RESIDENTIAL
PRODUCT SPECIFICATIONS
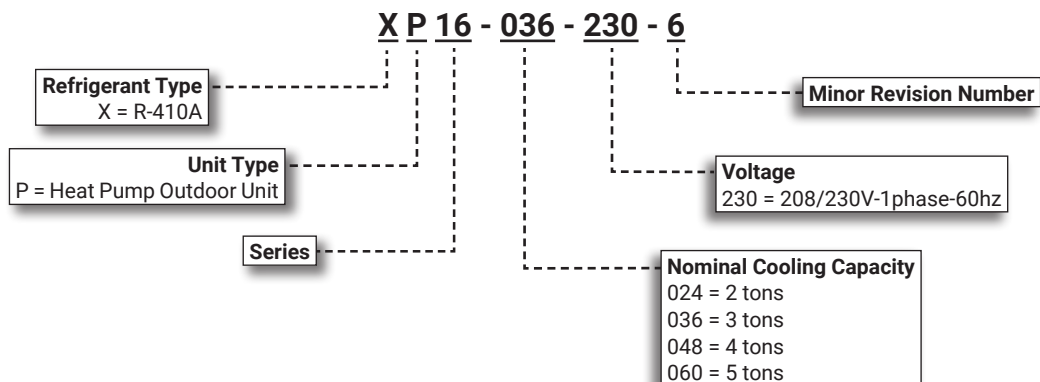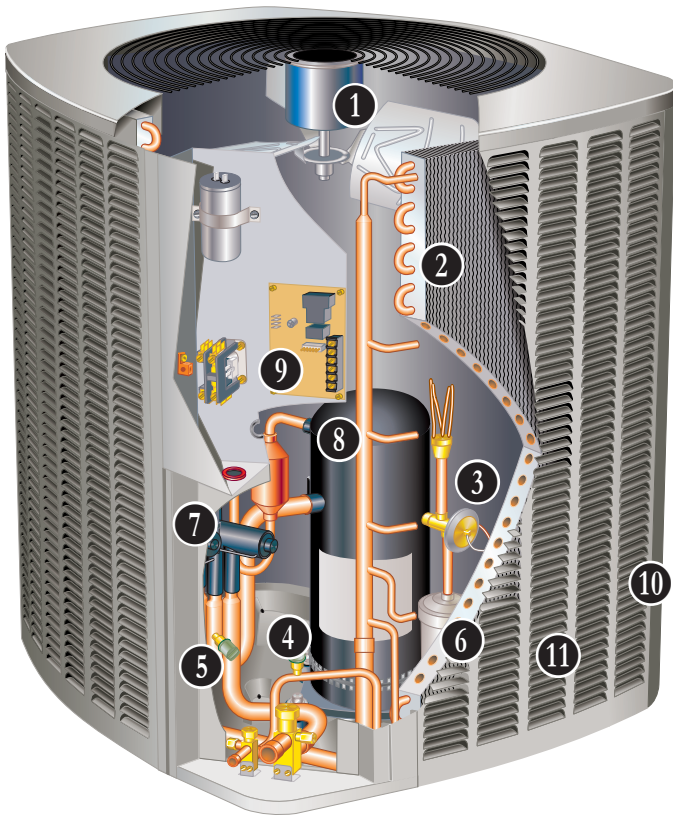
ELITE® SERIES

ENERGY STAR

SEER up to 16.50
HSPF up to 9.50
2 to 5 Tons
Cooling Capacity - 23,600 to 59,500 Btuh
Heating Capacity - 21,000 to 61,500 Btuh

MODEL NUMBER IDENTIFICATION

X P 16 - 036 - 230 - 6

Refrigerant Type
X = R-410A

Unit Type
P = Heat Pump Outdoor Unit

Series

Minor Revision Number

Voltage
230 = 208/230V-1phase-60hz

Nominal Cooling Capacity
024 = 2 tons
036 = 3 tons
048 = 4 tons
060 = 5 tons

FEATURE HIGHLIGHTS

1. Outdoor Coil Fan
2. Copper Tube / Enhanced Fin Coil
3. Expansion Valve - Outdoor Unit
4. High Pressure Switch
5. Low Pressure Switch
6. High Capacity Liquid Line Drier
7. Four-Way Reversing Valve
8. Scroll Compressor
9. Defrost Control
10. Heavy Gauge Steel Cabinet
11. SmartHinge™ Louvered Coil Protection

