



PRODUCT SPECIFICATIONS

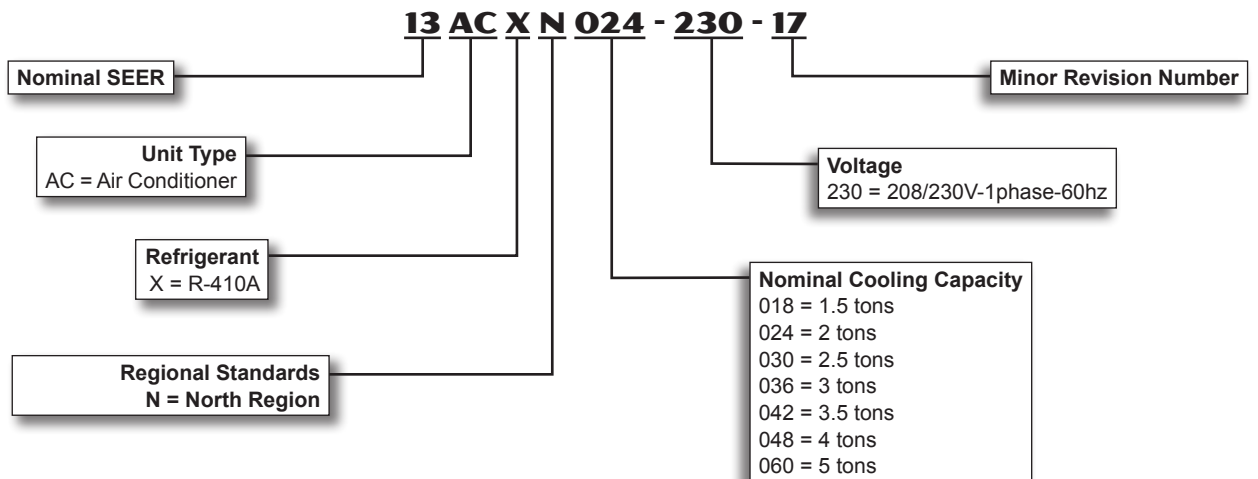
Bulletin No. 210831
 January 2018
 Supersedes Bulletin No. 210739



MERIT®
 SERIES

SEER up to 15.50
1.5 to 5 Tons
Cooling Capacity - 17,500 to 59,000 Btuh

MODEL NUMBER IDENTIFICATION



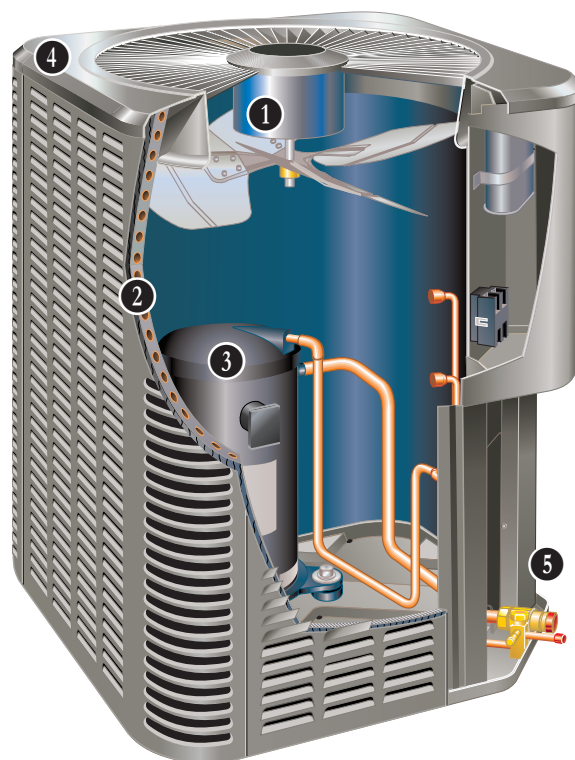
FEATURES

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NOTE!

For the latest AHRI System Matches please see the **Residential Matchup Tool** at www.LennoxPros.com or see the separate document **AHRI Air Conditioner Matches** that contains all outdoor unit matches.



WARRANTY

Compressor - limited warranty for five years in residential installations and five years in non-residential installations.

