AIR CONDITIONERS

XC25

DAVE LENNOX *SIGNATURE*® COLLECTION
Variable Capacity - Precise Comfort® Technology

RESIDENTIAL
PRODUCT SPECIFICATIONS

Bulletin No. 210844
February 2019
Supersedes January 2018

* iComfort® S30
Ultra-Smart Wi-Fi
Communicating Thermostat

DAVE LENNOX signature® COLLECTION

iComfort®
So simple. So smart. So comfortable.

ENERGY STAR

SEER up to 26.50
2 to 5 Tons
Cooling Capacity - 22,000 to 55,000 Btuh

MODEL NUMBER IDENTIFICATION

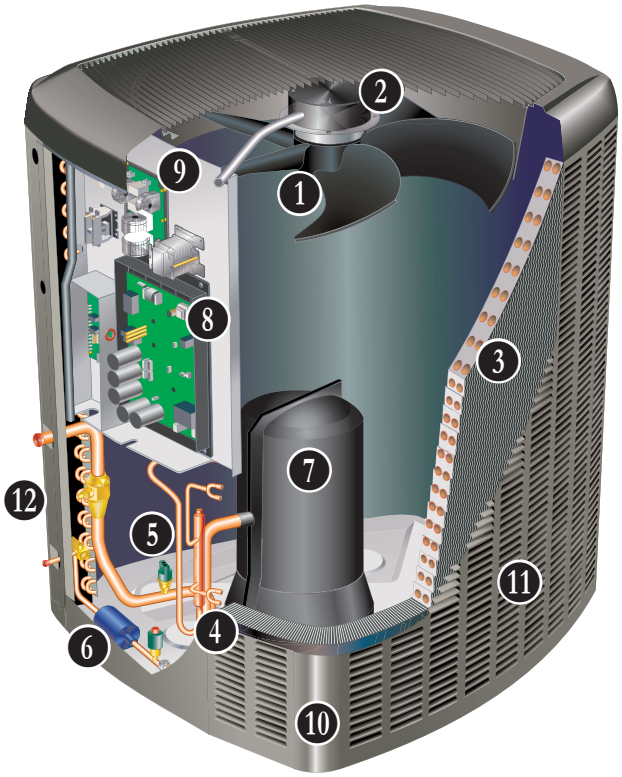
X C 25 - 036 - 230 - 1

- **Refrigerant Type**
  X = R-410A
- **Unit Type**
  C = Air Conditioner
- **Series**
- **Nominal Cooling Capacity**
  024 = 2 tons
  036 = 3 tons
  048 = 4 tons
  060 = 5 tons
- **Voltage**
  230 = 208/230V-1ph-60hz
- **Minor Revision Number**

* iComfort® S30 Ultra-Smart Wi-Fi Communicating Thermostat required. Not furnished - Order separately.

FEATURE HIGHLIGHTS

1. Outdoor Coil Fan with SilentComfort™ Technology
2. Variable-Speed Outdoor Coil Fan Motor With Integrated Control
3. Copper Tube/Enhanced Fin Coil
4. High Pressure Switch
5. Low Pressure Switch
6. High Capacity Liquid Line Drier
7. Variable Capacity Scroll Compressor
8. DC Inverter Control
9. iComfort® Communicating Control
10. Heavy Gauge Steel Cabinet
11. SmartHinge™ Louvered Coil Protection
12. Refrigerant Line Connections and Access



NOTE - XC25 MODELS CAN ONLY BE MATCHED WITH ICOMFORT®-ENABLED VARIABLE-SPEED INDOOR FURNACES AND AIR HANDLERS.

NOTE - XC25 MODELS CAN ONLY BE USED WITH AN ICOMFORT® COMMUNICATING THERMOSTAT.

CONTENTS

Approvals And Warranty . . . 3
Dimensions - Unit . . . 9
Electrical Data . . . 7
Features . . . 3
Field Wiring . . . 8
Installation Clearances . . . 8
Optional Accessories - Order Separately . . . 7
Sound Data . . . 8
Specifications . . . 7
TXV Usage . . . 10

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 59 dBA
- Single phase power supply
- Applicable to indoor air handlers or gas furnaces with indoor add-on coils
- Shipped completely factory assembled, piped and wired

NOTE - The XC25 can only be matched with iComfort®-enabled variable-speed indoor furnaces and air handlers.

