.

NOTE: Piston sleeve may come out with the piston. If so, check that inner O-ring is still in place. If not, use the small O-ring provided in the doc pack. Re-install piston sleeve with correct orientation.

4. Choose correct size piston from the doc pack and insert it with correct orientation.
 5. Replace outer O-ring with the O-ring provided in the doc pack.
 6. Use a wrench to fasten the nut and connecting pipe. ($18 \pm 2 \text{N}\cdot\text{m}$).
- NOTE: MUST wrap the nut with a wet rag before brazing.



Optional TXV kit installation:

Reference TXV kit literature for installation instructions.

Optimal TXV kit installation:

1. Use a wrench to loosen the nut and remove the sealing flange and sealing gasket.
2. Take out the connecting pipe from accessory package and braze the connecting pipe onto the refrigeration-out pipe.
3. Install the sealing washers, TXV and flange connection tube as shown in Fig.8.
4. Use a wrench to fasten nut and connecting pipe. ($18\pm 2\text{N}\cdot\text{m}$).
5. Connect TXV equalizer pipe to the port on the connecting pipe.
6. Fix bulbs on the connecting pipe using the accessory in TXV kit.

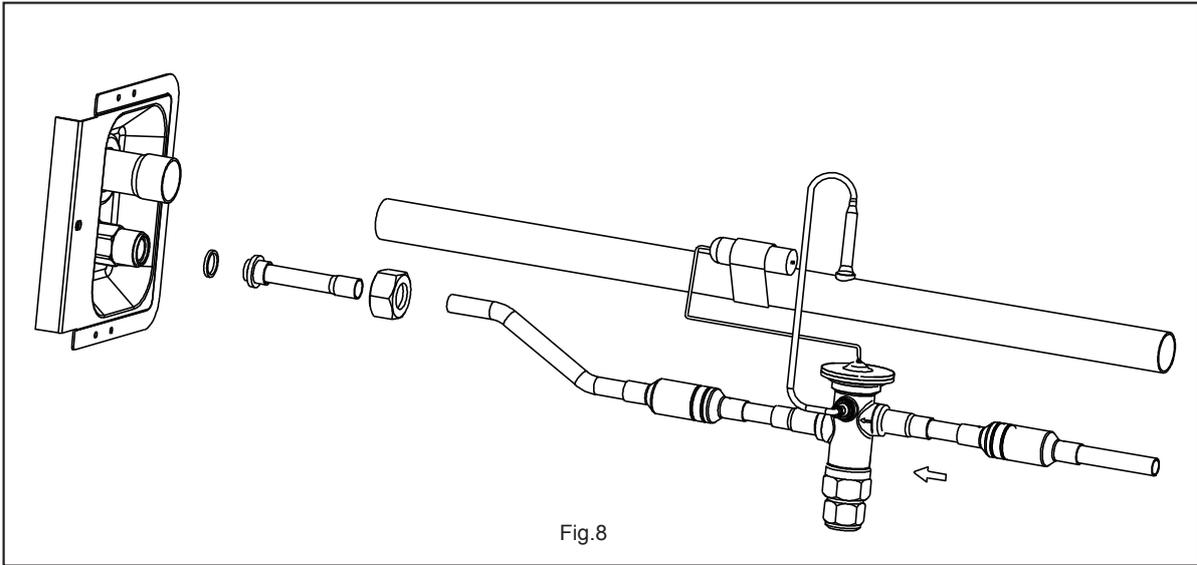


Fig.8

Table 1 Superheat Charging Chart

Outdoor Temp (°F)	Indoor Temperature (°F) Dry Bulb/wet Bulb					
	95/79	90/75	85/71	80/67	75/63	70/58
115	23	16	7	5	5	5
110	24	17	9	5	5	5
105	26	19	11	5	5	5
100	27	21	13	7	5	5
95	29	23	16	9	5	5
90	30	25	18	12	5	5
85	32	26	20	14	8	5
80	34	28	22	17	11	5
75	35	30	24	19	13	6
70	37	32	26	21	16	10
65	38	34	29	24	19	13
60	40	36	31	27	22	17
55	41	37	33	29	25	21

Note: Chart is based on 400 CFM/Ton indoor airflow and 50% relative humidity. If indoor relative humidity is above 70% or below 20%. use indoor wet bulb temperature only. Airflow range is 375 to 425 CFM/Ton.

AIRFLOW PERFORMANCE [CFM VS PRESSURE DROP]:

PRESSURE DROP CHARACTERISTICS FOR COOLING AND HEAT PUMP COILS								
PRESSURE DROP (INCHES OF WATER)								
MODEL	0.05	0.1	0.15	0.2	0.25	0.3	0.35	0.4*
DCC1836ALA	307	485	618	729	823	911	991	1063
DCC1836ALB	327	527	682	810	925	1024	1122	1217
DCC4248ALB	456	638	810	953	1077	1191	1284	1390
DCC4248ALC	505	726	932	1098	1244	1375	1494	1604
DCC4248ALD	533	857	1105	1319	1509	1675	1824	1956
DCC4860ALC	439	699	906	1071	1224	1362	1487	1589
DCC4860ALD	466	764	978	1157	1313	1466	1590	1695

Data based on wet coil with entering air at 80 degF DB / 67 degF WB without air filter.
 The maximum allowable pressure drop is 0.4 IWG.
 The maximum CFM is the data at 0.4 IWG pressure.

MAXIMUM AIRFLOW SETTING,CFM

Note:Water blow-off could occur in certain installation positions if the airflow setting exceeds the maximum values listed.

Maximum airflow setting,CFM		
Coil	Upflow	Downflow
DCC1836ALA	1125	1050
DCC1836ALB	1125	1050
DCC4248ALB	1800	1700
DCC4248ALC	1800	1700
DCC4248ALD	1800	1700
DCC4860ALC	1850	1750
DCC4860ALD	2000	1850

Table 2 . Piston size for system combination

Outdoor Unit Model	Indoor Unit Model	Piston Size (R410a)
D1418ACL	DCC1836ALA 0.052 factory installed	0.052
D1424ACL		0.058
D1430ACL		0.063
D1436ACL		0.068
D1418ACL	DCC1836ALB 0.052 factory installed	0.052
D1424ACL		0.058
D1430ACL		0.063
D1436ACL		0.068
D1430HCL	DCC4248ALB 0.065 factory installed	0.065
D1430HCL	DCC4248ALC 0.065 factory installed	0.065
D1430HCL	DCC4248ALD 0.065 factory installed	0.065
D1442ACL	DCC4860ALC 0.075 factory installed	0.075
D1448ACL		0.083
D1430HCL		0.065
D1442ACL	DCC4860ALD 0.075 factory installed	0.075
D1448ACL		0.083