



**LPS13DC**  
DRY CHARGE UNITS

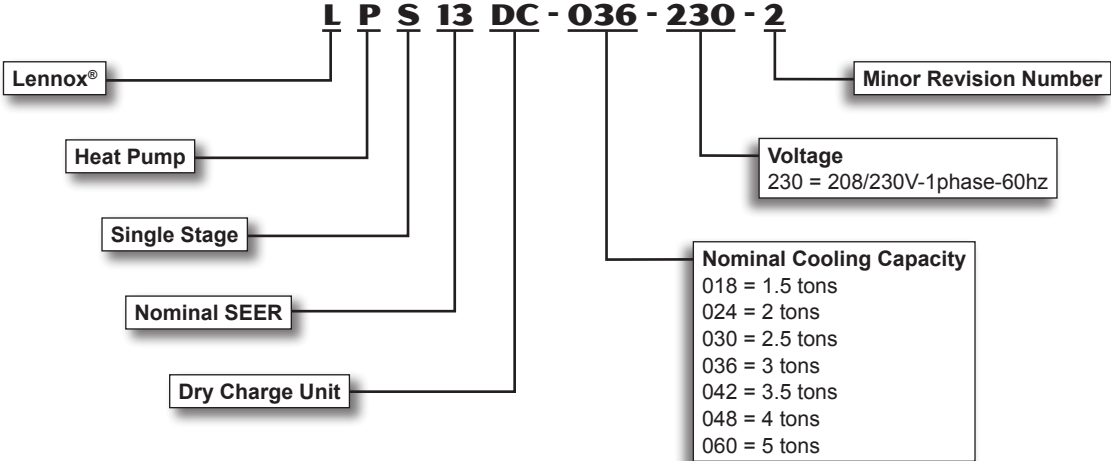
**PRODUCT SPECIFICATIONS**

Bulletin No. 210637  
June 2014  
Supersedes June 2012



**1.5 to 5 Tons**

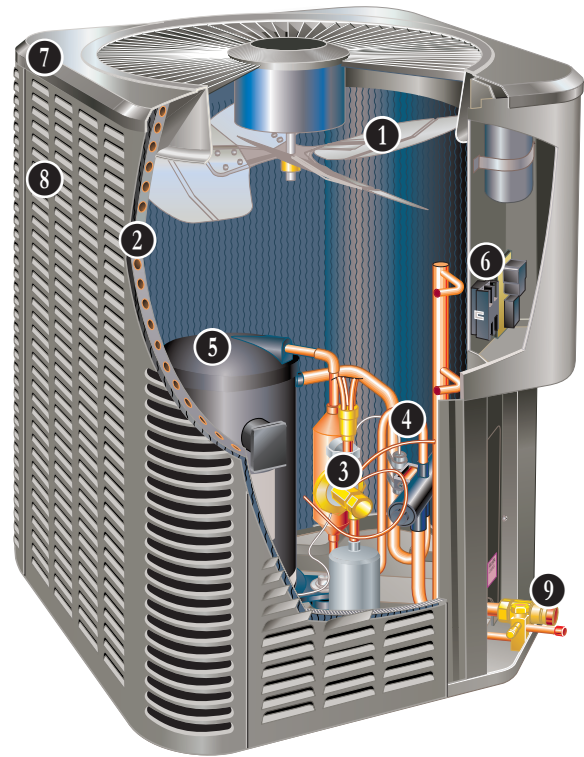
**MODEL NUMBER IDENTIFICATION**



## FEATURES

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### WARRANTY

**Compressor** - Limited five year warranty 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.

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

Units are UL and ULC listed.

ISO 9001 Registered Manufacturing Quality System.

### APPLICATIONS

Nitrogen (dry) charged for replacement of R-22 components only.

1.5 through 5 tons.

Single phase power supply.

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

Designed for applications with remotely located indoor air handler units or gas furnaces with indoor add-on coils.

When heat pumps are used with gas furnaces, a dual-fuel control (i.e. FM21) or a control system with dual-fuel capabilities (i.e. Harmony III, LZP-2 or LZP-4) must be used (order separately).