REFRIGERATION SYSTEM

R-410A Refrigerant

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

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
- Specially designed fan blades reduce operating sound levels
- Direct drive fan moves large air volumes uniformly through entire condenser coil for high refrigerant cooling capacity
- Vertical air discharge
- Fan service access accomplished by removal of fan guard

2 Variable-Speed Outdoor Coil Fan Motor With Integrated Control

- Programmed for variable capacity operation
- Fan speed is directly controlled by the iComfort® communications between the outdoor unit iComfort® control and the iComfort® thermostat
- Fan motor is inherently protected
- Totally enclosed fan motor

3 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
- Entire coil is accessible for cleaning

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
- Provides loss of charge and freeze-up protection
- Automatic reset

FEATURES

REFRIGERATION SYSTEM (continued)

6 Hi-Capacity Liquid Line Drier
- Factory installed in the liquid line, the drier traps moisture or dirt that could contaminate the refrigerant system
- 100% molecular-sieve bead type drier

Optional Accessories

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

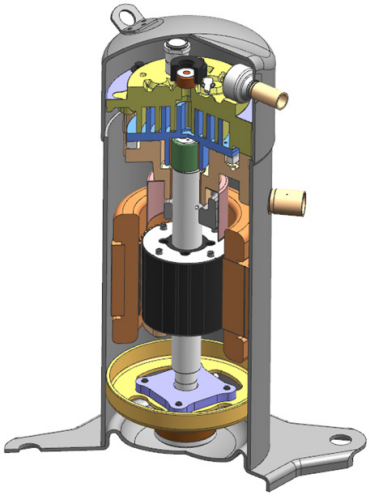
NOTE - Not available for -060 models. Must be field fabricated.

NOTE - The XC20 is a variable capacity air conditioner utilizing variable speed compressor technology. With the variable speed compressor and variable pumping capacity, additional consideration must be given to refrigerant piping sizing and application.
Please refer to the Installation Instructions for Line Set Requirements and Refrigerant Piping Guidelines.

PRECISE COMFORT® TECHNOLOGY

The Variable Capacity Compressor and DC Inverter Control is an integrated system that operates together to reduce overall energy usage when compared to conventional air conditioners.

7 Variable Capacity Scroll Compressor
- Operates on a variable frequency determined by the DC Inverter Control to vary capacity based on the cooling load required
- 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

Top Cap Thermal Sensor Switch
- Located on top of the compressor casing
- Discontinues compressor operation in case of abnormal operating conditions

Compressor Sound Dampening System
- A polyethylene compressor cover containing a 2 inch thick batt of fiberglass insulation for better sound dampening
- All open edges are sealed with a one-inch wide hook and loop fastening tape

Crankcase Heater
- Crankcase heater prevents migration of liquid refrigerant into compressor and ensures proper compressor lubrication

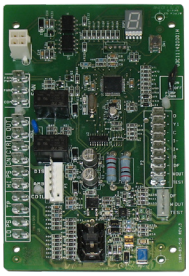
PRECISE COMFORT® TECHNOLOGY (continued)

8 DC Inverter Control

- Converts AC line voltage into filtered variable DC voltage
- Provides continuous compressor operation, while adjusting the capacity according to indoor temperature
- Adjusts compressor output in increments as small as 1%
- The accurate sensing of cooling load prevents frequent changes in capacity and ensures efficient, economical operation
- Power Factor Correction (PFC) circuit monitors the DC bus for high, low and abnormal voltage conditions to protect the compressor
- Two LEDS (red and green) indicate inverter operating status and aid in troubleshooting
- Noise filter reduces unwanted electromagnetic interference (EMI)
- Integrated on the iComfort Communicating Control for 024 and 036 models,
- Separate external inverter control for 048 and 060 models
- The inverter reactor (mounted separately) adds inductance to the line between the inverter and the compressor to limit current rise and protect the compressor

CONTROLS

9 iComfort® Communicating Control



- Advanced control communicates information about various operating parameters in the air conditioner to the iComfort® Communicating Thermostats to constantly maintain the highest level of comfort, performance and efficiency available
- **Auto Configuration** - On start-up the control automatically sends a description of the unit to the iComfort® Communicating Thermostat to automatically configure the features available
- Control also features:
  - **Seven-Segment Display** - Shows information about outdoor unit type and capacity and also displays alerts for common fault conditions (electrical and mechanical)
  - **Low Voltage Protection** - Prevents compressor operation when voltage is not within the specified range
  - High and low pressure switch monitoring with provisions for lockout
  - Five-Strike lockout protection protects compressor
  - Liquid line temperature and sensor monitoring
  - EEPROM storage of all local configurations
  - Non-volatile memory storage of 100 alarm codes with display of last 10 codes for troubleshooting
  - Built-in low-ambient control

Low Ambient Operation

- Air conditioner can operate down to 0°F outdoor air temperature

NOTE - A freezestat is recommended for extra protection during low ambient operation.

