DURASTAR INSTALLATION INSTRUCTIONS

FOR CASED/UNCASED COILS FOR GAS FURNACES:

DRAEF: Featuring Industry-Standard Refrigerant







RECOGNIZE THIS SYMBOL AS AN INDICATION OF IMPORTANT SAFETY INFORMATION!

AWARNING

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 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 INFORMATION

▲ WARNING

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▲ WARNING

PROPOSITION 65: This appliance contains fiberglass insulation. Respirable particles of fiberglass are known to the State of California to cause cancer.

All manufacturer products meet current Federal OSHA Guidelines for safety. California Proposition 65 warnings are required for certain products, which are not covered by the OSHA standards.

California's Proposition 65 requires warnings for products sold in California that contain or produce any of over 600 listed chemicals known to the State of California to cause cancer or birth defects such as fiberglass insulation, lead in brass, and combustion products from natural gas.

All "new equipment" shipped for sale in California will have labels stating that the product contains and/or produces Proposition 65 chemicals. Although we have not changed our processes, having the same label on all our products facilitates manufacturing and shipping. We cannot always know "when, or if" products will be sold in the California market.

You may receive inquiries from customers about chemicals found in, or produced by, some of our heating and air-conditioning equipment, or found in natural gas used with some of our products. Listed below are those chemicals and substances commonly associated with similar equipment in our industry and other manufacturers.

- · Glass Wool (Fiberglass) Insulation
- · Carbon Monoxide (CO).
- Formaldehyde
- Benzene

More details are available at the websites for OSHA (Occupational Safety and Health Administration), at www.osha.gov and the State of California's OEHHA (Office of Environmental Health Hazard Assessment), at www.oehha.org. Consumer education is important since the chemicals and substances on the list are found in our daily lives. Most consumers are aware that products present safety and health risks, when improperly used, handled and maintained.

CAUTION

For horizontal applications, the horizontal drain pan must be located under the indoor coil. Failure to place the pan under the coil can result in property damage.

CAUTION

It is recommended that an auxiliary/secondary drain pan be installed under units containing evaporator coils that are located in any area of a structure where damage to the building or building contents may occur as a result of an overflow of the coil drain pan or a stoppage in the primary condensate drain piping.

2.0. GENERAL INFORMATION

2.1 INSPECTION

Immediately upon receipt, all cartons, and contents should be inspected for transit damage. Units with damaged cartons should be opened immediately. If damage is found, it should be noted on the delivery papers and a damage claim filed with the last carrier. Shipping damage is not covered by the warranty.

- After unit has been delivered to job site, remove carton taking care not to damage unit
- Check the unit rating plate to be sure equipment matches what is required for the job specification.
- Read the entire instructions before starting the installation. This is particularly important if this is the first installation for this specific model series.
- Many installation steps done prior to installing the unit can save time and simplify the installation.

2.2 CODES/REGULATIONS

Units should be installed in accordance with any local or national codes which may apply. Latest editions are available from: "National Fire Protection Association, Inc., Batterymarch Park, Quincy, MA 02269."

These publications are:

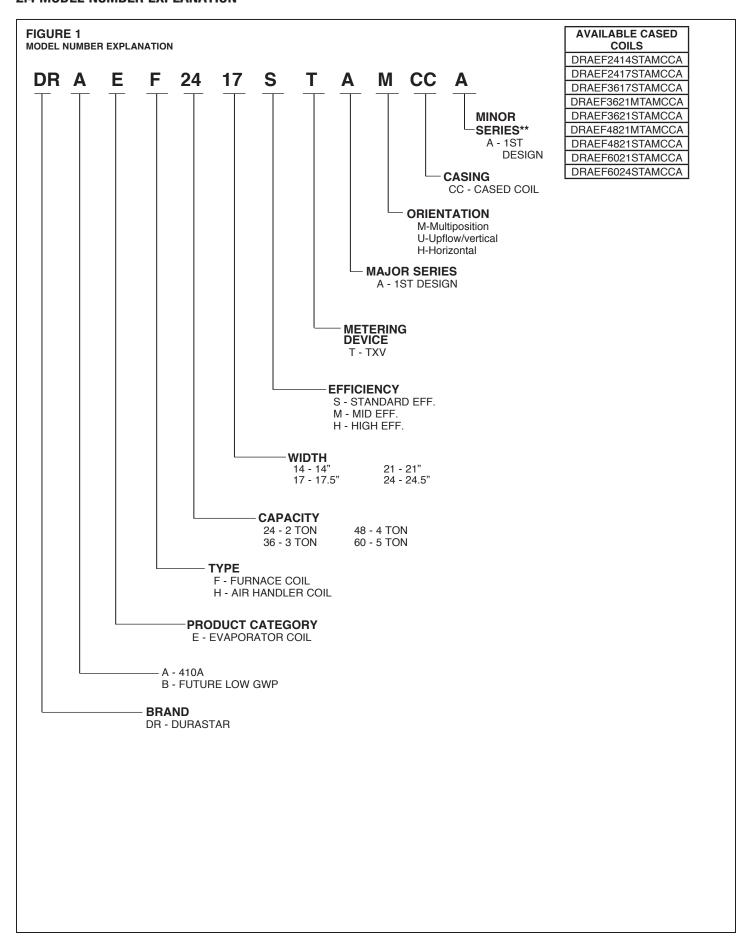
- ANSI/NFPA Latest Edition (NEC) National Electrical Code.
- NFPA90A Installation of Air conditioning and Ventilating Systems.
- NFPA90B Installation of Warm Air Heating and Air Conditioning Systems.

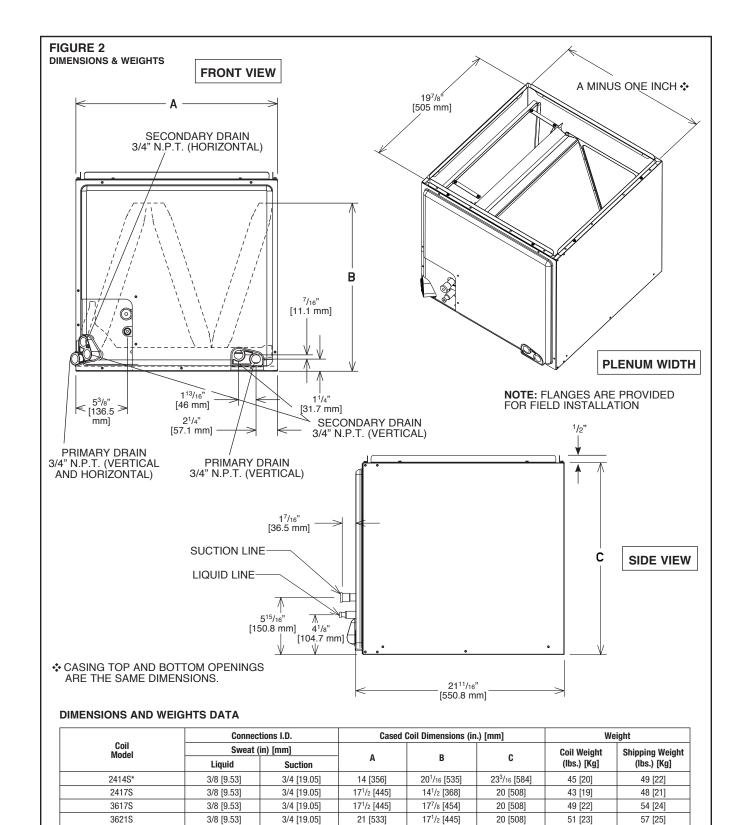
2.3 REPLACEMENT PARTS

Any replacement part must be the same as or an approved alternate to the original part supplied. The manufacturer will not be responsible for replacement parts not designed to physically fit or operate within the design parameters the original parts were selected for.

When ordering replacement parts, it is necessary to order by part number and include the complete model number and serial number from the coil rating plate. (See parts list for unit component part numbers. Parts are available through the local distributor.)