All other covered components - five years in residential installations and one year in non-residential installations.

Refer to Lennox Equipment Limited Warranty certificate included with unit for specific details.

APPROVALS

AHRI Certified to AHRI Standard 210/240-2008.

Sound rated in Lennox reverberant sound test room in Accordance with test conditions included in AHRI Standard 270-2008.

Tested in the Lennox Research Laboratory environmental test room.

Rated according to U.S. Department of Energy (DOE) test procedures.

Region specific models meet the minimum efficiency requirements for U.S DOE Federal Regional Standards in that area.

Units and components within bonded for grounding to meet safety standards for servicing required by UL, NEC and CEC.

Units are ETL certified for the U.S. and Canada.

ISO 9001 Registered Manufacturing Quality System.

For expanded ratings, see www.LennoxPros.com.

APPLICATIONS

1.5 through 5 ton.

Sound levels as low as 76 dB.

Single-phase power supply.

Vertical air discharge allows concealment behind shrubs at grade level or out of sight on a roof.

Matching add-on furnace indoor coils or air handlers provide a wide range of cooling capacities and applications. See AHRI System Matches.

See Indoor Coils and Air Handlers sections for data.

Units shipped completely factory assembled, piped and wired. Each unit test operated at the factory ensuring proper operation.

Installer must set air conditioner, connect refrigerant lines and make electrical connections to complete job.

FEATURES

REFRIGERATION SYSTEM

R-410A Refrigerant

Non-chlorine, ozone friendly, R-410A.

Unit pre-charged with refrigerant.

See Specification table.



1 Condenser Fan

Direct drive fan moves large air volumes uniformly through entire condenser coil for high refrigerant cooling capacity.

Vertical air discharge minimizes operating sounds and eliminates damage to lawn and shrubs.

Fan motor has sleeve bearings and is inherently protected.

Motor totally enclosed for maximum protection from weather, dust and corrosion.

Rain shield on motor provides additional protection from moisture.

Louvered steel top fan guard furnished as standard.

Fan service access accomplished by removal of top panel.

2 Copper Tube/Enhanced Fin Coil

Lennox designed and fabricated coil.

Ripple-edged aluminum fins.

Copper tube construction.

Lanced fins provide maximum exposure of fin surface to air stream resulting in excellent heat transfer.

Fin collars grip tubing for maximum contact area.

Flared shoulder tubing connections/silver soldering construction.

Coil is factory tested under high pressure to ensure leakproof construction.

Steel louvered panels provide complete coil protection.

Panels can be completely removed for servicing.

High Capacity Liquid Line Drier

Furnished with unit for field installation.

Approved for use with R-410A systems.

Traps any moisture or dirt that could contaminate the refrigerant system.

High Pressure Switch

Shuts off unit if abnormal operating conditions cause the discharge pressure to rise above setting.

Protects compressor from excessive condensing pressure.

Automatic reset.

Refrigerant Flow Control

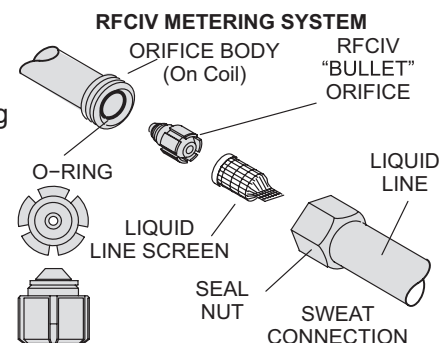
Units applicable to expansion valve systems or RFC systems when matched with specific indoor coils.

RFCIV:

Accurately meters refrigerant in system.

Refrigerant control is accomplished by exact sizing of refrigerant metering orifice.

The principle involves matching indoor coil with proper bore size of orifice in metering device.



Equalizes pressure shortly after compressor stops, unit starts unloaded, eliminating need for additional controls.

See RFC Orifice Usage Table on Page 10 for correct matches.

Optional Accessories

Expansion Valve Kits

Must be ordered extra and field installed on certain indoor units. See TXV Usage Table on Page 9.

Chatleff-style fittings.

Freezestat

Installs on or near the vapor line of the indoor coil or on the suction line.

Senses suction line temperature and cycles the compressor off when suction line temperature falls below its setpoint.