Climate IQ™ Technology

- Optimizes dehumidification settings for specific climates to improve home comfort during cooling operation
- iComfort® S30 Thermostat Setting:
  - **Climate IQ (Auto)** - Dry, Normal, Basic and Humid modes are automatically set based on the difference between the measured relative humidity and the relative humidity setting
- All modes are selected on the iComfort® Communicating Thermostat

Outdoor Air Temperature Sensor

- Used with iComfort® Communicating Thermostats
- Sensor is auto-detected when connected to thermostat

FEATURES

REQUIRED COMPONENTS

NOTE - The XC25 Air Conditioner can only be used with an iComfort® Communicating Thermostat.

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)
- 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, Mag-Mount, 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.

CABINET

10
- Heavy-gauge steel construction
- Pre-painted cabinet finish
- 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

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

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

- Sweat connection suction and liquid lines
- Located on corner of unit cabinet
- 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 the cabinet
- See dimension drawing

SPECIFICATIONS

General Data		Model No.	XC25-024	XC25-036	XC25-048	XC25-060
		Nominal Tonnage	2	3	4	5
Connections (sweat)		Liquid line (o.d.) - in.	3/8	3/8	3/8	3/8
		Suction line (o.d.) - in.	7/8	7/8	7/8	1-1/8
Refrigerant		[1] R-410A charge furnished	13 lbs. 10 oz.	10 lbs. 12 oz.	14 lbs. 8 oz.	12 lbs. 9 oz.
Outdoor Coil	Net face area - sq. ft.	Outer coil	27.21	27.21	27.21	27.21
		Inner coil	26.36	26.36	26.36	26.36
		Tube diameter - in.	5/16	5/16	5/16	5/16
		No. of rows	2	2	2	2
		Fins per inch	22	22	22	22
Outdoor Fan		Diameter - in.	26	26	26	26
		No. of blades	5	5	5	5
		Motor hp	1/3	1/3	1/3	1/3
		Cfm - Max. Speed	2925	4100	4220	4385
		Min. Speed	1950	1950	3020	3020
		Rpm - Max. Speed	490	650	675	700
		Min. Speed	350	350	500	500
		Watts - Max. Speed	75	157	185	212
		Min. Speed	32	32	82	82
Shipping Data - lbs. - 1 pkg.			303	303	330	330

ELECTRICAL DATA

Line voltage data - 60hz			208/230V-1ph	208/230V-1ph	208/230V-1ph	208/230V-1ph
[2] Maximum overcurrent protection (amps)			25	30	50	50
[3] Minimum circuit ampacity			14.9	19.5	32.9	34.1
Compressor		Rated load amps	10.3	14.0	24.7	25.7
		Locked rotor amps	18	18	29	29
		Power factor	0.97	0.98	0.99	0.99
Outdoor Fan Motor - Full load amps			2.0	2.0	2.0	2.0

REQUIRED COMPONENTS - ORDER SEPARATELY

iComfort® S30 Ultra-Smart Wi-Fi Thermostat		**12U67**	•	•	•	•
[4] Discharge Air Temperature Sensor		**88K38**	•	•	•	•

OPTIONAL ACCESSORIES - ORDER SEPARATELY

[5] Freezestat	3/8 in. tubing	**93G35**	•	•	•	•
	5/8 in. tubing	**50A93**	•	•	•	•
[6] Refrigerant Line Sets		L15-65-30 L15-65-40 L15-65-50	•	•	•	
		Field Fabricate				•

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] Used with the iComfort® S30 Ultra-Smart Wi-Fi Thermostat for optional service diagnostics.

[5] Freezestat is recommended for low ambient operation.

[6] Refer to the Installation Instructions for Line Set Requirements and Refrigerant Piping Guidelines.

