



AIR CONDITIONERS

XCZ20

ELITE® Series
Variable Capacity

PRODUCT SPECIFICATIONS

Bulletin No. 210874
September 2018



ELITE®
SERIES



iComfort®

So simple. So smart. So comfortable.



* iComfort® S30
Thermostat

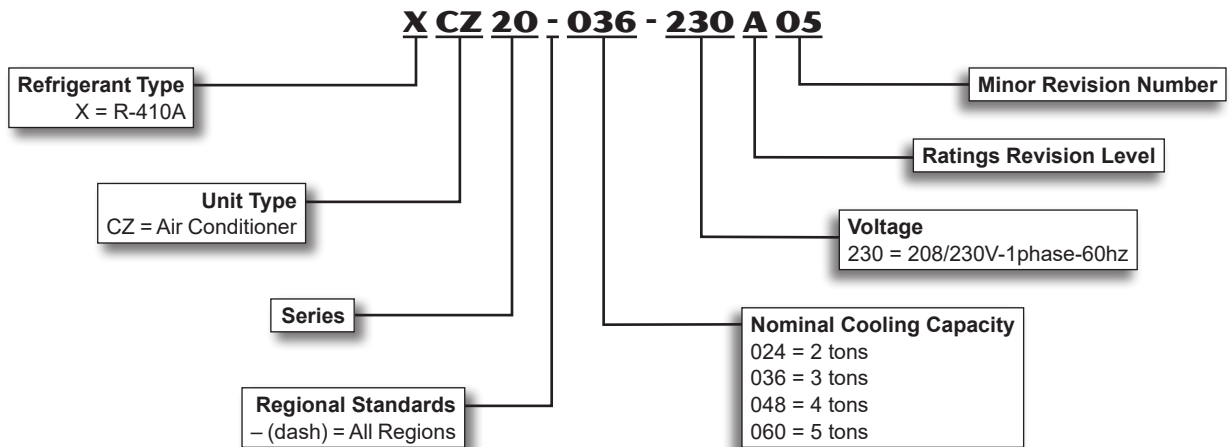


SEER up to 22.00

2 to 5 Tons

Cooling Capacity - 23,800 to 58,500 Btuh

MODEL NUMBER IDENTIFICATION



* iComfort® S30 or iComfort Wi-Fi® Thermostat required. Not furnished - Order separately.

FEATURES

WARRANTY

Compressor - Limited warranty for **ten years** in residential installations and five years in non-residential installations.

All other covered components - Limited warranty for **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.

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.

Air conditioners and components within bonded for grounding to meet safety standards for servicing required by UL and CEC.

Units are ETL certified for the U.S. and Canada.

ISO 9001 Registered Manufacturing Quality System.

ENERGY STAR® certified units are designed to use less energy, help save money on utility bills, and help protect the environment.

APPLICATIONS

2 through 5 ton.

Sound levels as low as 65 dB.

Single phase power supply.

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

Matching add-on furnaces with indoor coils, or air handlers provide a wide range of cooling capacities and applications. See AHRI System Matches.

See Indoor Coils and Air Handlers tab sections for data.

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

Installer must set air conditioner, connect refrigerant lines, and make electrical connections to complete job.

NOTE - The XCZ20 can only be matched with iComfort®-enabled variable-speed indoor furnaces and air handlers.

CONTENTS

Dimensions.....	8
Electrical Data.....	7
Features.....	2
Field Wiring.....	9
Installation Clearances	9
Model Number Identification	1
Optional Accessories	7
Required Components.....	7
Specifications.....	7
TXV Usage.....	9

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.

Variable Capacity Scroll Compressor

Operates on a variable frequency determined by the DC Inverter Control to vary capacity based on the cooling load required.

Features high efficiency with uniform suction flow, constant discharge flow, high volumetric efficiency and quiet operation.

Consists of two involute spiral scrolls matched together to generate a series of crescent shaped gas pockets between them.

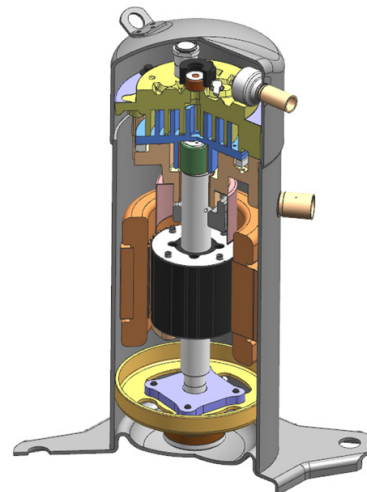
During compression, one scroll remains stationary while the other scroll orbits around it.