2.4 MODEL NUMBER EXPLANATION





3621M / 4821S

3624M / 4824S

6024S

6021S / 4821M

3/8 [9.53]

3/8 [9.53]

3/8 [9.53]

3/8 [9.53]

7/8 [22.23]

7/8 [22.23]

7/8 [22.23]

7/8 [22.23]

21 [533]

241/2 [622]

241/2 [622]

21 [533]

25⁷/8 [657]

253/8 [645]

30¹/₄ [768]

33 [838]

28 [711]

32 [812]

32 [812]

341/2 [876]

71 [32]

83 [38]

100 [45]

76 [34]

78 [35]

93 [42]

110 [50]

86 [37]

2.5B Coil Specifications: Airflow Pressure Drop

TABLE 1 AIRFLOW PRESSURE DROP

		CFM [L/s]																	
Coil model	"Approx design cooling airflow range CFM/[L/s]"	"Face area Ft²[m²]"	"Fins per inch/rows deep"	Width	"Nominal capacity"	"600 [283]"	"700 [330]"	"800 [378]"	"900 [425]"	"1000 [472]" Wet coil	"1100 [519]" static pres	"1200 [566]" ssure drop	1300 [614] (inches W	"1400 [661]"	"1500 [708]"	"1600 [755]"	"1700 [802]"	"1800 [850]"	"1900 [897]"
DRAEF2414S	"525/900 [248/425]"	4.56 [0.42]	16/2	14	1.5-2	0.171 [42]	0.221 [55]	0.278 [69]	0.342 [85]	0.412 [103]				-					
DRAEF2417S	"525/900 [248/425]"	4.56 [0.42]	16/2	17	1.5-2	0.115 [29]	0.150 [37]	0.189 [47]	0.232 [58]	0.279 [69]			-		-		-		
DRAEF3617S	"800/1200 [378/566]"	5.70 [0.52]	16/2	''	2.5-3	0.107 [27]	0.137 [34]	0.171 [42]	0.209 [52]	0.251 [62]	0.297 [74]	0.347 [86]	0.401 [100]						
DRAEF3621S	"800/1200 [378/566]"	5.70 [0.52]	16/2		2.5-3	0.107 [27]	0.137 [34]	0.171 [42]	0.209 [52]	0.251 [62]	0.297 [74]	0.347 [86]	0.401 [100]		-		-	1	
DRAEF3621M	"800/1300 [378/614]"	8.55 [0.79]	16/2		2.0-3	0.062 [15]	0.086 [21]	0.112 [28]	0.140 [35]	0.170 [42]	0.202 [50]	0.236 [59]	0.272 [68]	0.309 [77]					
DRAEF4821S	"1200/1600 [566/755]"	8.55 [0.79]	16/2	21	254	0.062 [15]	0.086 [21]	0.112 [28]	0.140 [35]	0.170 [42]	0.202 [50]	0.236 [59]	0.272 [68]	0.309 [77]	0.349 [87]	0.391 [97]	0.434 [108]	0.480 [119]	
DRAEF4821M	"1200/1600 [566/755]"	7.60 [0.70]	13/3		3.5-4	0.041 [10]	0.060 [15]	0.081 [20]	0.105 [26]	0.130 [32]	0.157 [39]	0.186 [46]	0.217 [54]	0.250 [62]	0.285 [71]	0.322 [82]	0.361 [90]	0.402 [100]	
DRAEF6021S	"1400/1800 [661/850]"	7.60 [0.70]	13/3		5	0.000 [0]	0.007 [2]	0.035 [9]	0.063 [16]	0.091 [23]	0.119 [30]	0.147 [37]	0.175 [44]	0.203 [50]	0.231 [57]	0.259 [64]	0.287 [71]	0.315 [78]	0.343 [85]
DRAEF6024S	"1400/1600 [661/755]"	9.98 [0.93]	14/3	24	5	0.032 [8]	0.049 [12]	0.069 [17]	0.091 [23]	0.114 [28]	0.140 [35]	0.167 [42]	0.197 [49]	0.228 [57]	0.262 [65]	0.297 [74]	0.334 [83]	0.374 [93]	0.415 [103]

