



AIR CONDITIONERS

**LCS13DC
DRY CHARGE UNITS**

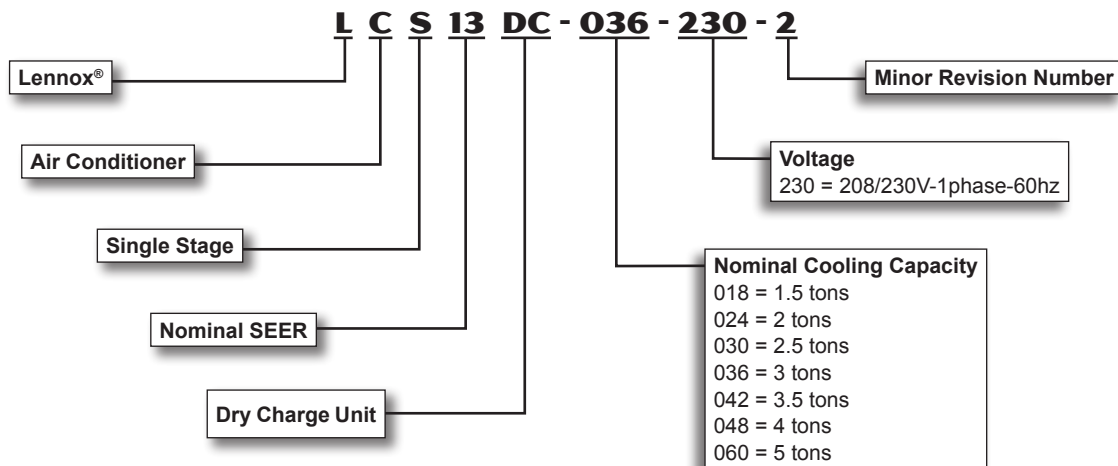
PRODUCT SPECIFICATIONS

Bulletin No. 210636
May 2014
Supersedes March 2012



1.5 to 5 Tons

MODEL NUMBER IDENTIFICATION



FEATURES

CONTENTS

Dimensions	6
Electrical Data	5
Features	2
Field Wiring	7
Installation Clearances	7
Model Number Identification	1
Optional Accessories	5
Sound Data	7
Specifications	5

EQUIPMENT WARRANTY

Compressor - Limited warranty for five years in residential installations and one year in non-residential installations.

All other covered components - Limited 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/ULC listed and CSA certified.

ISO 9001 Registered Manufacturing Quality System.

APPLICATIONS

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

1.5 through 5 ton.

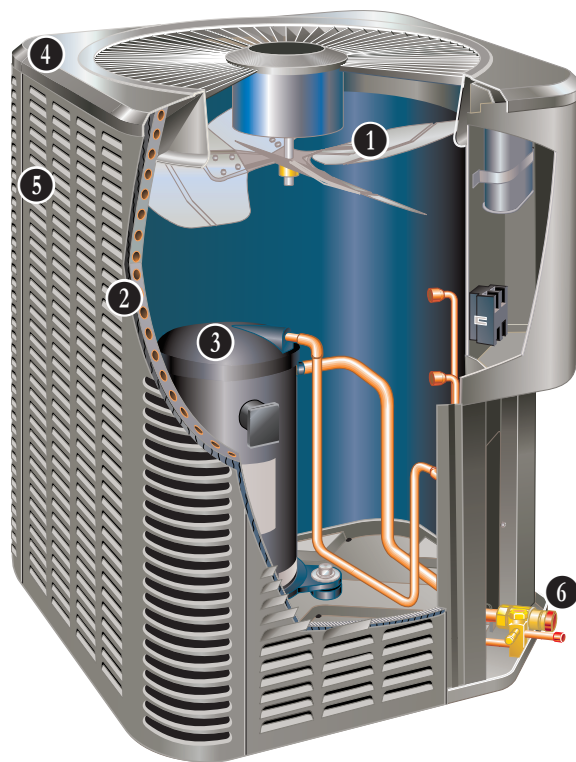
Single-phase power supply.

Sound levels as low as 76 dB.

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

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.



REFRIGERATION SYSTEM

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.