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.

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.



FEATURES

PRECISE COMFORT® TECHNOLOGY **(continued)**

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.

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 control for 024 and 036 models, external to the control for 048 and 060 models.

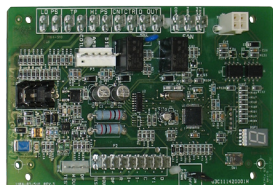
The inverter reactor (mounted separately) adds inductance to the line between the inverter and the compressor to limit current rise and protect the compressor.



CONTROLS

iComfort® Communicating Control

Advanced control communicates information about various operating parameters in the air conditioner to the iComfort® Communicating Thermostat 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

The air conditioner can operate down to 0°F outdoor air temperature.

NOTE - A freeze stat 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 Wi-Fi® Thermostat Settings:

- Dry - The system supplies higher indoor airflow at all compressor capacities, increasing efficiency by operating at a higher sensible to total ratio.
- Moderate - The system supplies indoor airflow that balances efficiency and comfort.
- Humid - The system supplies lower indoor airflow at all compressor capacities, improving humidity removal by operating at a lower sensible to total ratio.

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® S30 Thermostat or iComfort Wi-Fi® Thermostat.

Outdoor Air Temperature Sensor

Used with iComfort® Communicating Thermostats.

Sensor allows thermostat to display outdoor temperature. Sensor is auto-detected when connected to thermostat.

FEATURES

REQUIRED COMPONENTS

NOTE - The XCZ20 Air Conditioner can only be used with an iComfort® Communicating Thermostat.

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

The iComfort® S30 Thermostat recognizes and connects to all iComfort®-enabled products to automatically configure and control the heating/cooling system (based on user-specified settings) for the highest level of comfort, performance and efficiency. Also 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. Also displays service alerts and reminders.

Apple HomeKit™ compatible. Control the S30 thermostat from an iPhone, iPad or iPod device and use Siri® voice commands.

Amazon® Alexa-enabled, smart-home-compatible. Works with Amazon Echo, Echo Dot and Tap devices.

Dealer Dashboard features online real-time monitoring of installed iComfort® Communicating systems.

A 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 in. 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.

Remote outdoor temperature sensor (furnished with outdoor unit) allows the thermostat to display outdoor temperature. Required in *Humiditrol*® applications.

High Definition Color Display, Mag-Mount, Smart Hub Controller, wallplate (for retrofit installations) furnished for easy installation.

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

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

The iComfort Wi-Fi® Thermostat recognizes and connects to all iComfort®-enabled products to automatically configure and control the heating/cooling system (based on user-specified settings) for the highest level of comfort, performance and efficiency. Also recognizes model and serial number information for iComfort®-enabled 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. Also displays service alerts and reminders.



Dealer Dashboard features online real-time monitoring of installed iComfort® systems.

A 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 color screen (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.

Remote outdoor temperature sensor (furnished with outdoor unit) allows the thermostat to display outdoor temperature. Required in *Humiditrol*® applications.

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

FEATURES

REFRIGERATION SYSTEM

R-410A Refrigerant

Non-chlorine, ozone friendly, R-410A.
Unit pre-charged with refrigerant.
See Specification table.



Outdoor Coil 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 guard constructed of corrosion-resistant PVC (polyvinyl chloride) coated steel.

Fan service access accomplished by removal of fan guard.

Variable-Speed Outdoor Coil Fan Motor With Integrated Control

Outdoor coil fan motor with integrated control is programmed for variable capacity operation. Fan speed is directly controlled by the iComfort® communications between the outdoor unit iComfort® control and the iComfort® Communicating Thermostat.

Fan motor is inherently protected.

Motor totally enclosed for maximum protection from weather, dust and corrosion.

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.

Coil is factory tested under high pressure to insure leakproof construction.

Entire coil is accessible for cleaning.

High Pressure Switch

Shuts off unit if abnormal operating conditions cause the discharge pressure to rise above setting.

Protects compressor from excessive condensing pressure.

Auto-reset.

Low Pressure Switch

Shuts off unit if suction pressure falls below setting.

Provides loss of charge and freeze-up protection.

Auto-reset.

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

Must be ordered extra and field installed on certain indoor units. See TXV Usage table.

Chatleff style fitting.

Freezestat

Installs on or near the discharge 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.