	CFM [L/s]																		
Coil model	"Approx design cooling airflow range CFM/[L/s]"	"Face area Ft²[m²]"	"Fins per inch/rows deep"	Width	"Nominal capacity"	"600 [283]"	"700 [330]"	"800 [378]"	"900 [425]"	1000 [472]	"1100 [519]"	"1200 [566]"	1300 [614]	"1400 [661]"	"1500 [708]"	1600 [755]	1700 [802]	1800 [850]	1900 [897]
\vdash	11000/1000	4.50				0.404		0.005				ure drop		v.c.) [Pa]	- con on	y I			
DRAEF2414S	"600/1200 [283/566]"	4.56 [0.42]	16/2	14	1.5-2	0.121 [30]	0.160 [40]	0.205 [51]	0.256 [64]	0.312 [78]	0.373 [93]	0.441 [110]	0.514 [128]						
DRAEF2417S	"600/1200 [283/566]"	4.56 [0.42]	16/2	17	1.5-2	0.097 [24]	0.128 [32]	0.163 [41]	0.202 [50]	0.245 [61]	0.292 [73]	0.343 [85]	0.398 [99]						
DRAEF3617S	"600/1300 [283/614]"	5.70 [0.52]	16/2	''	2.5-3	0.112 [28]	0.144 [36]	0.180 [45]	0.220 [55]	0.264 [66]	0.312 [78]	0.364 [91]	0.420 [105]	0.480 [119]					-
DRAEF3621S	"600/1400 [283/661]"	5.70 [0.52]	16/2		2.5-3	0.112 [28]	0.144 [36]	0.180 [45]	0.220 [55]	0.264 [66]	0.312 [78]	0.364 [91]	0.420 [105]	0.480 [119]					
DRAEF3621M	"600/1900 [283/897]"	8.55 [0.79]	16/2		2.5-3	0.039 [10]	0.056 [14]	0.075 [19]	0.095 [24]	0.117 [29]	0.141 [35]	0.166 [41]	0.193 [48]	0.222 [55]	0.252 [63]	0.284 [71]	0.318 [79]	0.353 [88]	0.391 [97]
DRAEF4821S	"600/1900 [283/897]"	8.55 [0.79]	16/2	21	3.5-4	0.039 [10]	0.056 [14]	0.075 [19]	0.095 [24]	0.117 [29]	0.141 [35]	0.166 [41]	0.193 [48]	0.222 [55]	0.252 [63]	0.284 [71]	0.318 [79]	0.353 [88]	0.391 [97]
DRAEF4821M	"600/1900 [283/897]"	7.60 [0.70]	13/3		3.5-4	0.043 [11]	0.053 [13]	0.066 [16]	0.080 [20]	0.096 [24]	0.115 [29]	0.135 [34]	0.158 [39]	0.182 [45]	0.208 [52]	0.237 [59]	0.267 [66]	0.299 [75]	0.334 [83]
DRAEF6021S	"600/1900 [283/897]"	7.60 [0.70]	13/3		5	0.000 [0]	0.000 [0]	0.016 [4]	0.040 [10]	0.065 [16]	0.089 [22]	0.113 [28]	0.137 [34]	0.162 [40]	0.186 [46]	0.210 [52]	0.234 [58]	0.259 [64]	0.283 [70]
DRAEF6024S	"600/1900 [283/897]"	9.98 [0.93]	14/3	24	5	0.023 [6]	0.038 [10]	0.055 [14]	0.074 [18]	0.095 [24]	0.119 [29]	0.144 [36]	0.171 [42]	0.200 [50]	0.231 [58]	0.264 [66]	0.300 [75]	0.337 [84]	0.376 [94]

[] Designates Metric Conversion

IMPORTANT NOTE: Gas furnace heating CFM can exceed the design cooling CFM. Ductwork and coil selection must accommodate the higher of the cooling or gas heating CFM to prevent furnace limit tripping, excessive noise, and coil freeze-up.

3.0 INSTALLATION

3.1 APPLICATIONS

DRAEF cased coils can be applied in upflow, downflow, horizontal right and horizontal left applications without modifications.

For coils that are **two** sizes larger than the furnace, for example, a 21" wide coil on a 14" furnace, a tapered adaptor with a minimum height of 6" is required to evenly distribute airflow. See Figure 5. For coils that are **one** size larger than the furnace; for example a 21" wide coil on a 17½" furnace, seal the gap between the two units with sheet metal, or use the specified adapter kit (RXBA-AC). See Figure 6.

