SEER up to 17.00
2 to 5 Tons
Cooling Capacity - 22,800 to 58,500 Btuh

MODEL NUMBER IDENTIFICATION

- **Refrigerant Type:**
  - X = R-410A

- **Unit Type:**
  - C = Air Conditioner

- **Series:**

- **Regional Standards:**
  - (dash) = All Regions
  - S = Southeast and North Regions

- **Nominal Cooling Capacity:**
  - 024 = 2 tons
  - 036 = 3 tons
  - 048 = 4 tons
  - 060 = 5 tons

- **Revision Level:**

- **Ratings Revision Level:**

- **Voltage:**
  - 230 = 208/230V-1phase-60Hz
FEATURE HIGHLIGHTS

1. Outdoor Coil Fan
2. Copper Tube/Enhanced Fin Coil
3. High Pressure Switch
4. Low Pressure Switch
5. High Capacity Liquid Line Drier
6. Two-Stage Scroll Compressor
7. Heavy Gauge Steel Cabinet
8. SmartHinge™ Louvered Coil Protection
9. Refrigerant Line Connections and Access

CONTENTS

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APPLICATIONS
• 2 through 5 ton
• Sound levels as low as 73 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

REFRIGERATION SYSTEM
R-410A Refrigerant
• Non-chlorine, ozone friendly
• Unit is factory pre-charged

1 Outdoor Coil Fan
• Direct drive fan
• Vertical air discharge
• Sleeve bearings
• Inherently protected
• Totally enclosed fan motor
• PVC (polyvinyl chloride) coated steel fan guard

2 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

3 High Pressure Switch
• Protects the system from high pressure conditions
• 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

5 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
REFRIGERATION SYSTEM (continued)

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.

COMPRESSOR

Two-Stage Scroll Compressor
• 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

If this occurs, scrolls separate, allowing liquid or contaminants to be worked toward the center and discharged
• During the compression process, there are several pockets in the scroll that are compressing gas
• Modulation is achieved by venting a portion of the gas in the first suction pocket back to the low side of the compressor thereby reducing the effective displacement of the compressor
• A 24-volt DC solenoid valve inside the compressor controls staging
• When the 3-way solenoid is energized it moves the lift ring assembly to block the ports and the compressor operates at full-load or 100% capacity
• When the solenoid is de-energized the lift ring assembly moves to unblock the compressor ports and the compressor operates at part-load or approximately 67% of its full-load capacity
• The “loading” and “unloading” of the two stage scroll is done “on the fly” without shutting off the single-speed compressor motor between stages
• 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 specially formulated, resilient rubber mounts for better sound dampening and vibration free operation

Crankcase Heater (048-060 models only)
• Prevents liquid refrigerant migration into compressor and ensures proper compressor lubrication

Optional Accessories

Crankcase Heater (Optional for 048-060 models)
• Prevents liquid refrigerant migration into compressor and ensures proper compressor lubrication

Compressor Hard Start Kit
• 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

NOTE - Compressor Hard start Kit is required in applications where the supply voltage is less than 230V.

Compressor Sound Cover
• Reinforced vinyl compressor cover
• Contains 1-1/2 inch thick batt of fiberglass insulation
• All open edges are sealed with a one-inch wide hook and loop fastening tape
CONTROLS