CONTENTS

APPROVALS AND WARRANTY

APPROVALS

- AHRI Certified to AHRI Standard 210/240
- For AHRI Certified system match-ups and expanded ratings, visit www.LennoxPros.com
- ENERGY STAR® certified
- Sound rated to AHRI Standard 270 or 370 test conditions
- Tested in the Lennox Research Laboratory environmental test room
- Rated according to U.S. Department of Energy (DOE) test procedures
- Units and components UL and CEC bonded for grounding to meet safety standards for servicing
- ETL certified (U.S. and Canada)
- ISO 9001 Registered Manufacturing Quality System

WARRANTY

- Compressor:
  - Limited ten years in residential installations
  - Limited five years in non-residential installations
- All other covered components:
  - Limited five years in residential installations
  - Limited one year in non-residential installations

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

FEATURES

APPLICATIONS

- 2 through 5 ton
- Sound levels as low as 74 dBA
- Single phase power supply
- Vertical air discharge
- Applicable to indoor air handlers or gas furnaces with indoor add-on coils
- Shipped completely factory assembled, piped, and wired
- Factory tested operated

NOTE - When heat pumps are used with gas furnaces, a dual-fuel compatible thermostat or a zone control system with dual-fuel capabilities must be used (order separately).

NOTE - Installer must set heat pump, connect refrigerant lines, and make electrical connections to complete job.

REFRIGERATION SYSTEM

R-410A Refrigerant

- Non-chlorine, ozone friendly
- Unit is factory pre-charged

NOTE - Total system refrigerant charge is dependent on outdoor unit size, indoor unit size and refrigerant line length.

NOTE - Refer to the unit-mounted charging sticker to determine correct amount of charge required.

1 Outdoor Coil Fan
- Direct drive fan
- 060 models have a variable-speed outdoor fan motor for quiet operation
- Vertical air discharge
- Sleeve bearings
- Inherently protected
- Totally enclosed fan motor
- Fan guard constructed of corrosion-resistant PVC (polyvinyl chloride) coated steel

2 Copper Tube/Enhanced Fin Coil
- Lennox designed and fabricated coil
- Ripple-edged aluminum fins
- Copper tube construction
- Lanced fins for maximum fin surface exposure
- Fin collars grip tubing for maximum contact area
- Flared shoulder tubing connections
- Silver soldering construction
- Factory tested under high pressure
- Steel louvered panels provide complete coil protection
- Entire coil accessible for cleaning

3 Expansion Valve - Outdoor Unit
- Designed and sized for heat pump systems
- Sensing bulb is located on the suction line .

FEATURES

REFRIGERATION SYSTEM (continued)

Discharge Temperature Switch
- Shuts off unit if operating conditions cause the compressor discharge line temperature to rise above setpoint
- Protects compressor from excessive pressure / temperature
- Automatic reset when temperature drops below setpoint

4 High Pressure Switch
- Protects the system from high pressure conditions
- Automatic reset

5 Low Pressure Switch
- Shuts off unit if suction pressure falls below setting
- Loss of charge and freeze-up protection
- Automatic reset

6 High Capacity Liquid Line Drier
- Factory installed in the liquid line
- Drier traps moisture or dirt
- 100% molecular-sieve, bead type, bi-flow drier

7 Four-Way Reversing Valve
- Rapid changeover of refrigerant flow direction from cooling to heating and vice versa
- Operates on pressure differential between outdoor unit and indoor coil
- Factory installed

Charge Compensator (036 model only)
- Maintains the proper amount of refrigerant circulating in the system during heating mode

Optional Accessories

Check/Expansion Valve Kits
- Field installed on certain indoor units
- See TXV Usage table
- Chatleff-style fitting

Freezestat
- Senses suction line temperature
- Cycles compressor off when suction line temperature falls below it's setpoint
- Opens at 29°F and closes at 58°F
- Installs on or near the discharge line of the evaporator or on the suction line

Refrigerant Line Kits
- Refrigerant lines are shipped refrigeration clean
- Lines are cleaned, dried, pressurized and sealed at factory
- Suction line fully insulated
- Lines are stubbed at both ends

NOTE - Not available for -060 model and must be field fabricated.