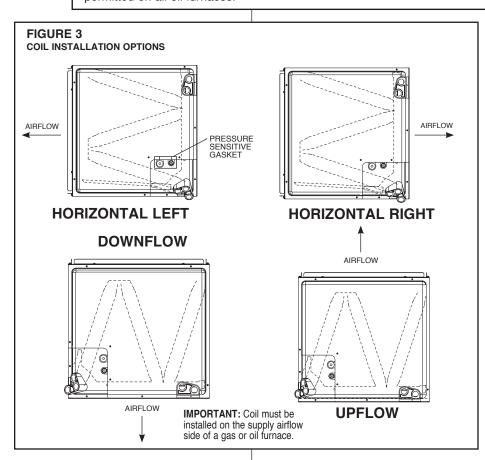
CAUTION

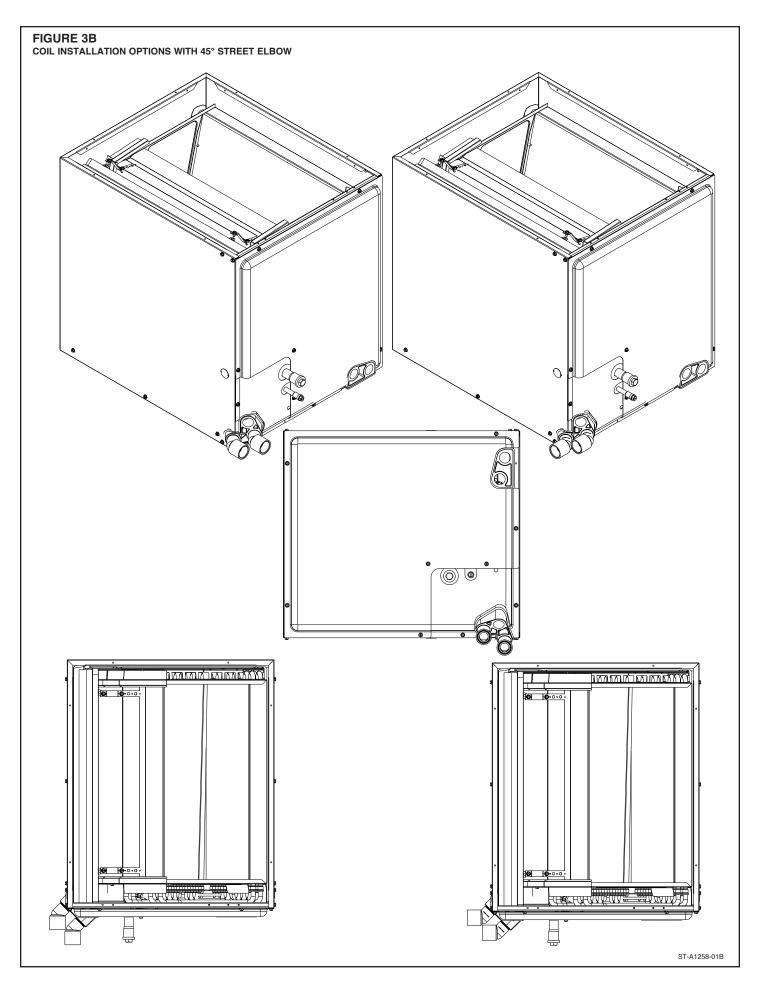
For horizontal applications, the horizontal drain pan must be located under the indoor coil. Failure to place the pan under the coil can result in property damage.