Opens at 29°F and closes at 58°F.

Loss of Charge Switch Kit

Helps protect the compressor from damage due low refrigerant charge conditions.

SPST, normally-closed switch, automatic reset switch mounted on liquid line.

Refrigerant Line Kits

Refrigerant lines (suction & liquid) are shipped refrigeration clean. Lines are cleaned, dried, pressurized and sealed at factory.

Suction line fully insulated.

Lines are stubbed at both ends.

FEATURES

COMPRESSOR

3 Scroll Compressor

Compressor features high efficiency with uniform suction flow, constant discharge flow, high volumetric efficiency and quiet operation.

Compressor consists of two involute spiral scrolls matched together to generate a series of crescent shaped gas pockets between them.

During compression, one scroll remains stationary while the other scroll orbits around it.

Gas is drawn into the outer pocket, the pocket is sealed as the scroll rotates.

As the spiral movement continues, gas pockets are pushed to the center of the scrolls. Volume between the pockets is simultaneously reduced.

When the pocket reaches the center, gas is now at high pressure and is forced out of a port located in the center of the fixed scrolls.

During compression, several pockets are compressed simultaneously resulting in a smooth continuous compression cycle.

Continuous flank contact, maintained by centrifugal force, minimizes gas leakage and maximizes efficiency.

Scroll compressor is tolerant to the effects of slugging and contaminants. If this occurs, scrolls separate, allowing liquid or contaminants to be worked toward the center and discharged.

Low gas pulses during compression reduces operational sound levels.

Compressor motor is internally protected from excessive current and temperature.

Compressor is installed in the unit on resilient rubber mounts for vibration free operation.



CONTROLS

Optional Accessories

Compressor Hard Start Kit

Single-phase units are equipped with a PSC compressor motor. This type of motor normally doesn't need a potential relay and start capacitor.

In conditions such as low voltage, this kit may be required to increase the compressor starting torque.

Compressor Low Ambient Cut-Off Switch

Non-adjustable switch (low ambient cut-out) prevents compressor operation when outdoor temperature is below 35°F.

Compressor Time-Off Control

Kit prevents compressor short-cycling and allows time for suction and discharge pressure to equalize.

Permits compressor start-up in an unloaded condition.

Automatic reset with 5 minute delay between compressor shut-off and start-up.

Indoor Blower Off Delay Relay

Delays the indoor blower-off time during the cooling cycle.

See AHRI System Matches for usage.

Low Ambient Kit

Air conditioners operate satisfactorily in the cooling mode down to 45°F outdoor air temperature without any additional controls.

Kit can be added in the field enabling unit to operate properly down to 30°F in the cooling mode.

Crankcase heater and freezestat should be installed on compressors equipped with a Low Ambient Kit.

A compressor lock-out thermostat should be added to terminate compressor operation below recommended operation conditions.

Thermostat

Thermostat not furnished with unit. See Thermostat bulletins in Controls Section and Lennox Price Book.

Timed-Off Control

Kit prevents compressor short-cycling and allows time for suction and discharge pressure to equalize.

Permits compressor start-up in an unloaded condition.

Automatic reset with 5 minute delay between compressor shut-off and start-up.

Optional Accessories

Compressor Crankcase Heater

Protects against refrigerant migration that can occur during low ambient operation.

Compressor Sound Cover

A reinforced vinyl compressor cover containing a 1-1/2 inch thick batt of fiberglass insulation.

All open edges are sealed with a one-inch wide hook and loop fastening tape.

FEATURES

CABINET

- 4 Heavy gauge steel cabinet with five station metal wash process.
- Louvered heavy gauge steel panels surround unit on all four sides to prevent damage to the coil.
- Powder paint finish provides superior rust and corrosion protection.
- Control box is conveniently located with all controls factory wired.
- Corner patch plate allows access to compressor components.
- Drainage holes are provided in base section for moisture removal.

PermaGuard™ Unit Base

Durable zinc-coated base section resists rust and corrosion.

5 **Refrigerant Line Connections, Electrical Inlets, Service Valves**

Sweat connection suction and liquid lines are located on corner of unit cabinet.

Fully serviceable brass service valves prevent corrosion and provide access to refrigerant system. Suction valve can be fully shut off, while liquid valve may be front seated to manage refrigerant charge while servicing system.