Optional Accessories

**iComfort® E30 Smart Wi-Fi Thermostat**
- Wi-Fi enabled, electronic 7-day, universal, multi-stage, programmable, touchscreen thermostat
- 3 Heat/2 Cool
- Auto-changeover
- Controls dehumidification during cooling mode and humidification during heating mode
- Offers enhanced capabilities including humidification / dehumidification / dewpoint measurement and control, Humiditrol® control, and equipment maintenance reminders
- Easy to read 7 in. color touchscreen (measured diagonally)
- LCD display with backlight shows the current and set temperature, time, inside relative humidity, system status (operating mode and schedules) and outside temperature (optional outdoor sensor required)
- Smooth Setback Recovery starts system early to achieve setpoint at start of program period
- Compressor short-cycle protection (5 minutes)
- Up to four separate schedules are available plus Schedule IQ™
- One-Touch Away Mode - A quick and easy way to set the cooling and heating setpoints while away
- Smart Away™ - Uses geo-fencing technology to determine when the homeowner is within a predetermined distance from the home to operate the system when leaving, away and arriving
- Wi-Fi remote 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 Dashboard features online real-time monitoring of installed iComfort® thermostats
- High Definition Color Display with Subbase, Smart Hub Controller, wallplate (for retrofit installations) furnished for easy installation
- See the iComfort® E30 Smart Wi-Fi Thermostat Product Specifications bulletin for more information

**Remote Outdoor Temperature Sensor**
- Used with the iComfort® E30 Smart Wi-Fi Thermostat
- When installed outdoors, sensor allows thermostat to display outdoor temperature
- Sensor is auto-detected when connected to thermostat

**NOTE** - Sensor is required for the Enhanced Dehumidification Accessory (EDA).

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

**Blower Relay Kit (for use with furnaces equipped with constant torque blower motors)**
- Allows furnace blower speed changes when matched with two-stage air conditioners

**Indoor Blower Off Delay Relay**
- Delays the indoor blower-off time during the cooling cycle

**Indoor Blower Speed Relay**
- Relay kit provides the option of changing blower speeds on standard permanent split capacitor (PSC) multi-tap blower motors during cooling operation
- Provides optimum humidity control conditions by automatically reducing indoor blower speed during continuous fan operation or low stage compressor operation to reduce humidity levels

**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 freezestat should be installed on compressors equipped with a low ambient kit.

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

CABINET
- 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
- Corner patch plate allows access to compressor components
- 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

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

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

<table>
<thead>
<tr>
<th>Model No.</th>
<th>All Regions</th>
<th>Southeast and North Regions</th>
</tr>
</thead>
<tbody>
<tr>
<td>XC16-024</td>
<td>XC16S024</td>
<td>XC16-024</td>
</tr>
<tr>
<td>XC16-036</td>
<td>XC16S036</td>
<td>XC16-036</td>
</tr>
<tr>
<td>XC16-048</td>
<td>XC16S048</td>
<td>XC16-048</td>
</tr>
<tr>
<td>XC16-060</td>
<td>XC16S060</td>
<td>XC16-060</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nominal Tonnage</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connections (sweat)</td>
<td>Liquid line (o.d.) - in.</td>
<td>3/8</td>
<td>3/8</td>
<td>3/8</td>
</tr>
<tr>
<td></td>
<td>Suction line (o.d.) - in.</td>
<td>3/4</td>
<td>7/8</td>
<td>7/8</td>
</tr>
<tr>
<td>Refrigerant</td>
<td>R-410A charge furnished</td>
<td>7 lbs. 2 oz.</td>
<td>9 lbs. 0 oz.</td>
<td>10 lbs. 6 oz.</td>
</tr>
<tr>
<td>Outdoor Coil</td>
<td>Net face area - sq. ft.</td>
<td>Outer coil</td>
<td>Inner coil</td>
<td></td>
</tr>
<tr>
<td></td>
<td>24.50</td>
<td>16.33</td>
<td>21.00</td>
<td>29.09</td>
</tr>
<tr>
<td></td>
<td>Tube diameter - in.</td>
<td>5/16</td>
<td>5/16</td>
<td>5/16</td>
</tr>
<tr>
<td></td>
<td>No. of rows</td>
<td>1</td>
<td>2</td>
<td>2</td>
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<tr>
<td></td>
<td>Fins per inch</td>
<td>26</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Outdoor Fan</td>
<td>Diameter - in.</td>
<td>22</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>No. of blades</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Motor hp</td>
<td>1/6</td>
<td>1/4</td>
<td>1/3</td>
</tr>
<tr>
<td></td>
<td>Cfm</td>
<td>3260</td>
<td>3500</td>
<td>3700</td>
</tr>
<tr>
<td></td>
<td>Rpm</td>
<td>840</td>
<td>825</td>
<td>820</td>
</tr>
<tr>
<td></td>
<td>Watts</td>
<td>220</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Shipping Data - lbs. 1 pkg.</td>
<td>249</td>
<td>243</td>
<td>268</td>
<td>332</td>
</tr>
</tbody>
</table>