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 Min.	49	49	46.3	45.1	38.2	37.7	33.8	59	52	47	41	38	27
024 Max.	54	56.3	56.9	53.4	46.7	45.2	37.4	70	63	58	52	49	38
036 Min.	48.1	50.4	50.6	43.1	34.9	33.9	30.5	59	52	47	41	38	27
036 Max.	58	62.5	63.8	60.4	54.2	48.7	41.8	73	66	61	55	52	41
048 Min.	52.2	55.8	57.2	52.2	45.5	39.3	39.1	66	59	54	48	45	34
048 Max.	58.5	62.2	65	61.5	55.3	49.8	43.1	74	67	62	56	53	42
060 Min.	54.1	55.1	54.5	51.1	44.4	38.6	38	64	57	52	46	43	32
060 Max.	58.9	61.9	64.3	61.1	55.2	49	42.6	74	67	62	56	53	42

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

[1] Tested according to AHRI Standard 270-2008 test conditions. Sound rating Number is the overall A-Weighted Sound Power Level, (LWA), dB (100 Hz to 10,000 Hz).

[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 -

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

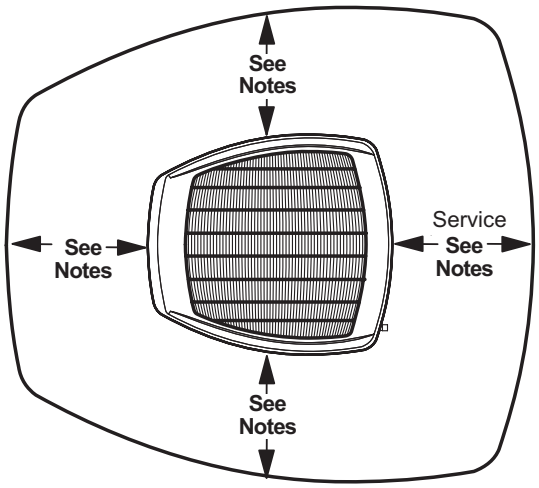
One of the two remaining sides may be 12 in. (305 mm).

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

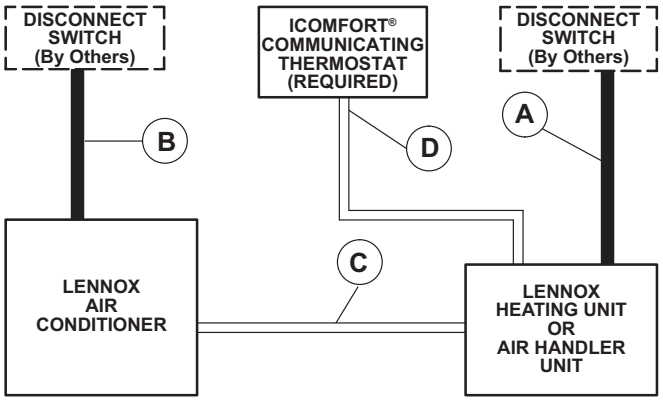
Service Clearance − 30 in. (762 mm)

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

24 in. (610 mm) required between two units



FIELD WIRING



A - Two Wire Power (not furnished)

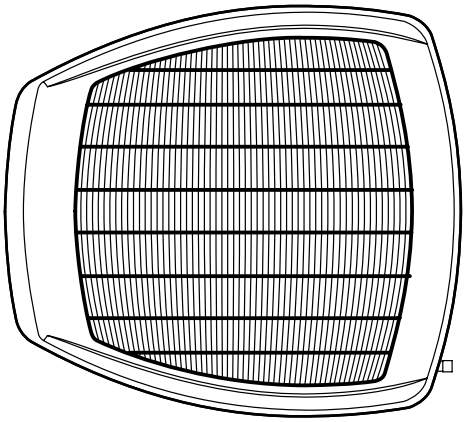
B - Two Power (not furnished) See Electrical Data

C - Four Wire Low Voltage RSBus (not furnished) 18 ga. minimum

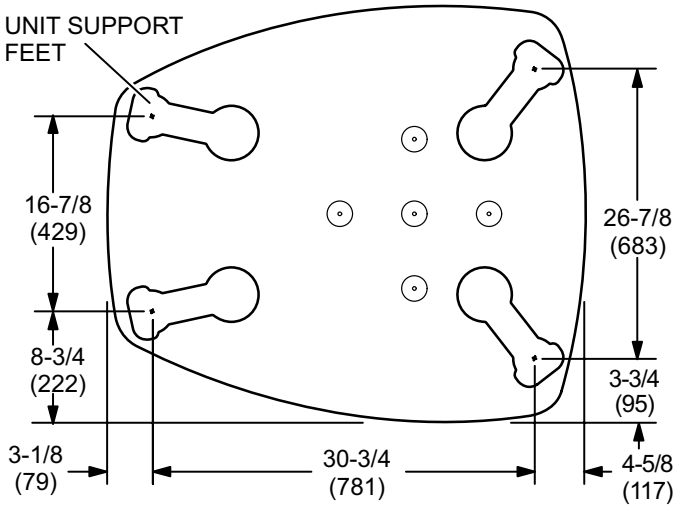
D - Four Wire Low Voltage RSBus (not furnished) 18 ga. minimum