Refrigerant line connections and field wiring inlets are located in one central area of cabinet for easy access. See dimension drawing.

Optional Accessories

Unit Stand-Off Kit

Black high density polyethylene feet are available to raise unit off of mounting surface away from damaging moisture.

Four feet are furnished per order number.

SPECIFICATIONS

General Data	Model No.	Northern Region	13ACXN018	13ACXN024	13ACXN030	13ACXN036	13ACXN042	13ACXN048	13ACXN060
		Nominal Tonnage	1.5	2	2.5	3	3.5	4	5
Connections (sweat)		Liquid line o.d. - in.	3/8	3/8	3/8	3/8	3/8	3/8	3/8
		Suction line o.d. - in.	5/8	5/8	3/4	3/4	3/4	7/8	7/8
¹ Refrigerant (R-410A) furnished			4 lbs. 1 oz.	3 lbs. 14 oz.	5 lbs. 2 oz.	5 lbs. 4 oz.	6 lbs. 8 oz.	7 lbs. 12 oz.	9 lbs. 0 oz.
RFCIV Metering Orifice Size Furnished			0.051	0.057	0.065	0.072	0.076	0.082	0.090
Outdoor Coil	Net face area sq. ft.	Outer coil	11.33	11.33	13.22	13.22	16.33	18.67	16.33
		Inner coil	---	---	---	---	---	---	15.71
		Tube diameter - in.	5/16	5/16	5/16	5/16	5/16	5/16	5/16
		Number of rows	1	1	1	1	1	1	2
		Fins per inch	26	26	26	26	26	26	22
Outdoor Fan		Diameter - in.	18	18	18	18	22	22	22
		Number of blades	3	3	4	4	4	4	4
		Motor hp	1/10	1/10	1/5	1/5	1/4	1/4	1/4
		Cfm	2350	2350	2400	2400	3500	3670	3600
		Rpm	1010	1010	1090	1090	825	835	830
		Watts	165	165	185	185	300	295	285
Shipping Data - lbs. 1 package			138	138	144	151	188	195	218

ELECTRICAL DATA

Line voltage data - 60 hz - 1ph		208/230V	208/230V	208/230V	208/230V	208/230V	208/230V	208/230V
² Maximum overcurrent protection (amps)		20	25	25	35	45	50	60
³ Minimum circuit ampacity		12.4	14.7	17.1	22.0	28.1	31.9	34.6
Compressor	Rated load amps	9.4	11.2	12.8	16.7	21.2	24.2	26.3
	Locked rotor amps	56.6	60.8	64	70	90	100	125
	Power factor	0.98	0.98	0.98	0.99	0.99	0.99	0.99
Condenser Fan Motor	Full load amps	0.7	0.7	1.1	1.1	1.7	1.7	1.7
	Locked rotor amps	1.3	1.3	2.0	2.0	3.2	3.2	3.2

OPTIONAL ACCESSORIES - ORDER SEPARATELY

Compressor Crankcase Heater	93M04	•	•	•	•			
	93M05					•	•	•
Compressor Hard Start Kit	Copeland 10J42	•	•	•	•	•	•	•
	LG 88M91	•	•	•	•	•	•	•
Compressor Low Ambient Cut-Off Switch	45F08	•	•	•	•	•	•	•
Compressor Sound Cover	27W55	•	•	•	•			
	27W56					•	•	•
Compressor Time-Off Control	47J27	•	•	•	•	•	•	•
Freezestat	3/8 in. tubing 93G35	•	•	•	•	•	•	•
	5/8 in. tubing 50A93	•	•	•	•	•	•	•
Indoor Blower Off Delay Relay	58M81	•	•	•	•	•	•	•
Loss of Charge Switch Kit	84M23	•	•	•	•	•	•	•
⁴ Low Ambient Kit (Fan Cycling)	34M72	•	•	•	•	•	•	•
Refrigerant Line Sets	L15-26-20, L15-26-25, L15-26-35, L15-26-50	•	•					
	L15-41-20, L15-41-30, L15-41-40, L15-41-50			•	•	•		
	L15-65-30, L15-65-40, L15-65-50						•	•
Unit Stand-Off Kit	94J45	•	•	•	•	•	•	•

NOTE - Extremes of operating range are plus 10% and minus 5% of line voltage.

