

# ML17KC2

MERIT® SERIES

Two-Stage | Quantum™ Coil | R-454B | 3-Phase | 60Hz

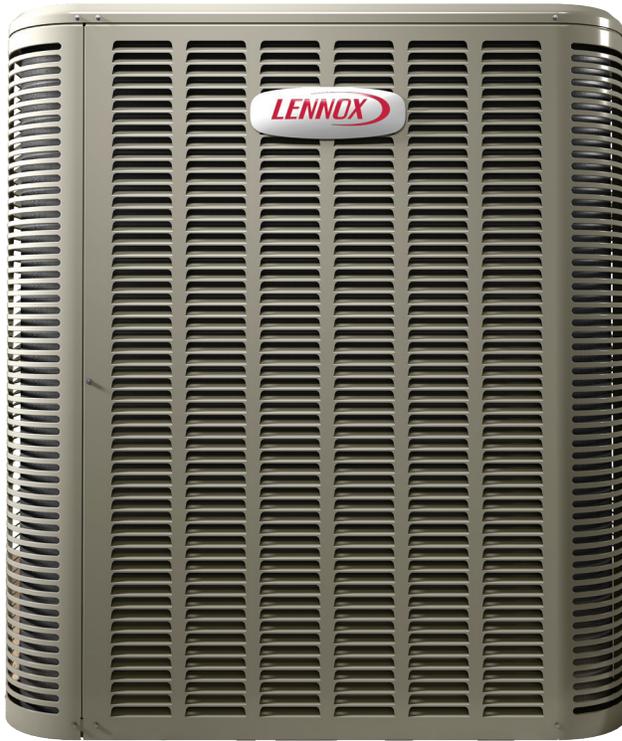
COMMERCIAL  
PRODUCT SPECIFICATIONS (EHB)