#### ELECTRICAL DATA

<table>
<thead>
<tr>
<th>Line voltage data - 60hz</th>
<th>4 230V-1ph</th>
<th>4 230V-1ph</th>
<th>4 230V-1ph</th>
<th>4 230V-1ph</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum overcurrent protection (amps)</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td>Minimum circuit ampacity</td>
<td>15.6</td>
<td>20.8</td>
<td>29.2</td>
<td>35.7</td>
</tr>
<tr>
<td>Compressor</td>
<td>Rated load amps</td>
<td>10.19</td>
<td>14.15</td>
<td>17.05</td>
</tr>
<tr>
<td></td>
<td>Locked rotor amps</td>
<td>55.2</td>
<td>78.1</td>
<td>109</td>
</tr>
<tr>
<td></td>
<td>Power factor</td>
<td>0.98</td>
<td>0.95</td>
<td>0.97</td>
</tr>
<tr>
<td>Outdoor Fan Motor</td>
<td>Full load amps</td>
<td>1.0</td>
<td>1.7</td>
<td>1.8</td>
</tr>
<tr>
<td></td>
<td>Locked Rotor amps</td>
<td>1.9</td>
<td>3.1</td>
<td>2.9</td>
</tr>
</tbody>
</table>

#### CONTROLS

- iComfort® E30 Smart Wi-Fi Thermostat: 20A65
- Remote Outdoor Temperature Sensor: X2658
- Discharge Air Temperature Sensor: 88K38

#### OPTIONAL ACCESSORIES - ORDER SEPARATELY

- Blower Relay Kit: 85W66
- Compressor Crankcase Heater: 93M04
- Compressor Sound Cover: 18J42
- Compressor Hard Start Kit - Required in applications with less than 230V: 63W22, 10J42, 63W24
- Compressor Low Ambient Cut-Off: 45F08
- Compressor Time-Off Control: 47J27
- Freestat: 3/8 in. tubing | 93G35
- 5/8 in. tubing | 50A93
- Indoor Blower Off Delay Relay: 58M81
- Indoor Blower Speed Relay Kit: 40K58
- Low Ambient Kit (Fan Cycling): 34M72
- 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. Hard Start Kit is required in applications where the supply voltage is less than 230V.
5. Crankcase Heater (if not furnished) and Freestat are recommended with Low Ambient Kit.
6. Optional for service diagnostics.
### SOUND DATA

<table>
<thead>
<tr>
<th>Unit Model</th>
<th>Octave Band Sound Power Levels dBA, re $10^{-12}$ Watts</th>
<th>¹ Sound Rating Number (dBA)</th>
<th>² Estimated Sound Pressure Level at Distance From Unit (dBA at distance in ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>125 250 500 1000 2000 4000 8000</td>
<td></td>
<td>3  5  10 15 50</td>
</tr>
<tr>
<td>024</td>
<td>55.5 63 68 69 63 62 57</td>
<td>73</td>
<td>66 61 55 52 41</td>
</tr>
<tr>
<td>036</td>
<td>55.5 64 69 68 63 59 55.5</td>
<td>74</td>
<td>67 62 56 53 42</td>
</tr>
<tr>
<td>048</td>
<td>56 63 69 71.5 67 63 53.5</td>
<td>75</td>
<td>68 63 57 54 43</td>
</tr>
<tr>
<td>060</td>
<td>54.5 62 68 68.5 65.5 65 55.5</td>
<td>75</td>
<td>68 63 57 54 43</td>
</tr>
</tbody>
</table>

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.