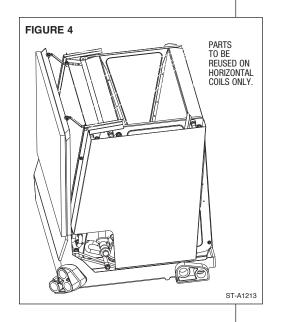
TABLE 2 COIL APPLICATION

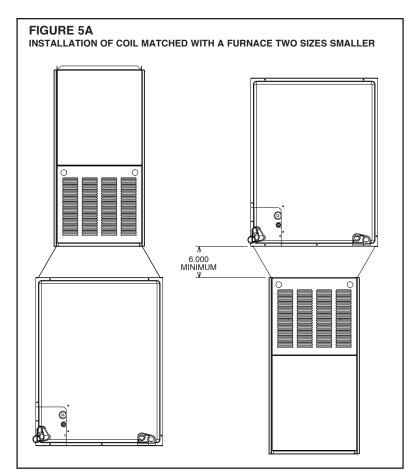
Coil Model DRAEF	Furnace Width (In.) [mm]						
	Oil*	Gas					
2414S 2417S 3617S	_	14 [356]					
	17 [431]	17½ [444]					
2417S 3617S	., [101]	14 [356]					
3621S 3621M 4821S	21 [533]	21 [533]					
4821S 4821M 6021S	2. [555]	17½ [444]					
6024S	24½ [622]	24½ [622]					
00243	2472 [022]	21 [533]					

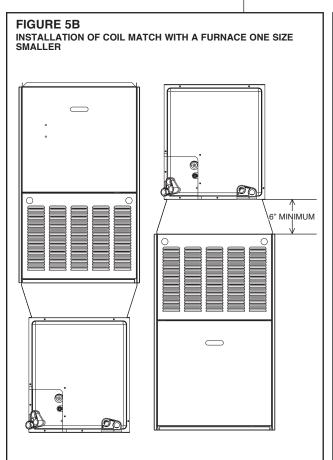
^{*}Due to the proximity of the drain pan to the high temperature oil furnace drum, **horizontal left** application is **NOT** permitted on all oil furnaces.

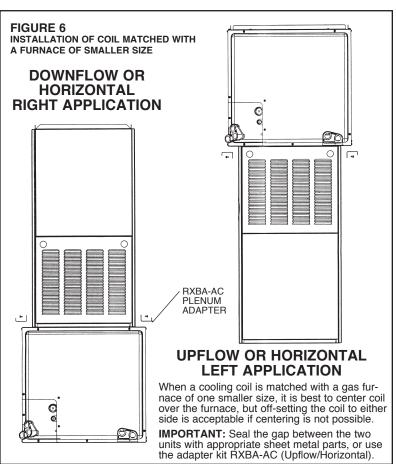


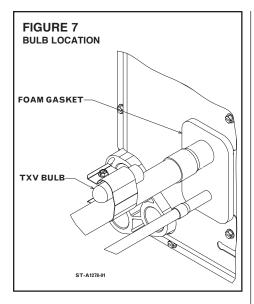


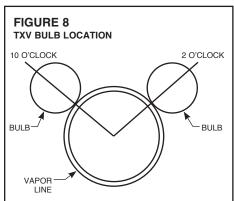












3.2 REFRIGERANT CONNECTIONS

Keep the coil connections sealed until refrigerant connections are to be made. See the Installation Instructions for the outdoor unit for details on line sizing, tubing installation, and charging information.

Coil is shipped with a low pressure (5 - 10 PSIG) charge of dry nitrogen. Evacuate the system before charging with refrigerant.

Install refrigerant tubing so that it does not block service access to the front of the unit.

Nitrogen should flow through the refrigerant lines while brazing.

Use a brazing shield to protect the cabinet's paint from being damaged by torch flames.

After the refrigerant connections are made, seal the gap around the connections with pressure sensitive gasket. If necessary, cut the gasket into two pieces for a better seal (See Figure 3.)

3.3 TXV SENSING BULB (TXV COILS ONLY)

IMPORTANT: DO NOT perform any soldering with the TXV bulb attached to any line.

After soldering operations have been completed, clamp the TXV bulb securely on the suction line at the 10 to 2 o'clock position with the strap provided in the parts bag. (See Figures 7 & 8)

Insulate the TXV sensing bulb and suction line with the provided pressure sensitive insulation (size 4" × 7") and secure with provided wire ties.

IMPORTANT: TXV sensing bulb should be located on a horizontal section of copper suction line, just outside of coil box and past the braze joint. The copper sensing bulb must never be placed on any aluminum tube as this will result in galvanic corrosion and eventual failure of the aluminum tube.