3 to 5 Tons

SEER2 up to 17.0

Cooling Capacity | 33,400 to 60,000 Btuh

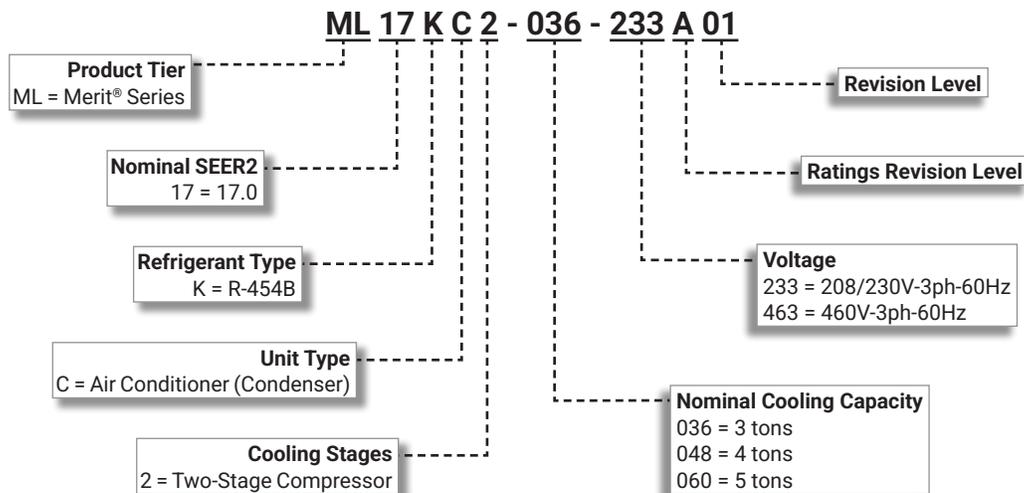


MERIT®  
SERIES



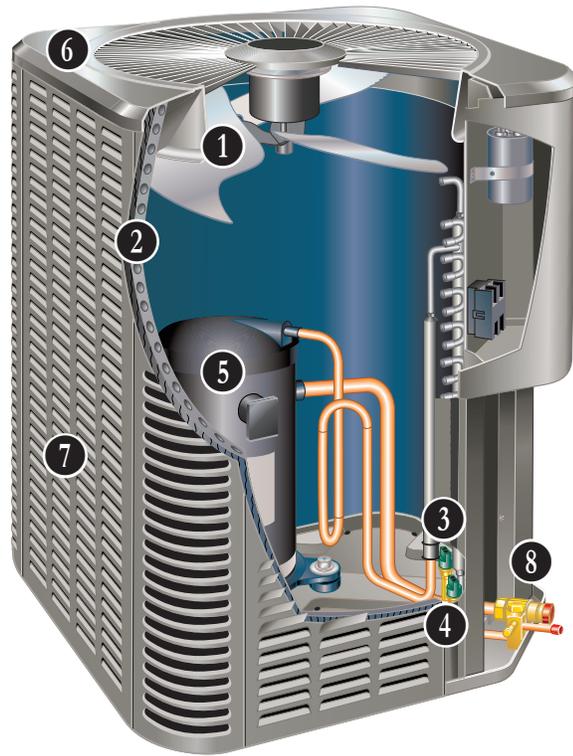
2025 COMPLIANT  
REFRIGERANT

## MODEL NUMBER IDENTIFICATION



## FEATURE HIGHLIGHTS

1. Outdoor Coil Fan
2. Quantum™ Coil
3. High Pressure Switch
4. Low Pressure Switch
5. Two-Stage Scroll Compressor
6. Heavy Gauge Steel Cabinet
7. Louvered Steel Panels
8. Refrigerant Line Connections and Access



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## APPROVALS AND WARRANTY

### **APPROVALS**

- AHRI Standard 210-240-2023 certified
- AHRI Certified system match-ups and expanded ratings, visit [www.LennoxPros.com](http://www.LennoxPros.com)
- 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
- 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 five years
- All other covered components - Limited one year

**NOTE** - Refer to Lennox® Basic Limited Warranty at [www.Lennox.com](http://www.Lennox.com) for additional details.

## FEATURES

### **APPLICATIONS**

- 3 through 5 ton
- 208/230V or 460V-3ph models
- Sound levels as low as 75 dBA
- Applicable to indoor air handlers or gas furnaces with indoor add-on coils
- Shipped completely factory assembled, piped and wired

### **REFRIGERATION SYSTEM**

#### **R-454B Refrigerant**

- Low GWP (Global Warming Potential)
- Zero ODP (Ozone Depletion Potential)
- Low Toxicity/Lower Flammability - A2L
- Unit is factory pre-charged

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

- Direct drive fan
- Vertical air discharge
- Sleeve bearings
- Inherently protected
- Totally enclosed fan motor
- ECM motor (060 model)
- Louvered steel top fan guard

#### **2 Quantum™ Coil**

- Enhanced aluminum alloy tube/enhanced fin coil
- Superior corrosion resistance
- Lennox designed and fabricated coil
- Ripple-edged aluminum fins
- Aluminum tube construction
- Lanced fins for maximum fin surface exposure
- Fin collars grip tubing for maximum contact area
- Flared shoulder tubing connections
- Factory tested under high pressure
- Entire coil is accessible for cleaning

#### **3 High Pressure Switch**

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

#### **4 Low Pressure Switch**

- Protects the compressor from low pressure conditions such as low refrigerant charge, or low/no indoor airflow
- Provides loss of charge and freeze-up protection
- Automatic reset

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

- Furnished for field installation
- Drier traps moisture or dirt that could contaminate the system
- 100% molecular-sieve, bead type drier

## FEATURES

### **REFRIGERATION SYSTEM (continued)**

#### **Optional Accessories**

##### **Expansion Valve Kits**

- Field installed on indoor units (if required)
- See TXV Usage table
- Chatleff style fitting

