



HEAT PUMP OUTDOOR UNITS

SL18XP1

DAVE LENNOX SIGNATURE® COLLECTION
R-410A - SilentComfort™ Technology - 60 Hz

RESIDENTIAL
PRODUCT SPECIFICATIONS

Bulletin No. 210846
May 2020
Supersedes February 2019



So simple. So smart. So comfortable.

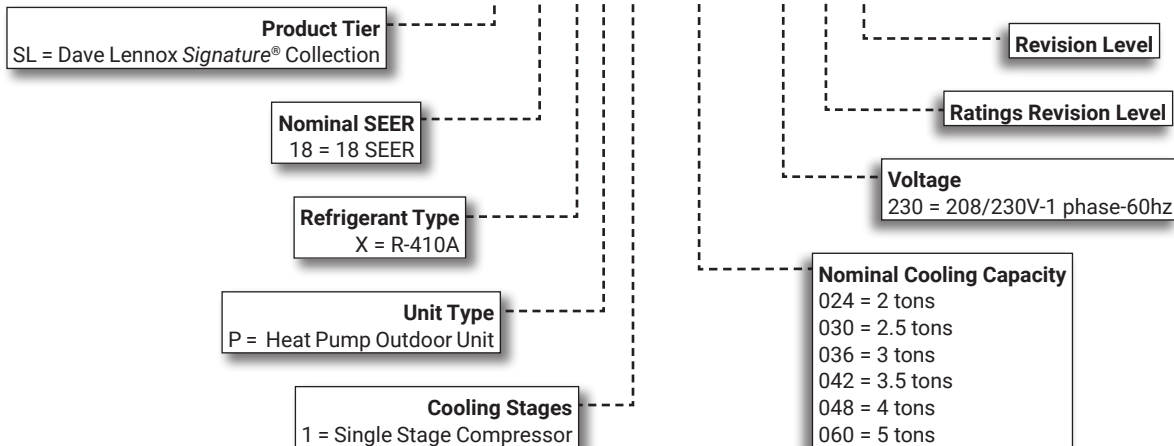


SEER up to 18.50
HSPF up to 10.20
2 to 5 Tons

Cooling Capacity - 23,200 to 57,000 Btuh
Heating Capacity - 21,200 to 55,500 Btuh

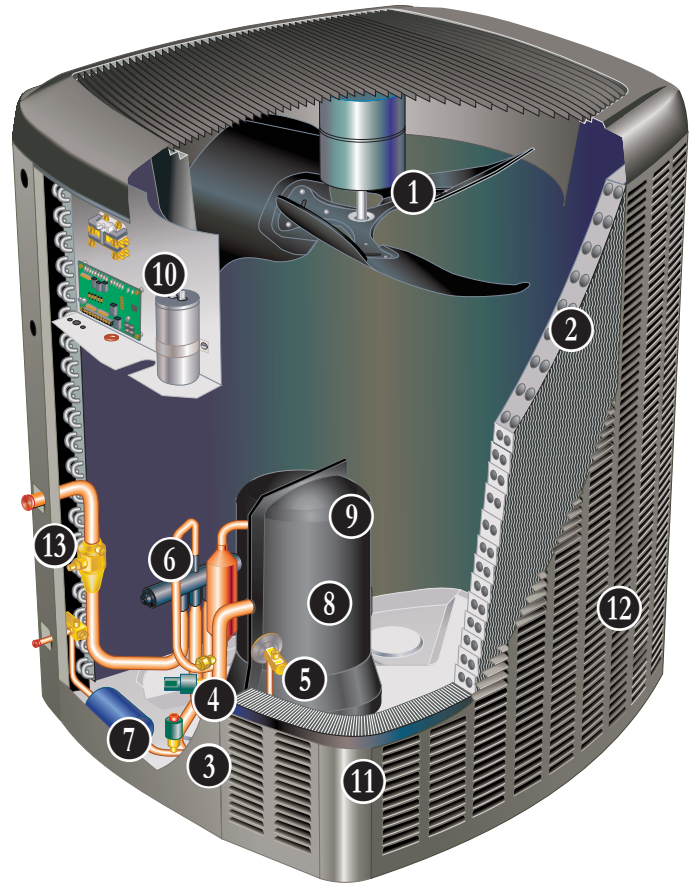
MODEL NUMBER IDENTIFICATION

SL 18 X P 1 - 036 - 230 A 01



FEATURE HIGHLIGHTS

1. Outdoor Coil Fan with SilentComfort™ Technology
2. Quantum™ Coil
3. High Pressure Switch
4. Low Pressure Switch
5. Expansion Valve - Outdoor Unit
6. Four-Way Reversing Valve
7. High-Capacity Liquid Line Drier
8. Scroll Compressor
9. Compressor Sound Cover
10. iComfort® Communicating Control
11. Heavy-Gauge Steel Construction Cabinet
12. SmartHinge™ Louvered Coil Protection
13. Refrigerant Line Connections, Electrical Inlets and Service Valves