8 COMPRESSOR

Two-Stage Scroll Compressor
- High volumetric efficiency
- Uniform suction flow
- Constant discharge flow
- Quiet operation

Compressor Operation
- Two involute spiral scrolls matched together 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
- 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
- During the compression process, there are several pockets in the scroll that are compressing gas
- Modulation is achieved by venting a portion of the gas in the first suction pocket back to the low side of the compressor thereby reducing the effective displacement of the compressor
- A 24-volt DC solenoid valve inside the compressor controls staging
- When the 3-way solenoid is energized it moves the lift ring assembly to block the ports and the compressor operates at full-load or 100% capacity
- When the solenoid is de-energized the lift ring assembly moves to unblock the compressor ports and the compressor operates at part-load or approximately 67% of its full-load capacity
- The "loading" and "unloading" of the two stage scroll is done "on the fly" without shutting off the single-speed compressor motor between stages

COMPRESSOR (continued)

Compressor Operation (continued)
- 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 specially formulated, resilient rubber mounts for better sound dampening and vibration free operation.

Crankcase Heater
- Protects against refrigerant migration that can occur during low ambient operation

Optional Accessories

Compressor Sound Cover
- Reinforced vinyl compressor cover
- 1-1/2 inch thick batt of fiberglass insulation
- Hook and loop fastening tape on all open edges

CONTROLS

9 Defrost Control
- Control furnished as standard
- Gives a demand defrost cycle whenever system heating performance falls below optimum levels
- Sensing element on coil determines when defrost cycle is required and when to terminate cycle
- Anti-short cycle (5 minutes) incorporated into the board
- Diagnostic LEDs furnished as an aid in troubleshooting
- Conveniently located in control box

Optional Accessories

iComfort® E30 Smart Wi-Fi Thermostat
- Wi-Fi enabled, electronic 7-day, universal, multi-stage, programmable, touchscreen thermostat
- 3 Heat/2 Cool
- Auto-changeover
- Controls dehumidification during cooling mode and humidification during heating mode

- Offers enhanced capabilities including humidification / dehumidification / dewpoint measurement and control, Humiditrol® control, and equipment maintenance reminders
- Easy to read 7 in. color touchscreen (measured diagonally)
- LCD display with backlight shows the current and set temperature, time, inside relative humidity, system status (operating mode and schedules) and outside temperature (optional outdoor sensor required)
- Smooth Setback Recovery starts system early to achieve setpoint at start of program period
- Compressor short-cycle protection (5 minutes)

- Up to four separate schedules are available plus Schedule IQ™
- One-Touch Away Mode - A quick and easy way to set the cooling and heating setpoints while away
- Smart Away™ - Uses geo-fencing technology to determine when the homeowner is within a predetermined distance from the home to operate the system when leaving, away and arriving
- Wi-Fi remote monitoring and adjustment through a home wireless network for desktop PCs, laptops and apps for smartphones or tablets
- Smart home automation compatible with Apple HomeKit™, Amazon Alexa®, Google Assistant and IFTTT
- Service Dashboard features online real-time monitoring of installed iComfort® thermostats
- High Definition Color Display with Subbase, Smart Hub Controller, wallplate (for retrofit installations) furnished for easy installation
- See the iComfort® E30 Smart Wi-Fi Thermostat Product Specifications bulletin for more information

Remote Outdoor Temperature Sensor
- Used with the iComfort® E30 Smart Thermostat
- When installed outdoors, sensor allows thermostat to display outdoor temperature
- Sensor is auto-detected when connected to thermostat

NOTE - Sensor is required for high and low balance points option.

NOTE - Sensor is required for Enhanced Dehumidification Accessory (EDA).

Blower Relay Kit (for use with furnaces equipped with constant torque blower motors)
- Allows furnace blower speed changes when matched with two-stage heat pumps

Compressor Hard Start Kit
- Single-phase units are equipped with a PSC compressor motor
- This type of motor normally does not need a potential relay and start capacitor
- In conditions such as low voltage, kit may be required to increase the compressor starting torque

Indoor Blower Off Delay Relay
- Delays the indoor blower-off time during the cooling cycle

Indoor Blower Speed Relay Kit
- Relay kit provides the option of changing blower speeds on standard permanent split capacitor (PSC) multi-tap blower motors during cooling operation
- Provides optimum humidity control conditions by automatically reducing indoor blower speed during continuous fan operation or low stage compressor operation to reduce humidity levels

CONTROLS (continued)

Optional Accessories (continued)

Low Ambient Kit
- Heat pump can operate in the cooling mode down to 45°F outdoor air temperature without additional controls
- Allows unit to operate properly down to 30°F in the cooling mode
- **NOTE** - Crankcase heater and freezestat should be installed on compressors equipped with a low ambient kit.
- **NOTE** - A compressor lock-out thermostat should be added to terminate compressor operation below recommended operation conditions.