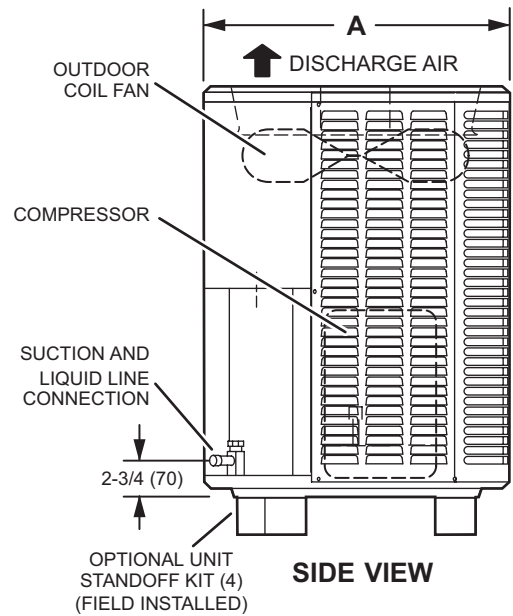
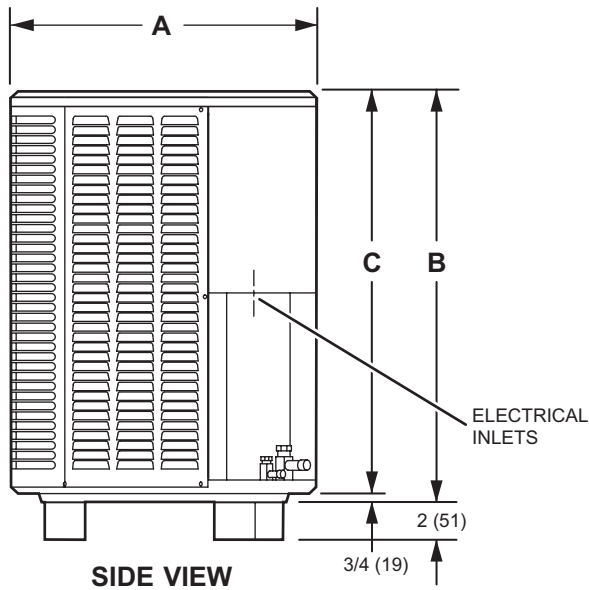
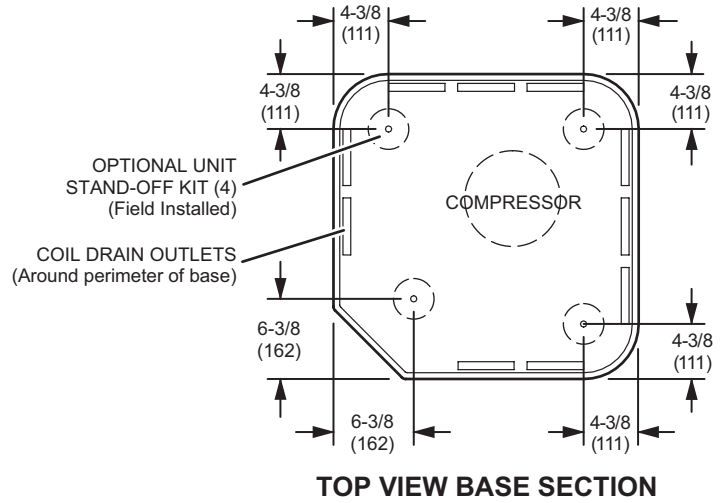
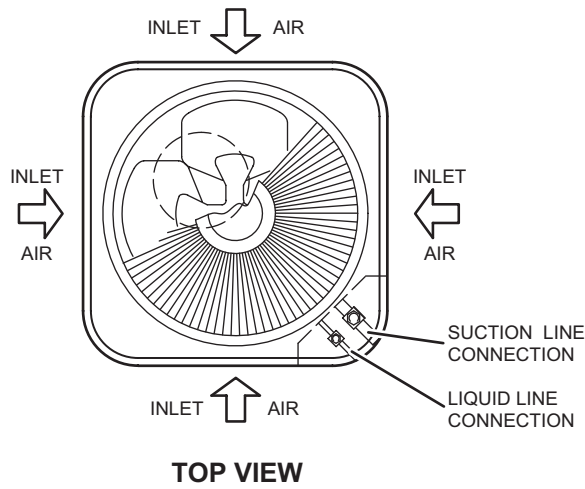
¹ Refrigerant charge sufficient for 15 ft. length of refrigerant lines. For longer line set requirements see the Installation Instructions for information about line set length and additional refrigerant charge required.