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APPROVALS AND WARRANTY

APPROVALS

- AHRI Standard 210/240 certified
- AHRI Certified system match-ups and expanded ratings, visit www.LennoxPros.com
- ENERGY STAR® Certified (certain units)
- Sound rated to AHRI Standard 270-2008 test conditions
- Tested in 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
- Unit and components ETL, NEC 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 ten 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 67 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 dependant 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 with SilentComfort™ Technology**
 - Specially-designed, SilentComfort™ fan guard uses Passive Vortex Suppression to reduce air noise
 - Constructed of corrosion-resistant PVC (polyvinyl chloride) coated steel
 - Direct drive fan
 - Vertical air discharge
 - Fan motor inherently protected
 - Motor totally enclosed
 - Fan service access accomplished by removal of fan guard
- 2 Quantum™ Coil**
 - Lennox designed and fabricated coil
 - Enhanced aluminum alloy tube/enhanced fin coil
 - Ripple-edged aluminum fins
 - Aluminum tube construction
 - Lanced fins for maximum fin surface exposure
 - Fin collars grip tubing for maximum contact area
 - Flared shoulder tubing connections
 - Factory tested under high pressure
 - Entire coil is accessible for cleaning
- 3 High Pressure Switch**
 - Protects the system from high pressure conditions that can be a result of fan failure or a blocked/dirty coil
 - Automatic reset
- 4 Low Pressure Switch**
 - Shuts off unit if suction pressure falls below setting
 - Provides loss of charge and freeze-up protection
 - Automatic reset

FEATURES

REFRIGERATION SYSTEM (continued)

- 5 Expansion Valve - Outdoor Unit**
 - Designed and sized for heat pump systems
 - Sensing bulb senses evaporator suction temperature during heating cycle
- 6 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 unit of the system
 - Factory installed
- 7 High-Capacity Liquid Line Drier**
 - Factory installed in the liquid line
 - Drier traps moisture or dirt
 - 100% molecular-sieve, bead type, bi-flow drier

Optional Accessories

Check/Expansion Valve Kits

- Field installed on certain indoor units
- See TXV Usage table
- Chatleff style fitting

Freezestat

- Installs on or near the vapor line of the indoor coil or on the suction line
- Senses suction line temperature
- Cycles compressor off when suction line temperature falls below its 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

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

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

COMPRESSOR

- 8 Scroll Compressor**
 - High efficiency with uniform suction flow
 - Constant discharge flow, high volumetric efficiency and quiet operation
 - Low gas pulses during compression reduces operational sound levels
 - Compressor motor is internally protected from excessive current and temperature
 - Muffler in discharge line reduces operating sound levels
 - Compressor is installed in the unit on resilient rubber mounts for vibration free operation



Scroll 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

Crankcase Heater

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

- 9 Compressor Sound Cover**

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

FEATURES

CONTROLS

10 iComfort® Communicating Control

- Advanced control communicates information about various operating parameters in the air conditioner to the optional iComfort® Communicating Thermostat to constantly maintain the highest level of comfort, performance and efficiency available



- Connections for connecting a conventional heating/cooling thermostat are also provided on the control
- Auto Configuration - On start-up the control automatically sends a description of the unit to the optional iComfort® Communicating Thermostat to automatically configure the number of stages and features available

Seven-Segment Display

- Seven-segment display shows information about outdoor unit type and capacity and also displays alerts for common fault conditions (electrical and mechanical)
- Control also features:
 - Compressor anti-short cycle delay (5 minutes)
 - High and low pressure switch monitoring with provisions for lockout
 - Five-Strike lockout protection protects compressor
 - Discharge line and sensor monitoring
 - Fan cycling operates outdoor fan for 5 minutes when outdoor ambient air temperature is between 15°F and 35°F and the compressor has been off for 25 to 30 minutes
 - Reduces the potential for ice buildup on the fan orifice ring. User selectable 5 minutes on or off (default setting)
 - Lennox Humiditrol® Whole Home Dehumidification System (EDA) compatible
 - EEPROM storage of all local configurations