Refrigerant Line Kits

Refrigerant lines (suction & liquid) are shipped refrigeration clean. Lines are cleaned, dried, pressurized, and sealed at factory.

Suction line fully insulated.

L15 lines are stubbed at both ends.

See Specifications table for selection.

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

NOTE - The XCZ20 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 or Service Literature for Line Set Requirements and Refrigerant Piping Guidelines.

FEATURES

CABINET

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.

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. See dimension drawing.

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 the cabinet. See dimension drawing.

SPECIFICATIONS

General Data		Model No.	XCZ20-024	XCZ20-036	XCZ20-048	XCZ20-060	
		Nominal Tonnage	2	3	4	5	
¹ Sound Rating Number (dB)	Min.		65	67	68	69	
	Max.		69	72	71	72	
Connections (sweat)	Liquid line (o.d.) - in.		3/8	3/8	3/8	3/8	
	Suction line (o.d.) - in.		3/4	7/8	7/8	1-1/8	
Refrigerant	² R-410A charge furnished		7 lbs. 1 oz.	8 lbs. 6 oz.	9 lbs. 10 oz.	12 lbs. 15 oz.	
Outdoor Coil	Net face area - sq. ft.		Outer coil	21.00	24.00	28.07	28.07
			Inner coil	---	---	---	27.21
			Tube diameter - in.	5/16	5/16	5/16	5/16
			No. of rows	1	1	1	2
			Fins per inch	22	22	26	22
Outdoor Fan			Diameter - in.	26	26	26	26
			No. of blades	3	3	3	3
			Motor hp	1/3	1/3	1/3	1/3
			Cfm - minimum speed	1500	3100	3000	2900
			maximum speed	2600	3600	4000	4325
			Rpm - minimum speed	400	600	600	600
			maximum speed	700	700	800	865
			Watts - minimum speed	25	80	70	80
			maximum speed	60	115	160	195
Shipping Data - lbs. 1 pkg.			243	245	287	321	

ELECTRICAL DATA

Line voltage data - 60hz		208/230V-1ph	208/230V-1ph	208/230V-1ph	208/230V-1ph	
³ Maximum overcurrent protection (amps)		30	30	50	50	
⁴ Minimum circuit ampacity		19.1	20.6	29.1	29.3	
Compressor	Rated load amps		13.0	14.2	21.0	21.2
	Locked rotor amps		13	13	20	20
	Power factor		.98	.99	.99	.99
Outdoor Fan Motor	Full load amps		2.8	2.8	2.8	2.8

REQUIRED COMPONENTS - ORDER SEPARATELY

iComfort® S30 Thermostat	12U67	•	•	•	•
iComfort Wi-Fi® Thermostat	10F81	•	•	•	•
⁵ Discharge Air Temperature Sensor	88K38	•	•	•	•

OPTIONAL ACCESSORIES - ORDER SEPARATELY

⁶ Freezestat	3/8 in. tubing	93G35	•	•	•	•
	5/8 in. tubing	50A93	•	•	•	•
⁷ 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					•

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

¹ Sound Rating Number in accordance with test conditions included in AHRI Standard 270.

² 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.

³ HACR type breaker or fuse.

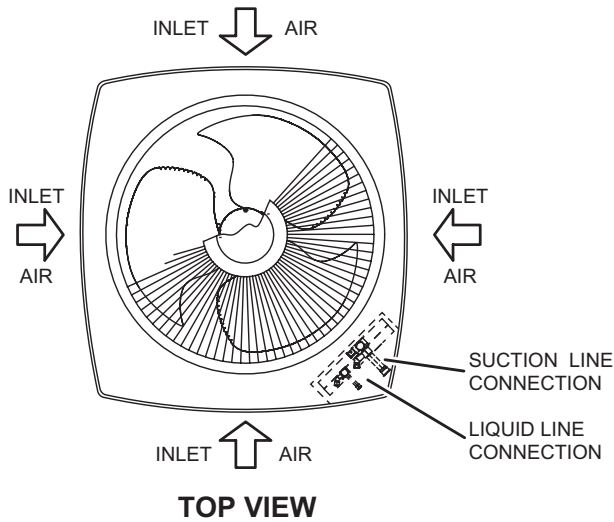
⁴ Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

⁵ Used with the iComfort® Communicating Thermostats for optional service diagnostics.