##### **Freezestat**

- Protects the system from ice buildup on the indoor coil due to conditions such as low/no airflow, or low refrigerant charge
- Cycles compressor off when suction line temperature falls below freezestat 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

### **INDOOR REFRIGERANT DETECTION SYSTEM (RDS)**

- Complies with UL 60335-2-40 approved standard
- Required for all systems using R-454B refrigerant
- Factory or field installed on all indoor units
- Consists of a RDS refrigerant detection sensor and a mitigation control in the indoor unit
- Ensures safe operation for systems equipped with R-454B refrigerant
- Indoor sensor will detect any R-454B refrigerant
- If R-454B refrigerant is detected, the refrigerant detection system will stop compressor operation and operate the blower to reduce concentrations in the conditioned space
- Once safe levels are reached the HVAC system will resume normal operation
- Refer to indoor unit Product Specifications documents for additional details

### **COMPRESSOR**

#### **5 Two-Stage Scroll Compressor**

- High volumetric efficiency
- Uniform suction flow
- Constant discharge flow
- Quiet operation
- A 24-volt DC solenoid valve inside the compressor controls staging
- 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
- 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

#### **Compressor Crankcase Heater (048-060 models)**

- Prevents liquid refrigerant migration into compressor and ensures proper compressor lubrication

#### **Optional Accessories**

##### **Compressor Crankcase Heater (036 models)**

- Prevents liquid refrigerant migration into compressor and ensures proper compressor lubrication

##### **Compressor Low Ambient Cut-Off**

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

##### **Compressor Sound Cover**

- Reinforced vinyl compressor cover
- 1-1/2 inch thick batt fiberglass insulation
- All open edges are sealed with a one-inch wide hook and loop fastening tape

## FEATURES

### CABINET

- 6 • Heavy-gauge steel construction
- Pre-painted powder paint cabinet finish
- 7 • 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

#### Zinc-Coated Steel Unit Base

- Resists rust and corrosion

### 8 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

#### Braze-Free/Press Fitting Flexibility

- Units can accommodate braze-free or press fittings for installation versatility

### Optional Accessories

#### 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

## CONTROLS

### Optional Accessories

#### Blower Motor 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 Speed Control Relay Kit

- 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

- Heat pumps can operate in cooling mode down to 45°F outdoor air temperature without additional controls
- Two low ambient control options are available for field installation:
  1. Low Ambient Control Kit (30°F)
  2. Electronic Head Pressure Controller (0°F). Transformer included.

**NOTE** - Freezestat should be installed on compressors equipped with a low ambient kit.

#### Thermostats

- For thermostat options, see Optional Conventional Temperature Control Systems on page 6

## OPTIONAL CONVENTIONAL TEMPERATURE CONTROL SYSTEMS

### CS7500 Commercial 7-Day Programmable Thermostat



- Four-Stage Heating / Three-Stage Cooling
- Universal Multi-Stage
- Intuitive Touchscreen Interface
- Automatic Changeover between Heating and Cooling
- Full Seven-Day Programming
- Four Time Periods Per Day
- Temperature and Humidity Control
- One-Touch Away Mode
- Holiday Scheduling
- Smooth Setback Recovery (SSR)
- Performance Reports
- Notifications/Reminders
- Dehumidification Control for Split Systems and Rooftop Units
- Economizer Relay Control
- Backlit Display
- Wallplate Furnished
- FDD, ASHRAE and IECC Compliant

### CS3000 Commercial 5-2 Day Programmable Thermostat



- Two-Stage Heating / Two-Stage Cooling
- Conventional Systems
- Intuitive Interface
- 5-2 Day Programming
- Program Hold
- Remote Indoor Temperature Sensing
- Smooth Setback Recovery (SSR)
- Economizer Relay Control
- Maintenance/Filter/Service Reminders
- Backlit Display
- Wallplate Furnished
- Simple Up and Down Temperature Control