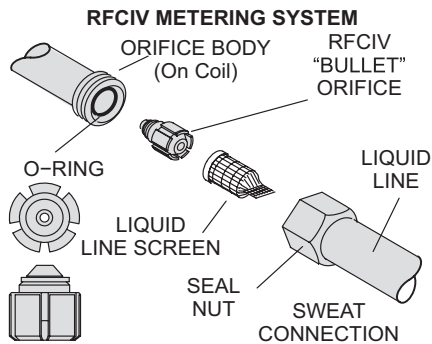
Entire coil is accessible for cleaning.

FEATURES

REFRIGERATION SYSTEM (continued)

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.

Furnished with air conditioner. See Specifications table for orifice size furnished.

Hi-Capacity Liquid Line Drier

Furnished with unit for field installation.

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

Optional Accessories

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 its 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 Switch 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. Must be field fabricated.

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.

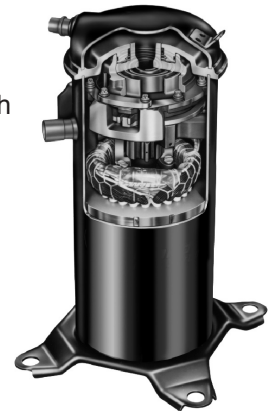
Continuous flank contact, maintained by centrifugal force, minimizes gas leakage and maximizes efficiency.

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.



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

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.

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.

Low Ambient Kit

Air conditioners operate satisfactorily down to 45°F outdoor air temperature without any additional controls. Low Ambient Control Kit can be field installed, allowing unit operation down to 30°F.

Thermostat

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

4 CABINET

Heavy gauge steel cabinet with five station metal wash process.

5

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.

6

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

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.	LCS13DC -018	LCS13DC -024	LCS13DC -030	LCS13DC -036	LCS13DC -042	LCS13DC -048	LCS13DC -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
	Suction line o.d. - in.		3/4	3/4	3/4	7/8	7/8	7/8	1-1/8
¹ Field Supplied R-22 Refrigerant Charge			3 lbs. 13 oz.	4 lbs. 3 oz.	4 lbs. 13 oz.	5 lbs. 12 oz.	6 lbs. 6 oz.	7 lbs. 8 oz.	10 lbs. 0 oz.
RFCIV Metering Orifice Size			0.055	0.062	0.067	0.076	0.080	0.089	0.099
Outdoor Coil	Net face area sq. ft.	Outer coil	11.33	11.33	15.11	15.11	16.33	21.00	18.67
		Inner coil	---	---	---	---	---	---	17.96
	Tube diameter - in.	5/16	5/16	5/16	5/16	5/16	5/16	5/16	5/16
	Number of rows	1	1	1	1	1	1	1	2
	Fins per inch	26	26	26	26	26	26	26	22
Outdoor Fan	Diameter - in.		18	18	18	18	22	22	22
	Number of blades		3	3	3	3	4	4	4
	Motor hp		1/10	1/10	1/5	1/5	1/4	1/4	1/4
	Cfm		2350	2350	2500	2500	3500	3670	3600
	Rpm		1010	1010	1110	1110	825	835	830
	Watts		165	165	180	180	300	295	285
Shipping Data - lbs. 1 package			120	121	140	141	171	191	216

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)		15	20	30	30	40	40	60
³ Minimum circuit ampacity		10.4	13.7	18.7	19.1	25.7	25.7	33.3
Compressor	Rated load amps	7.7	10.4	14.1	14.4	19.2	19.2	26.1
	Power factor	0.98	0.96	0.96	0.96	0.98	0.94	0.96
	Locked rotor amps	40	54	67	77	112	97	157
Condenser Fan Motor	Full load amps	0.7	0.7	1.1	1.1	1.7	1.7	1.7
	Locked rotor amps	1.4	1.4	1.9	1.9	3.1	3.1	3.1