Mild Weather Kit
- Units can operate in the heating mode at outdoor air temperatures up to 75°F
- Field installed kit allows heating operation above 75°F

Monitor Kit - Service Light
- Ambient compensating thermistor
- Service light thermostat
- For thermostats requiring indicator light inputs
- For use with thermostats requiring input for indicator lights

Outdoor Thermostat Kit
- An outdoor thermostat can be used to lock out some of Outdoor thermostat locks out some of the electric heating elements on indoor units where two-stage control is applicable
- Outdoor thermostat maintains the heating load on the low power input as long as possible before allowing the full power load to come on the line
- Thermostat kit and Mounting Box must be ordered separately

CABINET
10 · Heavy gauge steel construction
- Five station metal wash process
- Louvered heavy gauge steel panels
- Powder paint finish
- Control box conveniently located with all controls factory wired
- Corner patch plate allows compressor access
- Drainage holes provided in base section
- High density polyethylene unit support feet raise the unit off of the mounting surface, away from damaging moisture

PermaGuard™ Unit Base
- Durable zinc-coated base section resists rust and corrosion

11 SmartHinge™ Louvered Coil Protection
- Steel louvered panels provides complete coil protection
- Panels are hinged to allow easy cleaning and servicing of coils. Panels may be completely removed
- Interlocking tabs and slots assure tight fit on cabinet

Refrigerant Line
Connections, Electrical Inlets and Service Valves
- Sweat connection vapor and liquid lines
- Located on corner of unit cabinet
- Fully serviceable brass service valves
- Vapor 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

Snow Guard
- For use in locations where the possibility of heavy snow or freezing rain accumulation may occur
- Heavy gauge powder coated steel guard
- Deflects snow and ice away from the outdoor fan

SPECIFICATIONS

General	Model No.	XP16-024	XP16-036	XP16-048	XP16-060
Data	Nominal Tonnage	2	3	4	5
Connections	Liquid line (o.d.) - in.	3/8	3/8	3/8	3/8
(sweat)	Vapor line (o.d.) - in.	3/4	7/8	7/8	1-1/8
Refrigerant	[1] R-410A charge furnished	7 lbs. 14 oz.	10 lbs. 11 oz.	9 lbs. 9 oz.	11 lbs. 8 oz.
Outdoor	Net face area - sq. ft. Outer coil	15.21	22.17	22.17	29.09
Coil	Inner coil	14.50	21.51	21.51	28.16
	Tube diameter - in. and No. of Rows	5/16 - 2	5/16 - 2	5/16 - 2	5/16 - 2
	Fins per inch	22	22	2	22
Outdoor	Diameter - in. and No. of Blades	18 - 3	26 - 3	26 - 3	26 - 3
Fan	Motor hp	1/10	1/3	1/3	1/3
	Cfm - 1st stage	2232	4100	4100	3690
	2nd stage	- - -	- - -	- - -	4250
	Rpm - 1st stage	1035	850	855	700
	2nd stage	- - -	- - -	- - -	820
	Watts - 1st stage	145	295	265	130
	2nd stage	- - -	- - -	- - -	195
Shipping Data - lbs. 1 pkg.		222	273	294	353

ELECTRICAL DATA

		XP16-024	XP16-036	XP16-048	XP16-060
Line voltage data - 60hz		[4] 230V-1ph	[4] 230V-1ph	[4] 230V-1ph	[4] 230V-1ph
[2] Maximum overcurrent protection (amps)		25	35	45	60
[3] Minimum circuit ampacity		15.3	20.8	28.3	36.8
Compressor	Rated load amps	11.70	15.3	21.20	27.1
	Locked rotor amps	58.3	83	104	152.9
	Power factor	0.98	0.99	0.99	0.99
Outdoor Coil Fan Motor	Full load amps	0.7	1.7	1.8	2.8