² HACR type circuit breaker or fuse.

³ Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

⁴ Crankcase Heater and Freezestat are recommended with Low Ambient Kit.

DIMENSIONS - INCHES (MM)



Model	A		B		C	
	inches	mm	inches	mm	inches	mm
018	24-1/4	616	25-1/4	641	24-1/4	616
024	24-1/4	616	25-1/4	641	24-1/4	616
030	24-1/4	616	29-1/4	743	28-1/2	724
036	24-1/4	616	29-1/4	743	28-1/2	724
042	28-1/4	718	29-1/4	743	28-1/2	724
048	28-1/4	718	33-1/4	845	32-1/2	826
060	28-1/4	718	29-1/4	743	28-1/2	724

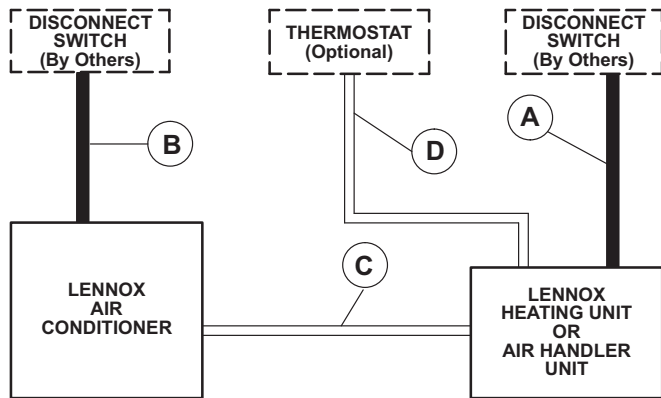
SOUND DATA

1 Unit Model	Octave Band Linear Sound Power Levels dB, re 10 ⁻¹² Watts Center Frequency - HZ							1 Sound Rating Number (dB)
	125	250	500	1000	2000	4000	8000	
018	53	60	64.5	68.5	67	61.5	54.5	76
024	51.5	62	64.5	68.5	67	60.5	53.5	76
030	52.5	62	67.5	69	67	61.5	54.5	76
036	52.5	61	67	69	67	61.5	52.5	76
042	58	68	73.5	75.5	74	69.5	62.5	79
048	57.5	67	73	74.5	71	64	58.5	79
060	57	63	69.5	71.5	71	65.5	60.5	79

NOTE - the octave sound power data does not include tonal correction.

¹ Tested according to AHRI Standard 270-2008 test conditions.

FIELD WIRING

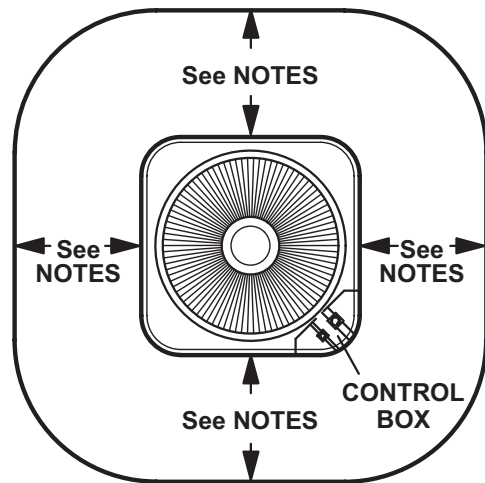


- A - Two Wire Power
- B - Two Wire Power (See Electrical Data)
- C - Two Wire Low Voltage (18 ga. minimum)
- D - Four Wire Low Voltage (Electro-Mechanical) 18 ga. minimum.
Five Wire Low Voltage (Electronic) 18 ga. minimum

NOTE - Field Wiring Not Furnished

All wiring must conform to NEC or CEC and local electrical codes.