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

Installer must set outdoor unit, connect refrigerant lines and make electrical connections to complete job.

## FEATURES

### **REFRIGERATION SYSTEM**

#### **1 Outdoor Coil Fan**

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

Entire coil is accessible for cleaning.

#### **3 Expansion Valve - Outdoor Unit**

Designed and sized specifically for use in heat pump system.

Sensing bulb is located on the suction line between the reversing valve and the compressor to sense evaporator suction temperature in any cycle.

Factory installed and piped.

#### **High Capacity Liquid Line Drier**

Furnished with unit for field installation.

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

#### **4 Reversing Valve**

4-way interchange reversing valve effects a rapid change in direction of refrigerant flow resulting in quick changeover from cooling to heating and vice versa.

Valve operates on pressure differential between outdoor unit and indoor unit of the system. Factory installed.

### **Optional Accessories**

#### **Check/Expansion Valve Kits**

Must be ordered separately and field installed on certain indoor units. See Specifications table.

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 it's setpoint.

Opens at 29°F and closes at 58°F.

#### **High Pressure Switch Kit**

Protects the system from high pressure conditions that can be a result of fan failure or a blocked/dirty coil.

Manual reset.

#### **Loss of Charge Kit**

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

SPST, normally - closed switch, automatic reset switch mounted on suction 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.

Not available for -060 models and must be field fabricated.

## FEATURES

### COMPRESSOR

#### 5 Scroll Compressor

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

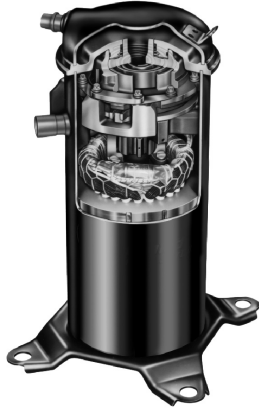
Scroll compressor is tolerant to the effects of slugging and contaminants. If this occurs, scrolls separate, allowing liquid or contaminants to be worked toward the center and discharged.

Low gas pulses during compression reduces operational sound levels.

Compressor motor is internally protected from excessive current and temperature.

Muffler in discharge line reduces operating sound levels.

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



### CONTROLS

#### 6 Defrost Control

Time/temperature defrost control is furnished as standard equipment.

Control initiates a defrost cycle every 30, 60 or 90 minutes of compressor "on" time at outdoor coil temperatures below 42°F (factory setting 90 minutes).

Anti-short cycle, timed-off control incorporated into the board.

High and low pressure switch monitoring with five-trip lockout.

Diagnostic LEDs furnished as an aid in troubleshooting. Conveniently located in control box.

### 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

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

#### Indoor Blower Off Delay Relay

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

#### Low Ambient Kit

Heat pump units will operate satisfactorily 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.

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.

#### Mild Weather Kit

Heat pump units operate satisfactorily in the heating mode at outdoor air temperatures up to 75°F.

Mild Weather Kit can be field installed, allowing heating operation above 75°F.

#### Monitor Kit - Service Light

Contains ambient compensating thermistor and service light thermostat.

For use with thermostats requiring input for indicator lights.

### 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

### **CONTROLS (continued)**

#### **Optional Accessories**

##### **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.

##### **Thermostat**

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

### **7 CABINET**

Heavy gauge steel cabinet with five station metal wash process.

- 8 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.

Painted base section.

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.

- 9 **Refrigerant Line Connections, Electrical Inlets, Service Valves**

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

Fully serviceable brass service valves prevent corrosion and provide access to refrigerant system. 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**

##### **Mounting Base**

Provides permanent foundation for outdoor units.

High density polyethylene structural material is lightweight, sturdy, sound absorbing and will withstand the rigors of the sun, heat, cold, moisture, oil and refrigerant. Will not mildew or rot.

Can be shipped singly or in packages of 6 to a carton.