CONTROLS - ORDER SEPARATELY

		XP16-024	XP16-036	XP16-048	XP16-060
iComfort® E30 Smart Wi-Fi Thermostat	20A65	•	•	•	•
[5] Outdoor Temperature Sensor	X2658	•	•	•	•
[6] Discharge Air Temperature Sensor	88K38	•	•	•	•

OPTIONAL ACCESSORIES - ORDER SEPARATELY

			XP16-024	XP16-036	XP16-048	XP16-060
Blower Relay Kit (for constant torque gas furnaces)		85W66	•	•	•	•
Compressor Hard Start Kit - Required in applications with less than 230V		63W22	•			
		10J42		•	•	
		63W24				•
Compressor Sound Cover		18J42	•	•	•	•
Freezestat	3/8 in. tubing	93G35	•	•	•	•
	5/8 in. tubing	50A93	•	•	•	•
Indoor Blower Speed Relay Kit		40K58	•	•	•	•
Indoor Blower Off Delay Relay		58M81	•	•	•	•
[7] Low Ambient Kit		54M89	•	•	•	
		68M04				•
Mild Weather Kit		33M07	•	•	•	•
Monitor Kit - Service Light		76F53	•	•	•	•
Outdoor Thermostat Kit	Thermostat	10Z23	•	•	•	•
	Mounting Box	31461	•	•	•	•
Refrigerant Line Sets	L15-41-20 L15-41-40		•			
	L15-41-30 L15-41-50					
	L15-65-30 L15-65-40			•	•	
	L15-65-50					
	Field Fabricate					•
[8] Snow Guards	28-1/2 x 27-1/2 in.	X8781	•			
	39-1/2 x 35-5/8 in.	Y1033		•	•	•

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 breaker or fuse.

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

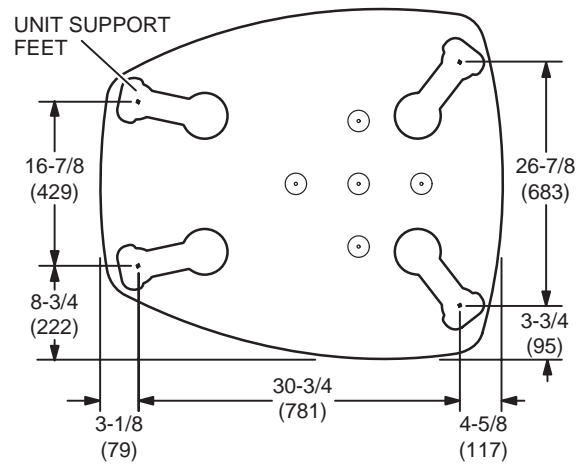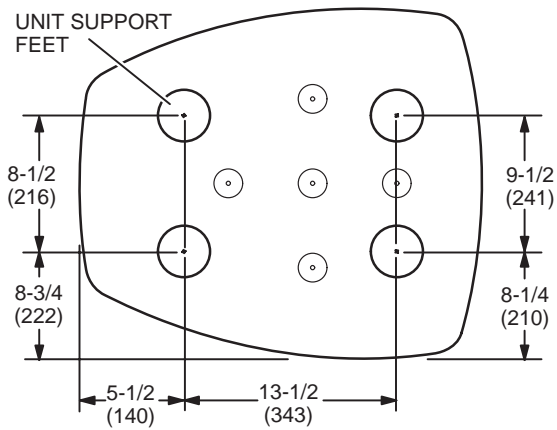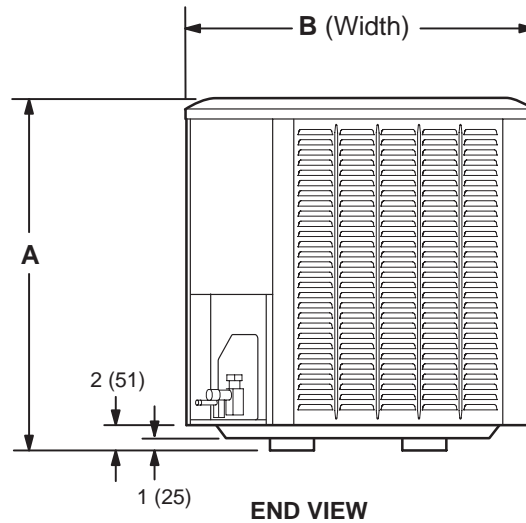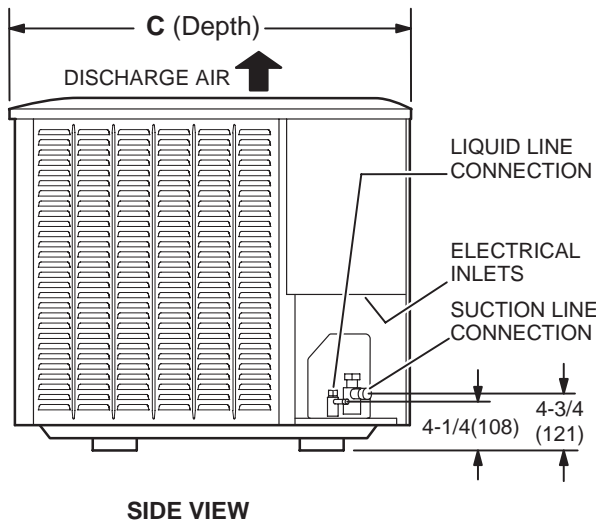[4] Hard Start Kit is required in applications where the supply voltage is less than 230V.
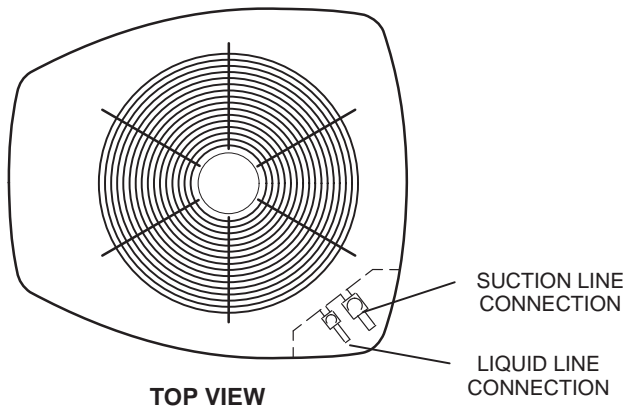
[5] The Optional Outdoor Air Temperature Sensor may be ordered for use with a conventional outdoor unit. Allows the thermostat to display outdoor temperature. Required for Dual-Fuel and Humiditrol® applications.