Outdoor Air Temperature Sensor

- Used with iComfort® Communicating Thermostats
- Sensor allows thermostat to display outdoor temperature
- Sensor is auto-detected when connected to thermostat
- Also used for dual-fuel and Humiditrol® applications

IntelliFrost™ Adaptive Defrost Control

- Prevents frost build-up on the outdoor coils
- Uses outdoor ambient temperature, coil temperature, and compressor run-time input to initiate the defrost cycle
- Defrost control jumper settings are 50°F, 70°F, 90°F and MAX
- Default setting is 50°F
- Auto ON and Auto OFF defrost controls are based on the control's jumper setting:
 - If Auto OFF is set, the defrost cycle will run based on a fixed jumper setting of 50°F, 70°F, 90°F or MAX
 - If Auto ON is set, the defrost cycle will run based on the following:
 - Initial Unit Power-up or Cooling Demand
 - The defrost cycle will run based on the jumper setting after the unit's first power-up or first defrost cooling demand
 - Accumulated Heating Run-Time Between Defrost Cycles
 - If heating runtime is equal to or less than 50 minutes, the defrost control setting will increase at the next defrost cycle based on the jumper setting
 - Example: If the jumper setting is 50°F or 70°F, the next defrost cycle will run at 90°F. If jumper setting is 90°F or MAX, the next defrost cycle will run at MAX.
 - If heating runtime is more than 60 minutes between defrost cycles and the jumper setting is 50°F, 70°F or 90°F, the defrost control setting for the next defrost cycle will run based on the jumper setting
 - Example: If the jumper setting is MAX, the next defrost cycle will decrease to 90°F.
 - If MAX is set, the defrost cycle will always operate at the MAX setting when accumulated compressor OFF time is longer than 30 minutes and ambient temperature is less than 35°F
 - If the ambient sensor temperature is higher than 40°F and the jumper is set to MAX, the defrost cycle will run at 90°F.
 - If the jumper is set at 50°F, 70°F or 90°F, the defrost cycle will run based on the jumper setting

FEATURES

CONTROLS (continued)

Optional Accessories

iComfort® S30 Ultra-Smart Wi-Fi Thermostat (part of the iComfort® Residential Communicating Control System)

- Recognizes and connects to all iComfort® Communicating products to automatically configure and control the heating/cooling system (based on user-specified settings) for the highest level of comfort, performance and efficiency
- Recognizes model and serial number information for iComfort® Communicating products to simplify system setup
- Wi-Fi remote temperature 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 alerts and reminders sent via text message or e-mail
- Dealer Dashboard features online real-time monitoring of installed iComfort® Communicating systems
- Simple easy-to-use touchscreen allows complete system configuration
- Scheduled maintenance alerts, system warnings and troubleshooting are also displayed on thermostat screen
- Easy to read 7 inch high definition color display (measured diagonally)
- Conventional outdoor units (not iComfort® Communicating) can easily be added and controlled by the iComfort® S30 Thermostat
- Installer setup screens allow quick and simple system configuration without a manual, Installer can also run tests on complete system or individual components for easy maintenance and troubleshooting
- Serial communications bus (RSBus), with less wiring than a conventional heating/cooling system, allows system communication
- Uses 4-wire, 18-gauge standard thermostat wiring
- High Definition Color Display with Subbase, Smart Hub Controller, wallplate (for retrofit installations) furnished for easy installation



NOTE - See the iComfort® S30 Thermostat Product Specifications bulletin in the Controls section for more information.

Thermostat

- Thermostat is not furnished with unit
- See Lennox Price Book for selection

Compressor Hard Start Kit

- Single-phase units are equipped with a PSC compressor motor
- A PSC compressor motor does not normally need a potential relay and start capacitor
- In cases of 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

NOTE - Required if outdoor unit is used with a conventional heating-cooling thermostat and air handler (not iComfort® Communicating control). See furnace or air handler specifications to determine if relay is needed.

Low Ambient Kit

- Air conditioners can operate down to 45°F outdoor air temperature without additional controls
- Allows unit to operate properly down to 30°F

NOTE - Crankcase heater and freeze-stat should be installed on compressors equipped with a low ambient kit.

NOTE - A Compressor Low Ambient Cut-Off should be added to terminate compressor operation below recommended operation conditions.