OPTIONAL ACCESSORIES - ORDER SEPARATELY

Compressor Crankcase Heater	93M04	•	•	•	•			
	93M05					•	•	•
Compressor Hard Start Kit	10J42	•	•	•	•	•	•	
	81J69							•
Compressor Low Ambient Cut-Off	45F08	•	•	•	•	•	•	•
Compressor Sound Cover	27W55	•	•	•	•			
	27W56					•	•	•
Compressor Time-Off Control	47J27	•	•	•	•	•	•	•
Expansion Valve	26K34	•	•	•	•			
	26K35					•	•	
	91M01							•
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 Switch Kit	84M23	•	•	•	•	•	•	•
Low Ambient Kit	24H77	•	•	•	•	•	•	•
Mounting Base	69J06	•	•	•	•			
	69J07					•	•	•
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	•	•	•	•	•	•	•

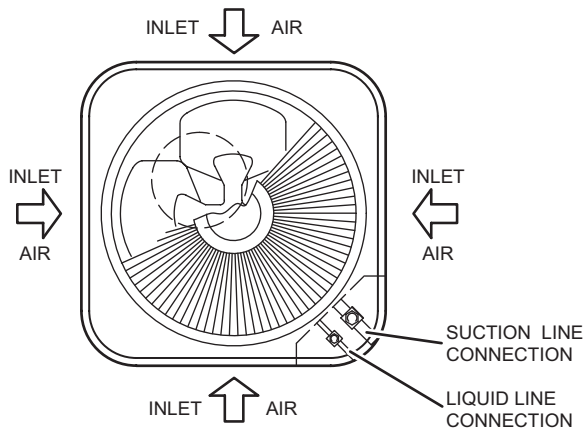
NOTE - Extremes of operating range are plus 10% and minus 5% of line voltage.

¹ Units are factory shipped with dry nitrogen holding charge.

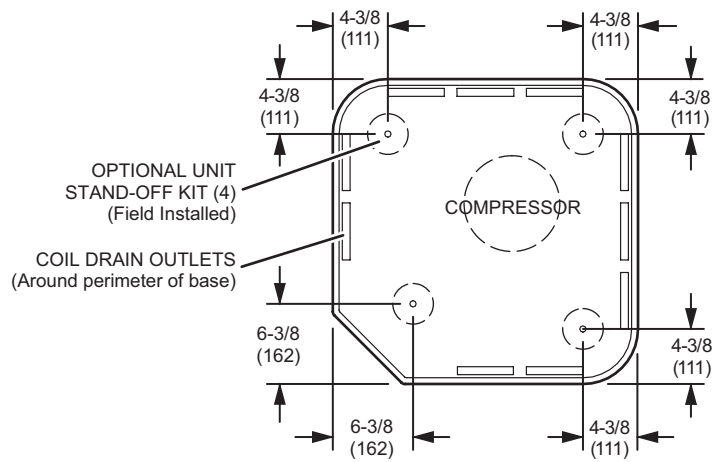
² HACR type circuit breaker or fuse.

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

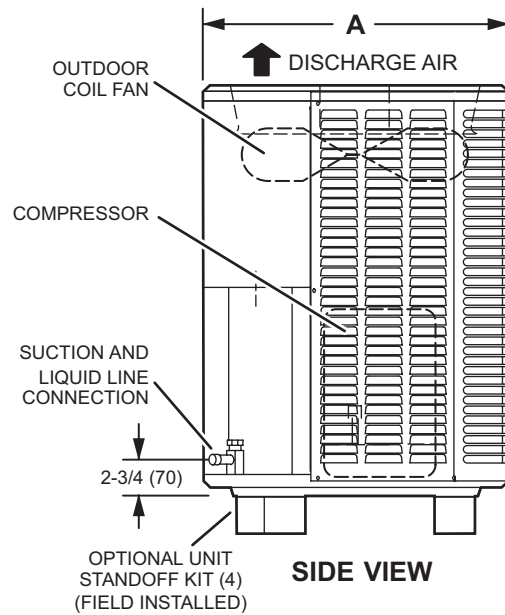
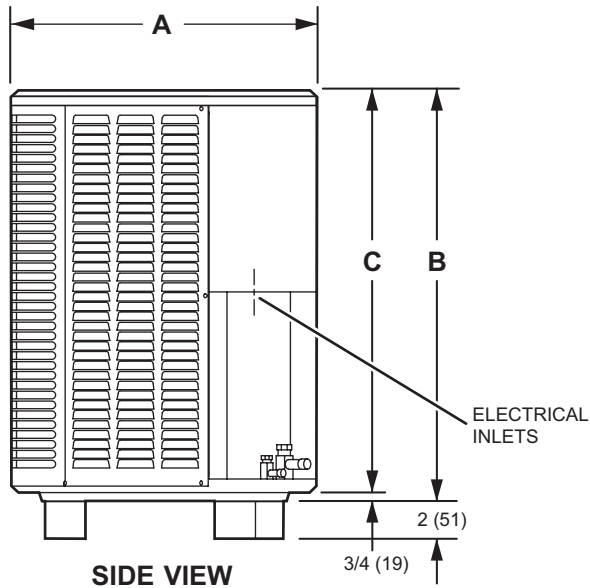
DIMENSIONS - INCHES (MM)