[6] Optional for service diagnostics.

[7] Freezestat is recommended with Low Ambient Kit.

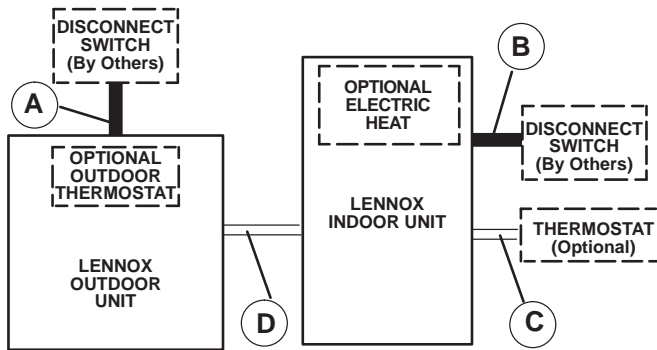[8] Adds 11-1/2 inches (292 mm) to unit height.

DIMENSIONS - UNIT

TOP VIEW

SUCTION LINE CONNECTION

LIQUID LINE CONNECTION

C (Depth)

DISCHARGE AIR

LIQUID LINE CONNECTION

ELECTRICAL INLETS

SUCTION LINE CONNECTION

4-1/4(108)

4-3/4 (121)

SIDE VIEW

B (Width)

A

2 (51)

1 (25)

END VIEW

UNIT SUPPORT FEET

8-1/2 (216)

9-1/2 (241)

8-3/4 (222)

8-1/4 (210)

5-1/2 (140)

13-1/2 (343)

XP16-024 BASE SECTION
(Small Base)

UNIT SUPPORT FEET

16-7/8 (429)

26-7/8 (683)

8-3/4 (222)

3-3/4 (95)

30-3/4 (781)

3-1/8 (79)

4-5/8 (117)

XP16-036 TO -060 BASE SECTION
(Large Base)

Model No.	A		B		C	
	in.	mm	in.	mm	in.	mm
XP16-024	35	889	27	686	28	711
XP16-036	35	889	35-1/2	902	39-1/2	1003
XP16-048	35	889	35-1/2	902	39-1/2	1003
XP16-060	45	1143	35-1/2	902	39-1/2	1003