##### **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.	LPS13DC -018	LPS13DC -024	LPS13DC -030	LPS13DC -036	LPS13DC -042	LPS13DC -048	LPS13DC -060
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
	Vapor line o.d. - in.		3/4	3/4	3/4	7/8	7/8	7/8	1-1/8
<sup>1</sup> Field Supplied R-22 Refrigerant Charge			6 lbs. 6 oz.	6 lbs. 3 oz.	6 lbs. 15 oz.	8 lbs. 10 oz.	12 lbs. 0 oz.	12 lbs. 6 oz.	14 lbs. 0 oz.
Outdoor Coil	Net face area	Outer coil	15.11	15.11	13.30	15.21	18.66	21.11	24.94
	sq. ft.	Inner coil	- - -	- - -	12.60	14.50	17.95	20.31	24.13
	Tube diameter - in.		5/16	5/16	5/16	5/16	5/16	5/16	5/16
	Number of rows		1	1	2	2	2	2	2
	Fins per inch		22	22	22	22	22	22	22
Outdoor Fan	Diameter - in. - No. of Blades		18 - 3	18 - 3	18 - 4	18 - 4	22 - 4	22 - 4	26 - 4
	Motor hp		1/5	1/5	1/5	1/5	1/3	1/3	1/3
	Cfm		2400	2400	2440	2450	3890	3890	4550
	Rpm		1130	1130	1095	1100	1080	1085	830
	Watts		166	166	194	190	400	375	307
Shipping Data - lbs. 1 package			156	156	168	187	220	233	270

## ELECTRICAL DATA

Line voltage data - 60 hz - 1ph		208/230V	208/230V	208/230V	208/230V	208/230V	208/230V	208/230V
<sup>2</sup> Maximum overcurrent protection (amps)		20	20	30	30	40	45	60
<sup>3</sup> Minimum circuit ampacity		12.3	14.6	18.3	20.4	25.7	29	33.4
Compressor	Rated load amps	8.9	10.8	14.1	15.4	19.2	21.8	25.3
	Locked rotor amps	41	56	72.5	87	112	137	148
	Power factor	0.98	0.96	0.96	0.96	0.95	0.96	0.96
Outdoor Fan Motor	Full load amps	1.1	1.1	1.1	1.1	1.7	1.7	1.8
	Locked rotor amps	1.9	1.9	1.9	1.9	4.1	4.1	2.9

## OPTIONAL ACCESSORIES - ORDER SEPARATELY

Check/Expansion Valve Kit	56J19	•	•	•				
	56J20				•	•	•	•
Compressor Crankcase Heater	93M05	•	•	•	•	•	•	•
Compressor Hard Start Kit	10J42	•	•	•	•	•		
	81J69						•	•
Compressor Low Ambient Cut-Off	45F08	•	•	•	•	•	•	•
Compressor Sound Cover	27W55	•	•	•	•			
	27W56					•	•	•
Freezestat	3/8 in. tubing	93G35	•	•	•	•	•	•
	5/8 in. tubing	50A93	•	•	•	•	•	•
High Pressure Switch Kit	94J46	•	•	•	•	•	•	•
Indoor Blower Off Delay Relay	58M81	•	•	•	•	•	•	•
Loss of Charge Kit	84M23	•	•	•	•	•	•	•
<sup>4</sup> Low Ambient Kit	27J00	•	•	•	•	•	•	•
Mild Weather Kit	33M07	•	•	•	•	•	•	•
Monitor Kit - Service Light	76F53	•	•	•	•	•	•	•
Mounting Base	69J06	•	•	•	•			
	69J07					•	•	•
Outdoor Thermostat Kit	Thermostat	56A87	•	•	•	•	•	•
	Mounting Box	31461	•	•	•	•	•	•
Refrigerant Line Sets	L15-41-20, L15-41-30, L15-41-40, L15-41-50		•	•	•			
	L15-65-30, L15-65-40, L15-65-50				•	•	•	
	Field Fabricate							•
Unit Stand-Off Kit	94J45	•	•	•	•	•	•	•