## OPTIONAL CONVENTIONAL TEMPERATURE CONTROL SYSTEMS

| Description  | Catalog No.  |
|--|--|
| <b>CS7500 Commercial 7-Day Programmable Thermostat</b>   |  |
| CS7500 7-Day Thermostat                                  | <b>24K41</b>   |
| Sensors/Accessories                                      | <sup>2</sup> Remote non-adjustable wall-mount 20k <b>47W36</b> |
|  | <sup>2</sup> Remote non-adjustable wall-mount 10k <b>47W37</b> |
|  | Remote non-adjustable discharge air (duct mount) <b>19L22</b>  |
|  | Outdoor temperature sensor <b>X2658</b>                        |
| <b>CS3000 Commercial 5-2 Day Programmable Thermostat</b> |  |
| CS3000 5-2 Day Thermostat                                | <b>11Y05</b>   |
| Sensors/Accessories                                      | Remote non-adjustable wall mount 10k averaging <b>47W37</b>    |
|  | Thermostat wall mounting plate <b>X2659</b>                    |
| <b>Universal Thermostat Guard with Lock (clear)</b>      |  |
|  | Inside Dimensions (H x W) 5 7/8 x 8 3/8 in. <b>39P21</b>       |

<sup>1</sup> Up to nine of the same type remote temperature sensors can be connected in parallel.

<sup>2</sup> Remote wall-mount sensors can be applied in any of the following combinations:

One Sensor - (1) 47W36, Two Sensors - (2) 47W37, Three Sensors - (2) 47W36 and (1) 47W37

Four Sensors - (4) 47W36, Five Sensors - (3) 47W36 and (2) 47W37

## SPECIFICATIONS

| Size                                     |                                      | 036              | 048              | 060              |       |
|--|--------------------------------------|------------------|------------------|------------------|-------|
| <b>Nominal Tonnage</b>                   |                                      | 3                | 4                | 5                |       |
| <b>Sound Rating Number</b>               | dBA                                  | 73               | 74               | 75               |       |
| <b>Connections (Sweat)</b>               | Liquid line (OD) - in.               | 3/8              | 3/8              | 3/8              |       |
|  | Suction line (OD) - in.              | 7/8              | 7/8              | 1-1/8            |       |
| <b>Compressor Type</b>                   |                                      | Two-Stage Scroll | Two-Stage Scroll | Two-Stage Scroll |       |
| <b>Refrigerant (15 ft. Line Set)</b>     | <sup>1</sup> R-454B charge furnished | 6 lbs. 8 oz.     | 7 lbs. 14 oz.    | 9 lbs. 5 oz.     |       |
| <b>Indoor Unit Expansion Valve (TXV)</b> |                                      | <b>26Z70</b>     | <b>26Z71</b>     | <b>26Z72</b>     |       |
| <b>Outdoor Coil</b>                      | Net face area - ft. <sup>2</sup>     | Outer coil       | 16.33            | 16.33            | 24.93 |
|  |                                      | Inner coil       | 15.75            | 15.75            | 24.13 |
|  | Tube diameter - in.                  | 5/16             | 5/16             | 5/16             |       |
|  | Rows                                 | 2                | 2                | 2                |       |
|  | Fins - in.                           | 22               | 22               | 22               |       |
| <b>Outdoor Fan</b>                       | HP                                   |                  | 1/8              | 1/6              | 1/4   |
|  |                                      | Diameter - in.   | 22               | 22               | 22    |
|  | Blades                               | 3                | 3                | 3                |       |
|  | Cfm                                  | 2890             | 3200             | 3620             |       |
|  | Rpm                                  | 825              | 825              | 825              |       |
|  | Watts                                | 165              | 240              | 265              |       |
| <b>Shipping Data - lbs.</b>              |                                      | 188              | 206              | 246              |       |