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 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

FEATURES

CABINET

- 11 • Heavy-gauge steel construction
- Pre-painted cabinet finish
- Louvered heavy gauge steel panels surround unit on all four sides
- Control box is conveniently located with all controls factory wired
- Large removable panel provides service access
- Drainage holes are provided in base section for moisture removal
- 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

12 **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



13 **Refrigerant Line Connections, Electrical Inlets and Service Valves**

- Suction and liquid lines are located on corner of unit cabinet and are made with sweat connections
- 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
- Suction and liquid line service valves and gauge ports are located inside the cabinet
- Refrigerant line connections and field wiring inlets are located in one central area of the cabinet
- See dimension drawing

Optional Accessories

Snow Guards

- 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
- Prevents build-up on the fan guard

SPECIFICATIONS

General Data		Model No.	SL18XP1 -024	SL18XP1 -030	SL18XP1 -036	SL18XP1 -042	SL18XP1 -048	SL18XP1 -060
Nominal Tonnage			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
	Vapor (Suction) line (o.d.) - in.		3/4	3/4	7/8	7/8	7/8	1-1/8
Refrigerant	¹ R-410A charge furnished		8 lbs. 6 oz.	8 lbs. 10 oz.	9 lbs. 14 oz.	9 lbs. 11 oz.	11 lbs. 0 oz.	10 lbs. 5 oz.
Outdoor Coil	Net face area	Outer coil	20.73	20.73	23.33	23.33	27.21	27.21
		Inner coil	20.08	20.08	22.60	22.60	26.36	26.36
	Tube diameter - in.		5/16	5/16	5/16	5/16	5/16	5/16
	No. of rows		2	2	2	2	2	2
		Fins per inch	22	22	22	22	22	22
Outdoor Fan	Diameter - in.		26	26	26	26	26	26
	No. of blades		3	3	3	3	3	3
	Motor hp		1/3	1/3	1/3	1/3	1/3	1/3
	Cfm		2600	2800	3650	3650	4000	4300
	Rpm		730	800	800	800	800	875
	Watts		65	85	160	160	160	200
Shipping Data - lbs. 1 pkg.			253	257	271	294	319	321

ELECTRICAL DATA

Line voltage data - 60hz - 1 ph		208/230V	208/230V	208/230V	208/230V	208/230V	208/230V
² Maximum overcurrent protection (amps)		25	30	35	40	45	60
³ Minimum circuit ampacity		20.0	20.0	22.0	25.2	26.8	32.4
Compressor	Rated load amps	10.9	13.5	15.4	17.9	19.2	23.7
	Locked rotor amps	59.3	72.5	83.9	112.0	117.0	152.5
	Power factor	0.98	0.98	0.98	0.97	0.97	0.98
Outdoor Fan Motor	Full load amps	2.8	2.8	2.8	2.8	2.8	2.8

CONTROLS

iComfort® S30 Thermostat	12U67	•	•	•	•	•	•
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OPTIONAL ACCESSORIES - ORDER SEPARATELY

Compressor Hard Start Kit	88M91	•	•	•	•	•	•
Compressor Low Ambient Cut-Off	45F08	•	•	•	•	•	•
Freezestat	3/8 in. tubing	93G35	•	•	•	•	•
	5/8 in. tubing	50A93	•	•	•	•	•
⁴ Low Ambient Kit	68M04	•	•	•	•	•	•
Indoor Blower Off Delay Relay	58M81	•	•	•	•	•	•
Mild Weather Kit	11B97	•	•	•	•	•	•
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						•
⁵ Snow Guards	X8782	•	•	•	•	•	•

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.

² HACR type breaker or fuse.

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

⁴ Compressor Low Ambient Cut-Off and Freezestat are recommended with Low Ambient Kit.

⁵ Adds 11-1/2 inches (292 mm) to unit height.

FIELD WIRING

A - Two Wire Power

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

C - iComfort® Communicating Thermostat:

- Four Wire, 18AWG (RSBus)

C - Conventional Thermostat:

- Eight Wire Low Voltage, 18AWG

- Ten Wire Low Voltage, 18AWG with Optional Outdoor Thermostat

D - iComfort® Communicating Thermostat:

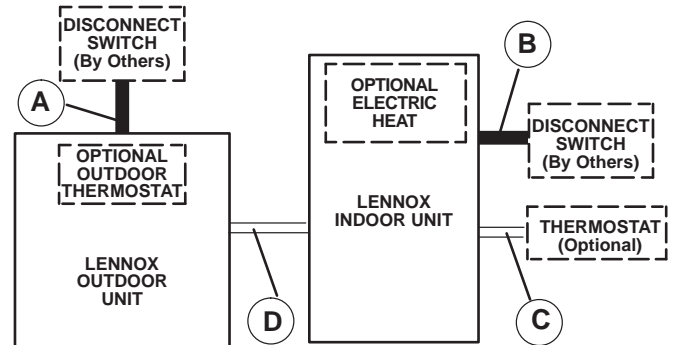
- Two Wire, **18AWG** (RSBus) unshielded thermostat cable for low voltage **Smart Hub power terminals** (R, C, + and -)

- Two Wire, **18 to 22AWG** (RSBus) shielded thermostat cable recommended for **Smart Hub communications terminals** (I+, I-, A and B)

D - Conventional Thermostat:

- Twelve Wire Low Voltage, 18AWG

- Fourteen Wire Low Voltage, 18AWG with Optional Outdoor Thermostat



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

NOTE - Field wiring is not furnished.

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	53	60.3	62.7	61.3	58.4	50.9	44.3	67	60	55	49	46	35
030	56	59.1	65	65.1	59.9	52.7	48.7	69	62	57	51	48	37
036	58.2	62.8	65.6	65.7	59.9	53.4	46.3	70	63	58	52	49	38
042	55.7	61.9	64.7	62.9	60.3	53.8	50.6	70	63	58	52	49	38
048	56.4	61	64.8	65.4	60.1	52.9	47.9	70	63	58	52	49	38
060	57.2	61.8	64.6	62.6	59.4	53.2	48.2	73	66	61	55	52	41

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

NOTE:

One of these three sides must be 36 in. (914 mm)

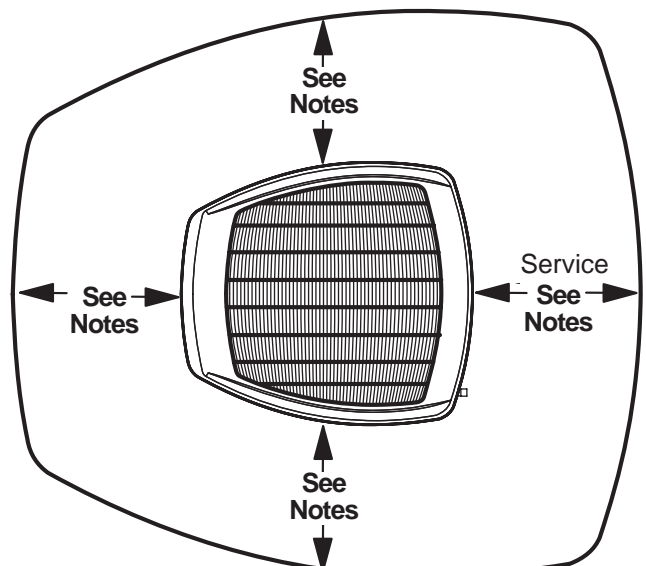
One of the two remaining sides may be 12 in. (305 mm)

The remaining side may be 6 in. (152 mm)

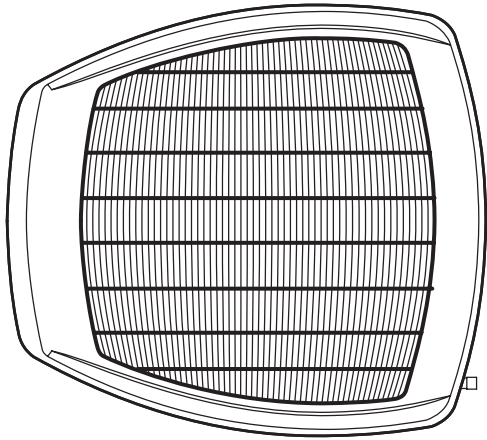
Service Clearance - 30 in. (762 mm)