FIELD WIRING

A - Two Wire Power (see Electrical Data)

B - Two or Three Wire Power (size to heater capacity)

C - Twelve Wire Low Voltage 18 ga. minimum
Fourteen Wire Low Voltage with Optional Outdoor Thermostat

D - Eight Wire Low Voltage 18 ga. minimum
Ten Wire Low Voltage with Optional Outdoor Thermostat

NOTE - Field Wiring Not Furnished

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

SOUND DATA

[1] Unit Model	Octave Band Sound Power Levels dBA, re 10^{-12} Watts Center Frequency - HZ							[1] Sound Rating Number (dBA)	[2] Estimated Sound Pressure Level at Distance From Unit (dBA at distance in ft.)				
	125	250	500	1000	2000	4000	8000		3	5	10	15	50
024	72	70	69.5	68.5	63.5	58	56.5	74	67	62	56	53	42
036	72.5	71.5	73	70.5	66	60.5	58.5	76	69	64	58	55	44
048	72.5	71.5	73	70.5	66	60.5	58.5	76	69	64	58	55	44
060	72.5	73.5	77.5	72.5	67	62.5	58.5	78	71	66	60	57	46

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

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

[2] Estimated sound pressure level at distance based on AHRI Standard 275-2010 method for equipment located on the ground, roof, or on side of building wall with no adjacent reflective surface within 9.8 feet. Sound pressure levels will increase based on changes to assumptions. For other applications, refer to AHRI Standard 275.

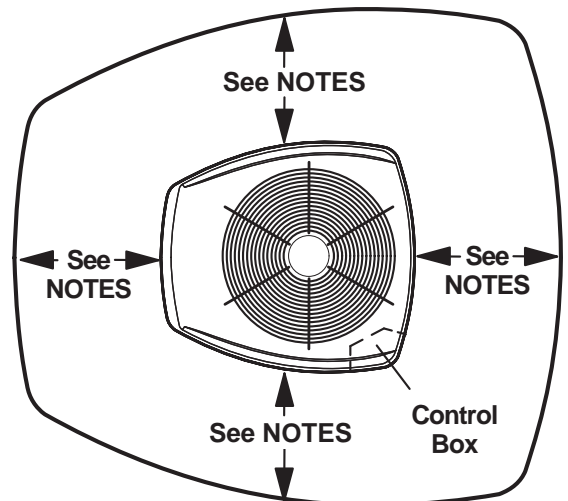## INSTALLATION CLEARANCES

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, CH35 and CR33 Field Installed TXV Match-Ups

Model No.	Order No.
XP16-024	**12J18**
XP16-036	**12J19**
XP16-048	**12J20**
XP16-060	**12J20**

CX35 and CHX35 coils and all Lennox air handlers are shipped with a factory installed TXV.

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

CH23 and CR33 - Use the expansion valve listed.

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.

TXV SUBSTITUTION

A general guide for replacing the factory installed TXV if the indoor unit (coil/air handler) is larger or smaller than the outdoor unit.

Outdoor Unit		Indoor Unit		TXV Furnished	TXV Replacement
Size	**Tons**	**Size**	**Tons**		
024	2	42	3.5	**12J20**	**12J18**
024	2	48	4	**12J20**	**12J18**
024	2	49	4	**12J20**	**12J18**
024	2	50/60	5	**12J20**	**12J18**
024	2	51/61	5	**12J20**	**12J18**
024	2	60	5	**12J20**	**12J18**
036	3	24	2	**12J18**	**12J19**
036	3	30	2.5	**12J18**	**12J19**
048	4	30/36	2.5/3	**12J19**	**12J20**
048	4	36	3	**12J19**	**12J20**

TXV Ranges:

12J18 - 1.5 to 2.5 ton systems - Use on 2.5 ton (030) and lower systems.

12J19 - 3 ton systems - Use down to 2 ton (024) systems.

12J20 - 3.5 to 5 ton systems - Use down to 3 ton (036) systems.

AHRI CERTIFIED™
www.ahridirectory.org
Unitary Small HP
AHRI Standard 210/240
Certification applies only when the complete system is listed with AHRI.
C

HRAI
✓MEMBER COMPANY

C **ETL** US
CM
LISTED
Intertek

LENNOX®

Visit us at **www.Lennox.com**
For the latest technical information, **www.LennoxPros.com**
Contact us at **1-800-4-LENNOX**