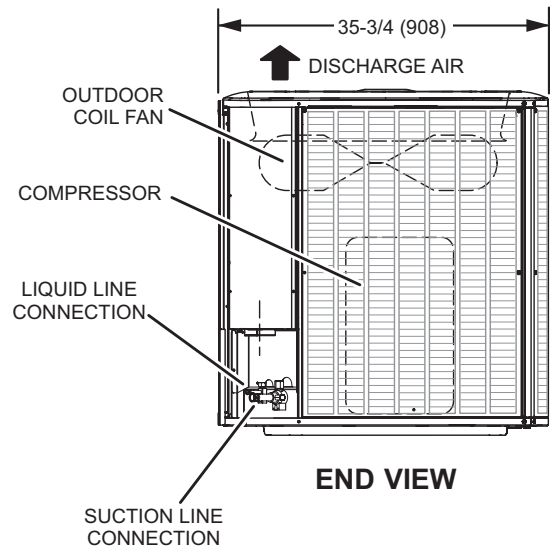
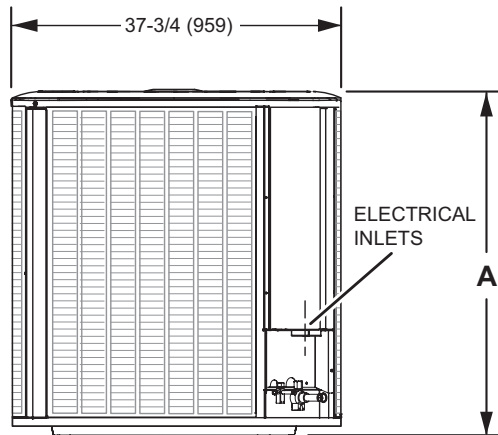
⁶ Freezestat is recommended for low ambient operation.

⁷ Refer to the Installation Instructions or Service Literature for Line Set Requirements and Refrigerant Piping Guidelines.

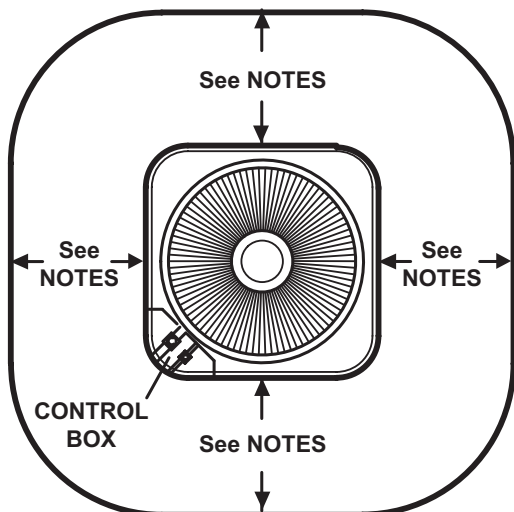
DIMENSIONS - INCHES (MM)



Model No.	A	
	in.	mm
XCZ20-024	37-1/2	953
XCZ20-036	37-1/2	953
XCZ20-048	43-3/4	1111
XCZ20-060	43-3/4	1111



INSTALLATION CLEARANCES - INCHES (MM)



NOTES:

Service clearance of 30 in. (762 mm) must be maintained on one of the sides adjacent to the control box.

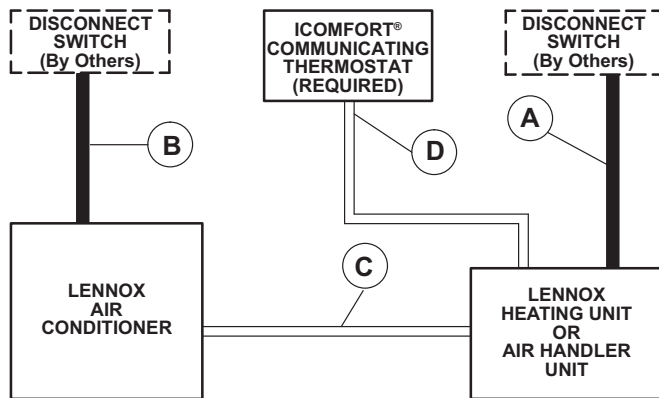
Clearance to one of the other three sides must be 36 in. (914 mm)

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. (610 mm) must be maintained between two units.

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

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.

TXV USAGE

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

Outdoor Unit Model No.	Order No.
XCZ20-024	12J18
XCZ20-036	12J19
XCZ20-048	12J20
XCZ20-060	12J20

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

C35 and CH33/CH35 coils - Replace the factory installed orifice with the expansion valve listed .

CR33 and CH23 coils - 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.



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.

©2018 Lennox Industries, Inc.