INSTALLATION CLEARANCES - IN. (MM)



NOTES:

- Service clearance of 30 in. (762 mm) must be maintained on one of the sides adjacent to the control box.
- Clearance to one of the other three sides must be 36 in. (914 mm)
- Clearance to one of the remaining two sides may be 12 in. (305 mm) and the final side may be 6 in. (152 mm).
- A clearance of 24 in. must be maintained between two units.
- 48 in. (1219 mm) clearance required on top of unit.

TXV USAGE

Use this table for C35, CH23, CH33, CH35, CR23 and CR33 Field Installed TXV Match-Ups.

Outdoor Unit Model No.	Thermal Expansion Valve (TXV)
13ACXN018	12J18
13ACXN024	12J18
13ACXN030	12J18
13ACXN036	12J19
13ACXN042	12J20
13ACXN048	12J20
13ACXN060	12J20

CX35 and CX38 upflow coils and all Lennox air handlers are shipped with a factory installed TXV. In most cases, no change out of the valve is needed.

If a change out is required it will be listed in the "TXV SUBSTITUTIONS" table. The correct TXV must be ordered separately and field installed.

C35 and CH33/CH35 coils - Replace the factory installed orifice with the expansion valve listed .

CR33 and CH23 coils - Use the expansion valve listed.

*TXV SUBSTITUTIONS

Use this table to determine if the factory installed TXV in the indoor unit needs to be replaced.

Outdoor Unit Model No.	Indoor Coil	Factory TXV	Replacement TXV
13ACXN030	CX35-48	12J20	12J18

*CX35 coils - The factory installed expansion valve must be replaced with the expansion valve listed (ordered separately).

If the combination is not listed above, the factory installed TXV is used.

MOST POPULAR MATCHES

Outdoor Unit Model No.	Indoor Unit Model No
13ACXN018	CX38-30B
13ACXN024	CX38-30B
13ACXN030	CX38-30B
13ACXN036	CX38-38B
13ACXN042	CX38-43B
13ACXN048	CX38-49C
13ACXN060	CX34-49

AHRI STANDARD 210/240

Cooling or heating capacities are net values, including the effects of blower motor heat, and do not include supplementary heat. Power input is the total power input to the compressor(s) and fan(s), plus any controls and other items required as part of the system for normal operation.

Units which do not have an indoor air-circulating blower furnished as part of the model, i.e., split system with indoor coil only, is established by subtracting from the total cooling capacity 1250 Btu/h per 1,000 cfm, and by adding the same amount to the heating capacity. Total power input for both heating and cooling is increased by 365 W per 1,000 cfm of indoor air circulated.

NOTE!

For the latest AHRI System Matches please see the **Residential Matchup Tool** at www.LennoxPros.com or see the separate document **AHRI Air Conditioner Matches** that contains all outdoor unit matches.

RFC ORIFICE USAGE

LEGEND:

◀ Green = Matches Orifice Furnished With Indoor Coil (no replacement necessary)

▲ Yellow = Matches Orifice Furnished With Outdoor Unit (orifice must be field replaced)

Blue = Field Provided (must be ordered extra for field replacement)

C33 COILS

Indoor Coil Model No.	Factory Orifice Furnished in Coil	Outdoor Unit Model No. - Orifice Furnished With Outdoor Unit						
		13ACXN018	13ACXN024	13ACXN030	13ACXN036	13ACXN042	13ACXN048	13ACXN060
		0.051	0.057	0.065	0.072	0.076	0.082	0.090
C33-19A-2	0.051			0.065 ▲				
C33-25A-2	0.057	0.051 ▲		0.065 ▲				
C33-25B-2	0.057	0.051 ▲		0.065 ▲				
C33-30A-2	0.065			◀ 0.065				
C33-30B-2	0.065		0.057 ▲	◀ 0.065				
C33-30C-2	0.065			◀ 0.065				
C33-31A-2	0.065			◀ 0.065				
C33-31B-2	0.065			◀ 0.065				
C33-36A-2	0.073			0.065 ▲				
C33-36B-2	0.073			0.065 ▲				
C33-36C-2	0.073			0.065 ▲				
C33-38A-2	0.073			0.065 ▲	0.072 ▲	0.076 ▲		
C33-38B-2	0.073			0.065 ▲	0.072 ▲	0.076 ▲		
C33-42B-2	0.076			0.065 ▲				
C33-43B-2	0.076			0.065 ▲	0.072 ▲	◀ 0.076	0.082 ▲	
C33-43C-2	0.076			0.065 ▲		◀ 0.076		
C33-49C-2	0.082					0.076 ▲	◀ 0.082	0.090 ▲
C33-50/60C-2	0.082				0.072 ▲	0.076 ▲		
C33-60D-2	0.093							0.090 ▲
C33-62C-2	0.093					0.076 ▲	0.082 ▲	0.090 ▲
C33-62D	0.093						0.082 ▲	0.090 ▲