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

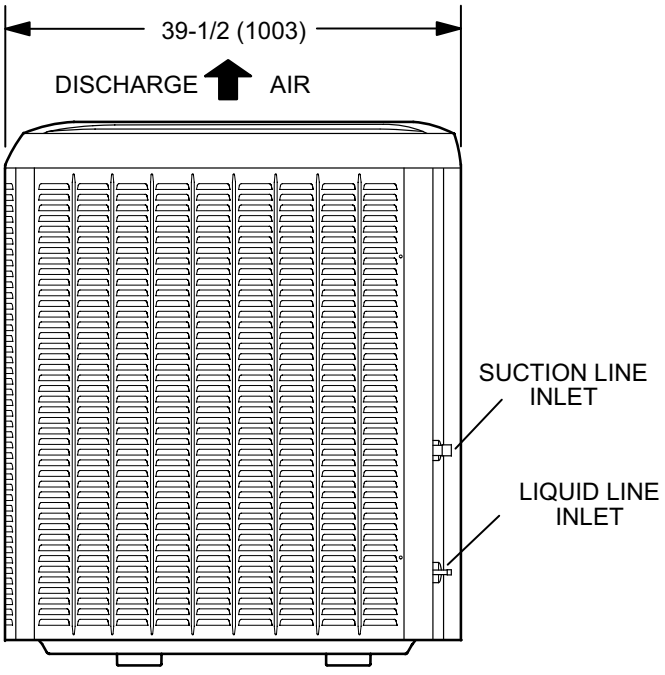
DIMENSIONS - UNIT



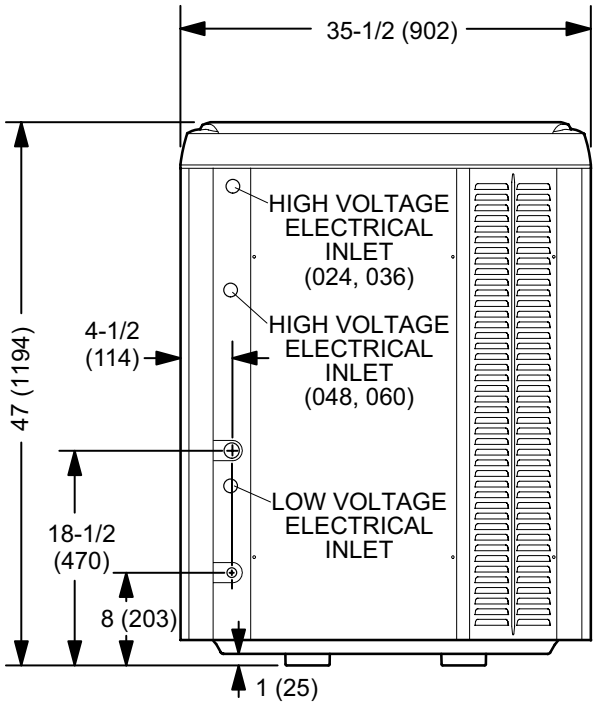
TOP VIEW



TOP VIEW BASE SECTION
(Large Base)



SIDE VIEW



ACCESS VIEW

TXV USAGE

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

Outdoor Unit Model No.	Order No.
XC25-024	**12J18**
XC25-036	**12J19**
XC25-048	**12J20**
XC25-060	**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.

C35, CH33/CH35 coils - Factory installed orifice must be replaced with the expansion valve listed.

CR33 and CH23 coils - Use the expansion valve listed.

MOST POPULAR MATCHES

Outdoor Unit Model No.	Indoor Unit Model No
XC25-024	CBX40UHV-024
XC25-036	CBX40UHV-036
XC25-048	CBA38MV-048
XC25-060	CBX40UHV-060

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
Sound Data	Added expanded sound data for Estimated Sound Pressure Level at Distance From Unit.

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

HRAI
MEMBER COMPANY

ETL LISTED
Intertek

LENNOX

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.

©2019 Lennox Industries, Inc.