TOP VIEW

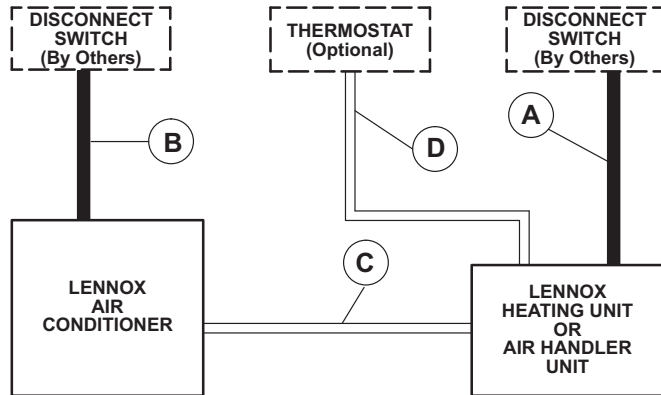


TOP VIEW BASE SECTION



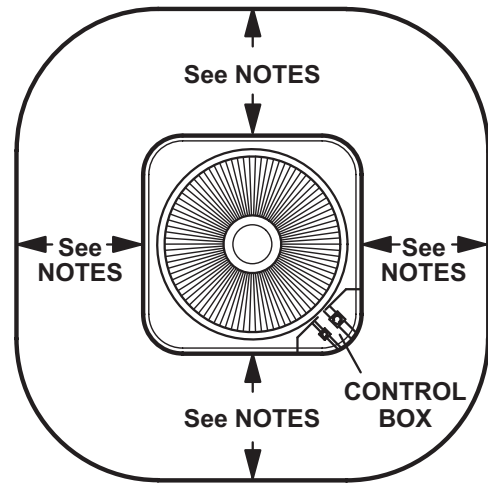
Model No.	A		B		C	
	inches	mm	inches	mm	inches	mm
LCS13DC-018	24-1/4	616	25-1/4	641	24-1/2	622
LCS13DC-024	24-1/4	616	25-1/4	641	24-1/2	622
LCS13DC-030	24-1/4	616	33-1/4	845	32-1/2	826
LCS13DC-036	24-1/4	616	33-1/4	845	32-1/2	826
LCS13DC-042	28-1/4	718	29-1/4	743	28-1/2	724
LCS13DC-048	28-1/4	718	37-1/4	946	36-1/2	927
LCS13DC-060	28-1/4	718	33-1/4	845	32-1/2	826

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.

SOUND DATA

¹ Unit Model No.	Octave Band Linear Sound Power Levels dB, re 10 ⁻¹² WattsCenter Frequency - HZ							¹ Sound Rating Number (dB)
	125	250	500	1000	2000	4000	8000	
LCS13DC-018	70.5	70.5	69	68.5	66	60.5	55.5	76
LCS13DC-024	71	67	70	69	68.5	61.5	56.5	76
LCS13DC-030	68.5	67.5	69	72	68	62	59	76
LCS13DC-036	70.5	67.5	69.5	72.5	69.5	63	59	76
LCS13DC-042	73.5	73	75	74	72	68	63.5	79
LCS13DC-048	73.5	76	76	76.5	72.5	69.5	64.5	79
LCS13DC-060	73.5	74.5	77	75	72	69	64.5	79

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

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

REVISIONS

Sections	Description of Change
Refrigeration System	Filter/Drier now shipped with unit for field installation.



Visit us at www.lennox.com

For the latest technical information, www.lennox.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.

©2014 Lennox Industries, Inc.