C35 COILS

Indoor Coil Model No.	Factory Orifice Furnished in Coil	Outdoor Unit Model No. - Orifice Furnished With Outdoor Unit						
		13ACXN018	13ACXN024	13ACXN030	13ACXN036	13ACXN042	13ACXN048	13ACXN060
		0.051	0.057	0.065	0.072	0.076	0.082	0.090
C35-24A-2F	0.057	0.051 ▲	◀ 0.057					
C35-24B-2F	0.057			0.065 ▲				
C35-30A-2F	0.067	0.051 ▲	0.057 ▲	0.063				
C35-30/36A-2F	0.057		◀ 0.057					
C35-30/36B-2F	0.057			0.065 ▲				
C35-36A-2F	0.070		0.060	0.063				
C35-36B-2F	0.070			0.063	0.072 ▲			
C35-48B-2F	0.071				0.070			
C35-48C-2F	0.071			0.063				
C35-49C-2F	0.076					◀ 0.076	0.082 ▲	0.090 ▲
C35-50/60C-2F	0.070				◀ 0.070			
C35-60C-2F	0.077					0.076 ▲	0.082 ▲	0.090 ▲
C35-60D-2F	0.077						0.082 ▲	0.090 ▲

RFC ORIFICE USAGE

LEGEND:

▲ Yellow = Matches Orifice Furnished With Outdoor Unit (orifice must be field replaced)

CH23, CH33, CR33 COILS

Indoor Coil Model No.	Factory Orifice Furnished in Coil	Outdoor Unit Model No. - Orifice Furnished With Outdoor Unit						
		13ACXN018	13ACXN024	13ACXN030	13ACXN036	13ACXN042	13ACXN048	13ACXN060
		0.051	0.057	0.065	0.072	0.076	0.082	0.090
CH23-41-2	N/A			0.065 ▲				
CH23-68-2	N/A						0.082 ▲	
CH33-19				0.065 ▲				
CH33-25	0.062			0.065 ▲				
CH33-31	0.071			0.065 ▲				
CH33-36	0.076			0.065 ▲				
CH33-42B	0.082			0.065 ▲				
CH33-43	0.082			0.065 ▲	0.072 ▲	0.076 ▲	0.082 ▲	
CH33-44/48B	0.082				0.072 ▲			
CH33-48	0.091			0.065 ▲		0.076 ▲		
CH33-49	0.091					0.076 ▲	0.082 ▲	
CH33-50/60C	0.091					0.076 ▲	0.082 ▲	
CH33-60D	0.099						0.082 ▲	
CH33-62D	0.099						0.082 ▲	
CR33-30/36	N/A			0.065 ▲				
CR33-50/60	N/A				0.072 ▲			

RFC ORIFICE ORDERING

Orifice Size	Order No.
0.051	70W93
0.057	97M75
0.060	10W97
0.063	97M76
0.065	10W99
0.072	10W85
0.076	97M78
0.082	97M79
0.090	10W89

REVISIONS

Sections	Description of Change
Document	Moved all AHRI Matches to a separate document.



Visit us at www.lennox.com

For the latest technical information, www.LennoxPros.com

Contact us at 1-800-4-LENNOX

NOTE - Due to Lennox' ongoing commitment to quality, Specifications, Ratings and Dimensions subject to change without notice and without incurring liability. Improper installation, adjustment, alteration, service or maintenance can cause property damage or personal injury. Installation and service must be performed by a qualified installer and servicing agency.

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