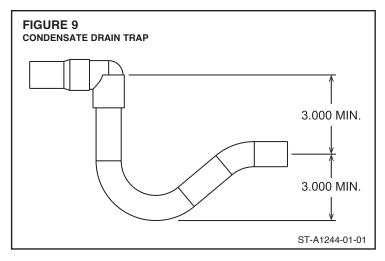
3.4 CONDENSATE DRAIN TUBING

Consult local codes or ordinances for specific requirements.

IMPORTANT: When making drain fitting connections to the drain pan, use a thin layer of Teflon paste, silicone or Teflon tape and install hand tight.

IMPORTANT: When making drain fitting connections to drain pan, do not overtighten. Overtightening fittings can split pipe connections on the drain pan.

- Install drain lines so they do not block service access to front of the unit. Minimum clearance of 24 inches is required for filter, coil or blower removal and service access.
- Make sure unit is level or pitched slightly toward primary drain connection so that water will drain completely from the pan. (See Figure 9.)
- Do not reduce drain line size less than connection size provided on condensate drain pan.
- All drain lines must be pitched downward away from the unit a minimum of 1/8" per foot of line to ensure proper drainage.
- Do not connect condensate drain line to a closed or open sewer pipe. Run condensate to an open drain or outdoors.
- The drain line should be insulated where necessary to prevent sweating and damage due to condensate forming on the outside surface of the line.
- Make provisions for disconnecting and cleaning of the primary drain line should it become necessary. Install a 3 in. trap in the primary drain line as close to the unit as possible. Make sure that the top of the trap is below connection to the drain pan to allow complete drainage of pan.
- Auxiliary drain line should be run to a place where it will be noticeable if it becomes operational. Occupant should be warned that a problem exists if water should begin running from the auxiliary drain line.
- Plug the unused drain connection with the plugs provided in the parts bag, using a thin layer of teflon paste, silicone or teflon tape to form a water tight seal.
- Test condensate drain pan and drain line after installation is complete. Pour water into drain pan, enough to fill drain trap and line. Check to make sure drain pan is draining completely, no leaks are found in drain line fittings, and water is draining from the termination of the primary drain line.



3.5 DUCT FLANGES

Field-installed duct flanges (4 pieces) are shipped with units. Install duct flanges as needed on top or bottom of the coil casing. (See Figure 10.)

CAUTION

It is recommended that an auxiliary/secondary drain pan be installed under units containing evaporator coils that are located in any area of a structure where damage to the building or building contents may occur as a result of an overflow of the coil drain pan or a stoppage in the primary condensate drain piping.

4.0 MAINTENANCE

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 possibly resulting in fire, electrical shock, property damage, personal injury or death.

For continuing high performance and to minimize possible equipment failure, it is essential that annual maintenance be performed on this equipment. Consult your local dealer as to the availability of a maintenance contract.

4.1 AIR FILTER

Check the system filter every ninety days or as often as found to be necessary and if obstructed, clean or replace at once.

IMPORTANT: Do not operate the system without a filter in place.

4.2 INDOOR COIL - DRAIN PAN - DRAIN LINE

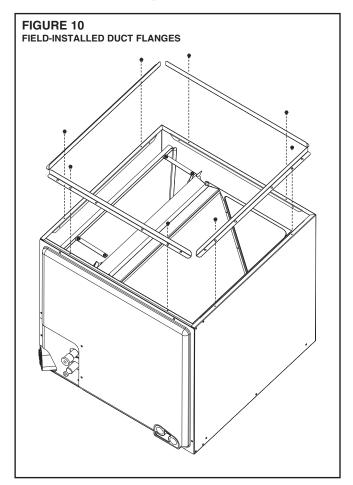
Inspect the indoor coil, drain pan, and drain line once each year for cleanliness and clean as necessary. Be sure to check the finned surface on the return side of the coil. It may be necessary to remove the air-filter and use a mirror and flashlight to view the return side of the coil.

Note: A proper filter is the best defense against a dirty coil. Regardless of the filter choice, proper air flow and velocity also play a crucial role in how effective a filter will be. Most filters will lose their effectiveness when face velocities exceed 300 - 400 feet per minute. Excessive air velocity can allow particles to pass right through the media. Additionally, loaded or restrictive filters may lose their shape in higher air velocity applications and allow unfiltered air to bypass the filter altogether around the sides.