48 in. (1219 mm) clearance required on top of unit

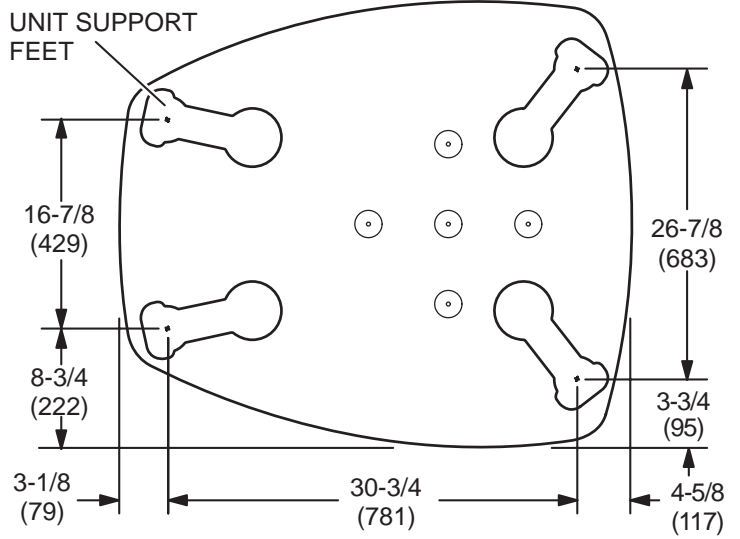
24 in. (610 mm) required between two units



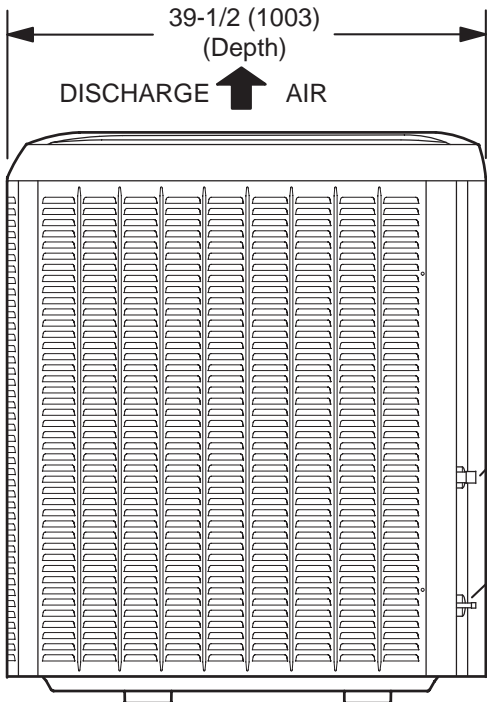
DIMENSIONS - UNIT



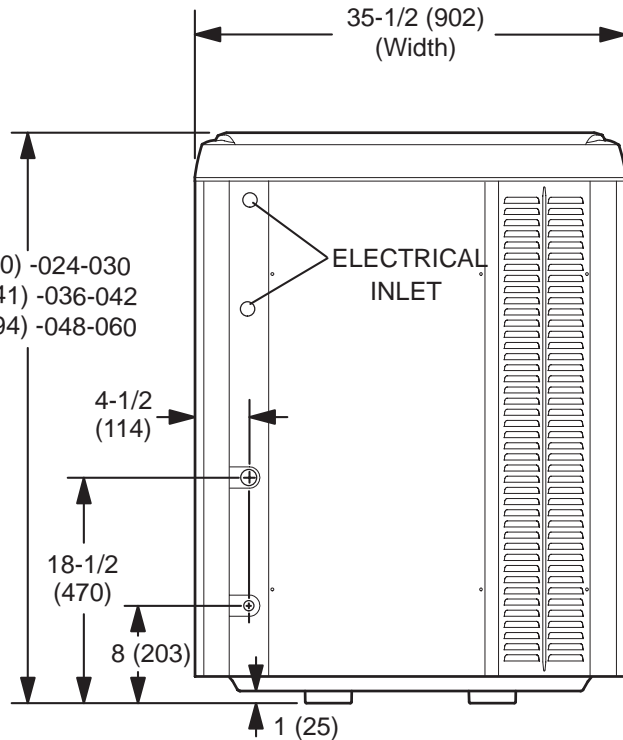
TOP VIEW



**TOP VIEW BASE SECTION
(Large Base)**



SIDE VIEW



ACCESS VIEW

TXV USAGE

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

Model No.	Order No.
SL18XP1-024	12J18
SL18XP1-030	12J18
SL18XP1-036	12J19
SL18XP1-042	12J20
SL18XP1-048	12J20
SL18XP1-060	12J20

CX35 and CHX35 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 by size. The correct TXV must be ordered separately and field installed.

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

CH23 and CR33 - Use the expansion valve listed.

TXV SUBSTITUTION

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

Outdoor Unit		Indoor Unit		TXV	TXV
Size	Tons	Size	Tons	Furnished	Replacement
030	2.5	43	3.5	12J20	12J18
030	2.5	50/60	4	12J20	12J18

TXV Ranges:

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

12J19 - 3 ton systems - Use down to 2 ton systems.

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

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.

REVISIONS

Sections	Description of Change
Most Popular Matches	Section removed.



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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