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

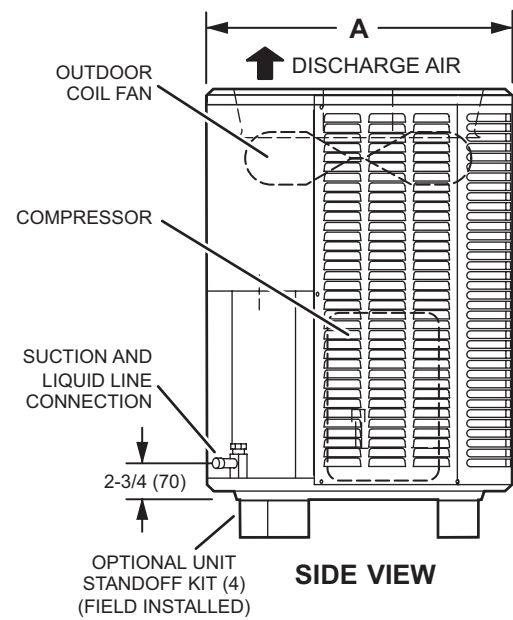
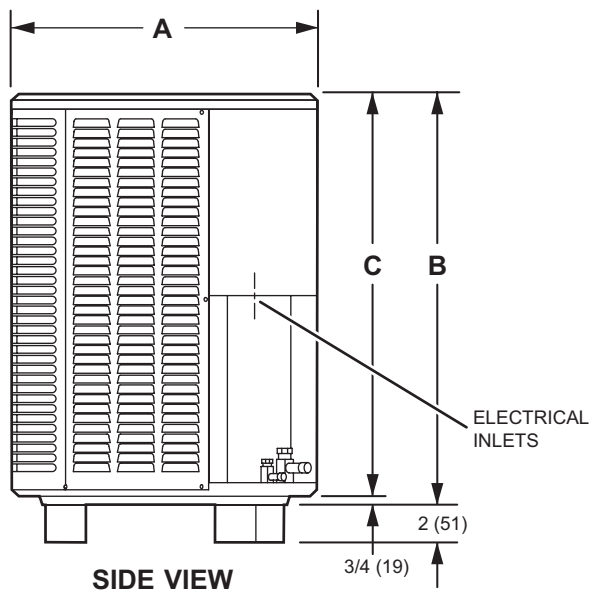
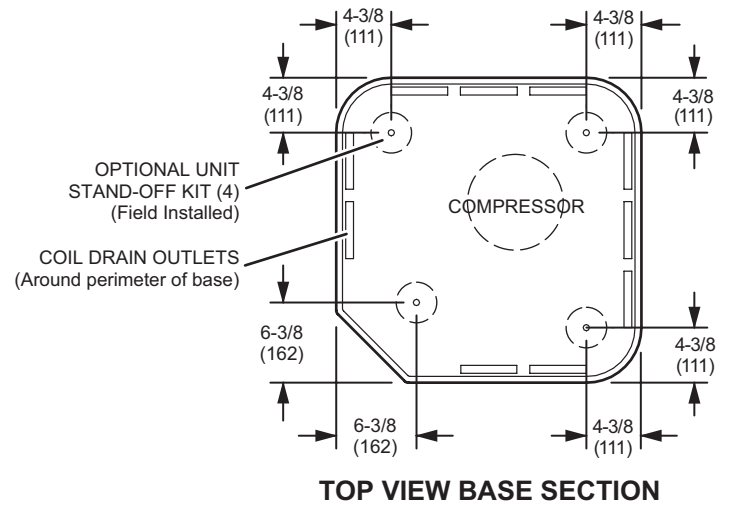
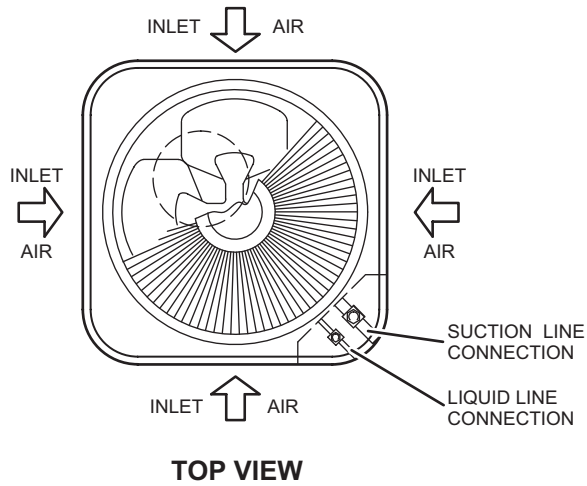
<sup>1</sup> Units are factory shipped with dry nitrogen holding charge.