IMPORTANT: Coil and Drainpan Cleaning Method

Clean the finned surface of the indoor coil by rinsing the coil from both sides with clean

warm water and/or with a vacuum with a soft brush attachment to remove accumulated contaminants and lint. It is important not to allow the tool to damage or bend the fins. Many chemical cleaners will attack the aluminum tubes which can cause refrigerant leaks. Therefore, use only clean warm water for cleaning aluminum tube evaporator coils. Do not use caustic household drain cleaners or bleach in the condensate pan or near the indoor coil as they will damage the aluminum fins and tubes.



5.0 ACCESSORIES5.1 PLENUM ADAPTER ACCESSORY RXBA-AE

This plenum adapter accessory is for use with the 24-1/2" wide cased indoor cooling and heat pump coils. This allows a 24-1/2 wide cased coil to be installed on a 28" wide oil furnace. This is a field-installed accessory only.

RXBA-AC

This plenum adapter accessory is for installation on cased indoor cooling and heat pump coils. This allows a nominal size cased coil to be installed on the next smaller size gas or oil furnace. NOTE: This accessory is for installation on coil casings to fit gas or oil furnaces only - this accessory must not be used on electric furnaces or heat pump air handlers. Consult the installation instructions packaged with the accessory for proper installation.

5.2 EMPTY INDOOR COIL CASING RXBC - (See Figure 11 & Table 3)

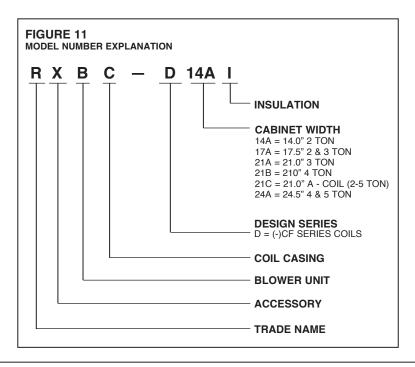


TABLE 3
UNIT DIMENSIONS & WEIGHTS — RXBC- INDOOR COIL CASINGS

Model	Width (in)			Unit V	Veight	Supply Air / Return Air Openings		
Number	[mm]	Height (in) [mm]	Depth (in) [mm]	Weight	Ship Wt	Width (in) [mm]	Depth (in) [mm]	
				(lbs) [kg]	(lbs) [kg]	wiatii (iii) [iiiiii]	Depth (III) [IIIIII]	
RXBC-D17AI	(17 1/2) [445]	(20) [508]		(18) [8]	(23) [10]	(16 1/2) [419]		
RXBC-D21AI	(21) [533]	(20) [508]		(20) [9]	(26) [12]			
RXBC-D21BI	(21) [533]	(28) [711]	(21 5/8) [549]	(28) [64]	(34) [77]	20 [508]	(19 31/32) [507]	
RXBC-D21CI	(21) [533]	(34 1/2) [876]		(33) [75]	(39) [88]			
RXBC-D21AI	(24 1/2) [622]	(32 1/2) [826]		(34) [15]	(44) [20]	(23 1/2) [597]		

5.3 R-22 TXV CONVERSION KITS

To be used to convert R-410A coil to operate with R-22

FURNACE COIL CROSS REFERENCE CHART									
ORIGINAL COIL	RECOMMENDED ALUMINUM TUBE REPLACEMENT COIL	R-22 TXV CONVERSION KIT MODEL NO.							
(-)CFA-**2414	DRAEF2414S	RXCT-HBA							
(-)CFA-**2417	DRAEF2417S	RXCT-HBA							
(-)CFA-**3617	DRAEF3617S	RXCT-HBB							
(-)CFA-**3621	DRAEF3621S	RXCT-HBB							
(-)CFA-**4821	DRAEF4821S OR DRAEF3621M/ DRAEF4821M	RXCT-HBC							
(-)CFA-**4824	DRAEF4821M	RXCT-HBC							
(-)CFA-**6024	DRAEF6024S OR DRAEF6021S	RXCT-HBD							

^{**=} AU, HM, OR HU

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