## ELECTRICAL DATA

|   | Line voltage data (Volts-Phase-Hz) | 208/230-3-60 | 460-3-60 | 208/230-3-60 | 460-3-60 | 208/230-3-60 | 460-3-60 |
|---|------------------------------------|--------------|----------|--------------|----------|--------------|----------|
| <sup>2</sup> Maximum overcurrent protection (MOCP) amps |                                    | 20           | 15       | 30           | 15       | 40           | 15       |
| <sup>3</sup> Minimum circuit ampacity (MCA)             |                                    | 13.6         | 6.5      | 17.6         | 9.9      | 23.4         | 11.5     |
| <b>Compressor</b>                                       | Rated load amps                    | 9.9          | 4.8      | 11.9         | 6.8      | 13.8         | 6.9      |
|   | Locked rotor amps                  | 82           | 44.3     | 112          | 61.8     | 150          | 58       |
| <b>Fan Motor</b>  | Full load amps                     | 0.74         | 0.74     | 1            | 0.50     | 1.7          | 0.90     |
|   | Locked rotor amps                  | 1.65         | 1.65     | 1.9          | 1.2      | 3.2          | 2.3      |

## OPTIONAL ACCESSORIES - ORDER SEPARATELY

|   |   |   |     |   |   |
|---|---|---|-----|---|---|
| <b>Compressor Crankcase Heater (240V)</b>                     | <b>93M04</b>                            | • | --- |   |   |
| <b>Compressor Low Ambient Cut-Off Switch</b>                  | <b>45F08</b>                            | • |     | • | • |
| <b>Compressor Sound Cover Kit</b>                             | <b>18J42</b>                            | • |     | • | • |
| <b>Compressor Timed-Off Control</b>                           | <b>47J27</b>                            | • |     | • | • |
| <b>Freezestat</b>   | 3/8 in. <b>93G35</b>                    | • |     | • | • |
| <b>Blower Motor Relay Kit</b>                                 | <b>85W66</b>                            | • |     | • | • |
| <b>Indoor Blower Speed Control Relay Kit</b>                  | <b>40K58</b>                            | • |     | • | • |
| <sup>4</sup> <b>Low Ambient Kit (Fan Cycling) (30°F)</b>      | <b>34M72</b>                            | • |     | • | • |
| <sup>4</sup> <b>Electronic Head Pressure Controller (0°F)</b> | <b>X5867</b>                            | • |     | • | • |
| <b>Refrigerant Line Sets</b>                                  | 3/8 x 7/8   3/8   30 ft. <b>89J60</b>   |   |     |   |   |
|   | 3/8 x 7/8   3/8   40 ft. <b>89J61</b>   | • |     | • |   |
| Liquid x Suction OD   Insulation Thickness   Length           | 3/8 x 7/8   3/8   50 ft. <b>89J62</b>   |   |     |   |   |
|   | 3/8 x 1-1/8 x 3/8 - 50 ft. <b>73P91</b> |   |     |   | • |
| <b>Unit Stand-Off Kit</b>                                     | <b>94J45</b>                            | • |     | • | • |