<sup>2</sup> HACR type circuit breaker or fuse.

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

<sup>4</sup> Crankcase Heater and Freezestat are recommended with Low Ambient Kit.

## DIMENSIONS - INCHES (MM)



Model No.	A		B		C	
	inches	mm	inches	mm	inches	mm
LPS13DC-018	24-1/4	616	33-1/4	845	32-1/2	826
LPS13DC-024	24-1/4	616	33-1/4	845	32-1/2	826
LPS13DC-030	24-1/4	616	29-1/4	749	28-1/2	724
LPS13DC-036	24-1/4	616	33-1/4	845	32-1/2	826
LPS13DC-042	28-1/4	718	33-1/4	845	32-1/2	826
LPS13DC-048	28-1/4	718	37	940	36-1/4	921
LPS13DC-060	32-1/4	819	37	940	36-1/4	921

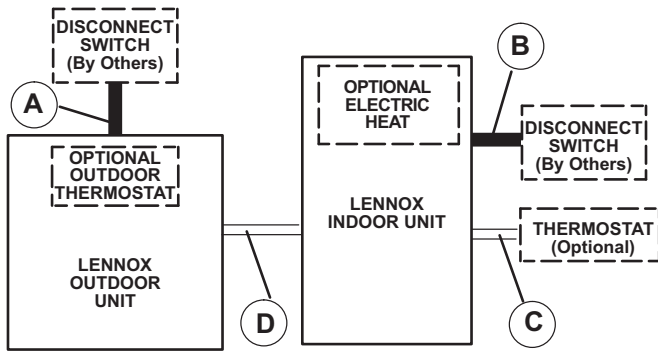
## SOUND DATA

<sup>1</sup> Unit Model No.	Octave Band Sound Power Levels dBA, re 10 <sup>-12</sup> Watts Center Frequency - HZ							<sup>1</sup> Sound Rating Number (dB)
	125	250	500	1000	2000	4000	8000	
LPS13DC-018	70.5	67	68	67	65.5	60.5	57.5	76
LPS13DC-024	67.5	66.5	69.5	70	66.5	60.5	56	76
LPS13DC-030	70.5	69.5	71.5	72.5	67.5	63.5	60	76
LPS13DC-036	69.5	70.5	71.5	69.5	68.5	62.5	60.5	76
LPS13DC-042	75.5	79.5	79.5	75.5	70	63.5	58.5	80
LPS13DC-048	75.5	74.5	75	73.5	70	66.5	63.5	80
LPS13DC-060	76	76.5	76.5	74.5	69.5	66	61.5	80

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

<sup>1</sup> Tested according to AHRI Standard 270-2008 test conditions.

## FIELD WIRING



A - Two Wire Power (see Electrical Data)

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

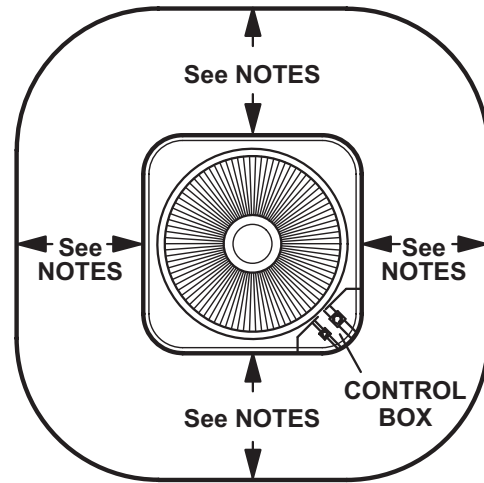
C - Twelve Wire Low Voltage 18 ga. minimum  
Fourteen Wire Low Voltage with Optional Outdoor Thermostat

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.

## 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.





## REVISIONS

Sections	Description of Change
Electrical Data	Updated to reflect latest nameplate information.
Refrigeration System	Filter/Drier now shipped with unit for field installation.
Specifications	Updated field charge to reflect latest nameplate information.



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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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