### FIELD WIRING

- **A** - Two Wire Power (not furnished)
- **B** - Two Power (not furnished). See Electrical Data
- **C** - Four Wire Low Voltage (not furnished). 18 ga. minimum
- **D** - Six Wire Low Voltage (not furnished). 18 ga. minimum

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

### INSTALLATION CLEARANCES

**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.
**DIMENSIONS - UNIT**

<table>
<thead>
<tr>
<th>Model</th>
<th>A (in.)</th>
<th>A (mm)</th>
<th>B (in.)</th>
<th>B (mm)</th>
<th>C (in.)</th>
<th>C (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>024</td>
<td>45</td>
<td>1143</td>
<td>30-1/2</td>
<td>775</td>
<td>35</td>
<td>889</td>
</tr>
<tr>
<td>036</td>
<td>31</td>
<td>787</td>
<td>30-1/2</td>
<td>775</td>
<td>35</td>
<td>889</td>
</tr>
<tr>
<td>048</td>
<td>39</td>
<td>991</td>
<td>30-1/2</td>
<td>775</td>
<td>35</td>
<td>889</td>
</tr>
<tr>
<td>060</td>
<td>45</td>
<td>1143</td>
<td>35-1/2</td>
<td>902</td>
<td>39-1/2</td>
<td>1003</td>
</tr>
</tbody>
</table>
TXV USAGE

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

<table>
<thead>
<tr>
<th>Outdoor Unit Model No.</th>
<th>Order No.</th>
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</thead>
<tbody>
<tr>
<td>XC16(-)(S)024</td>
<td>12J18</td>
</tr>
<tr>
<td>XC16(-)(S)036</td>
<td>12J19</td>
</tr>
<tr>
<td>XC16(-)(S)048</td>
<td>12J20</td>
</tr>
<tr>
<td>XC16(-)(S)060</td>
<td>12J20</td>
</tr>
</tbody>
</table>

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.

CR33 and CH23 coils - 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 or smaller than the outdoor unit.

<table>
<thead>
<tr>
<th>Outdoor Unit</th>
<th>Indoor Unit</th>
<th>TXV Furnished</th>
<th>TXV Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>Tons</td>
<td>Size</td>
<td>Tons</td>
</tr>
<tr>
<td>024</td>
<td>2</td>
<td>42</td>
<td>3.5</td>
</tr>
<tr>
<td>024</td>
<td>2</td>
<td>48</td>
<td>4</td>
</tr>
<tr>
<td>024</td>
<td>2</td>
<td>49</td>
<td>4</td>
</tr>
<tr>
<td>024</td>
<td>2</td>
<td>50/60</td>
<td>5</td>
</tr>
<tr>
<td>024</td>
<td>2</td>
<td>51/61</td>
<td>5</td>
</tr>
<tr>
<td>036</td>
<td>3</td>
<td>24</td>
<td>2</td>
</tr>
<tr>
<td>036</td>
<td>3</td>
<td>30</td>
<td>2.5</td>
</tr>
<tr>
<td>042</td>
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<td>30/36</td>
<td>3</td>
</tr>
<tr>
<td>042</td>
<td>3.5</td>
<td>36</td>
<td>3</td>
</tr>
<tr>
<td>048</td>
<td>4</td>
<td>30/36</td>
<td>2.5/3</td>
</tr>
<tr>
<td>048</td>
<td>4</td>
<td>36</td>
<td>3</td>
</tr>
</tbody>
</table>

TXV Ranges:

12J18 - 1.5 to 2.5 ton systems - Use on 2.5 ton (030) and lower systems.

12J19 - 3 ton systems - Use down to 2 ton (024) systems.

12J20 - 3.5 to 5 ton systems - Use down to 3 ton (036) 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

<table>
<thead>
<tr>
<th>Sections</th>
<th>Description of Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optional Accessories</td>
<td>Updated.</td>
</tr>
<tr>
<td>TXV Substitutions</td>
<td>Updated.</td>
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