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

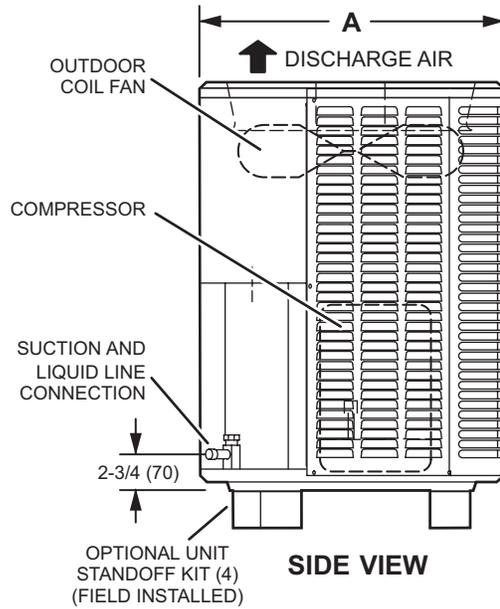
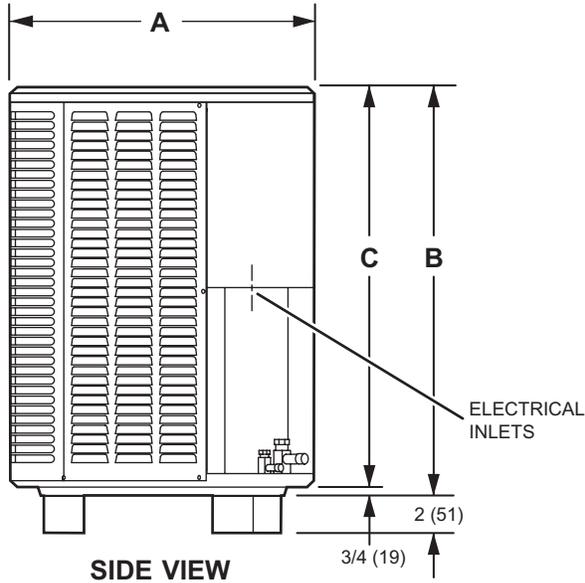
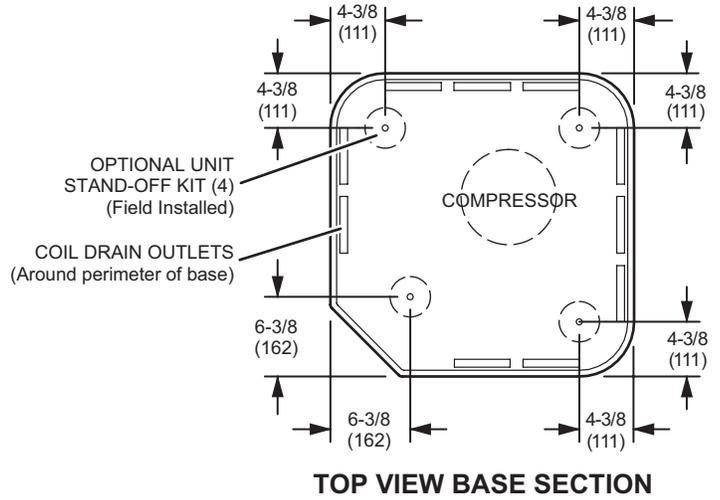
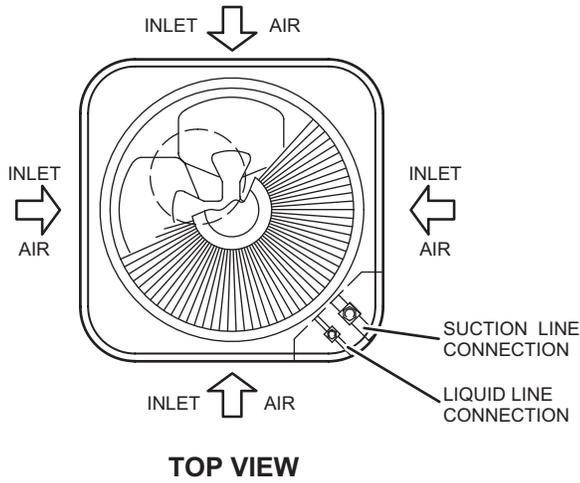
<sup>1</sup> Refrigerant charge sufficient for the line set length listed in parenthesis. For longer line set requirements see the Installation Instructions or unit Charging Label for information about line set length and additional refrigerant charge required.

<sup>2</sup> HACR type 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 - UNIT



| Size | A<br>Width and Depth |     | B<br>Height |      | C      |      |
|------|----------------------|-----|-------------|------|--------|------|
|      | inches               | mm  | inches      | mm   | inches | mm   |
| 036  | 28-1/4               | 718 | 33-3/4      | 857  | 33     | 838  |
| 048  | 32-1/4               | 718 | 33-3/4      | 857  | 33     | 838  |
| 060  | 32-1/4               | 819 | 43-1/4      | 1099 | 42-1/4 | 1073 |

## SOUND DATA

| Size | Octave Band Sound Power Levels dBA, re 10 <sup>-12</sup> Watts<br>Center Frequency - HZ |      |      |      |      |      |      | 1 Sound<br>Rating<br>Number<br>(dBA) | 2 Estimated Sound Pressure Level at<br>Distance From Unit (dBA at distance in ft.) |    |    |    |    |
|------|---|------|------|------|------|------|------|--------------------------------------|--|----|----|----|----|
|      | 125   | 250  | 500  | 1000 | 2000 | 4000 | 8000 |                                      | 3  | 5  | 10 | 15 | 50 |
| 036  | 54.6  | 61.5 | 66.8 | 69.2 | 63.3 | 58.3 | 54.3 | 73                                   | 66   | 61 | 55 | 52 | 41 |
| 048  | 56.7  | 63.6 | 68.6 | 70.4 | 65.5 | 61.6 | 54.9 | 74                                   | 67   | 62 | 56 | 53 | 42 |
| 060  | 57.6  | 63.1 | 69.2 | 70.9 | 67.0 | 64.4 | 59.2 | 75                                   | 68   | 63 | 57 | 54 | 43 |

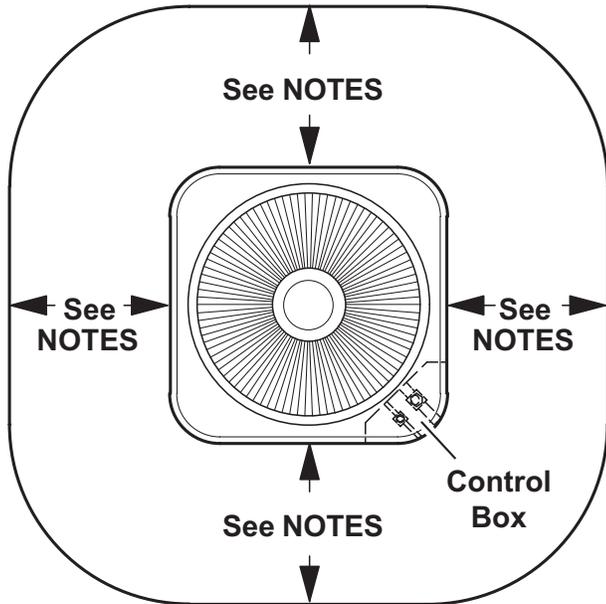
NOTE - the octave sound power data does not include tonal correction.

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

<sup>2</sup> 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

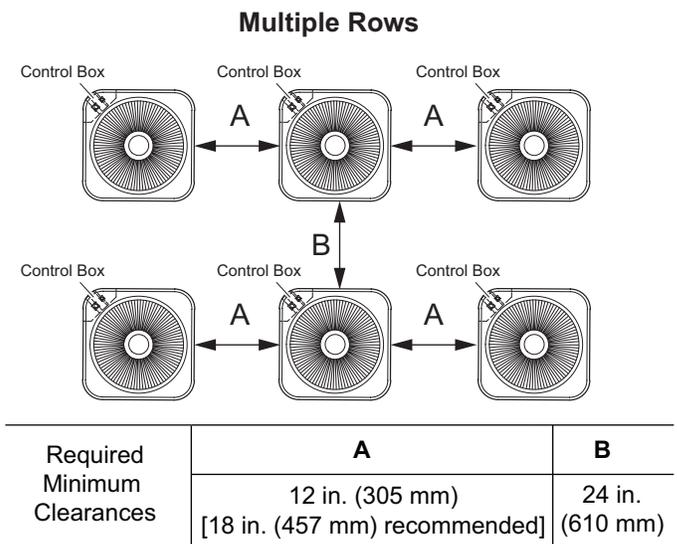
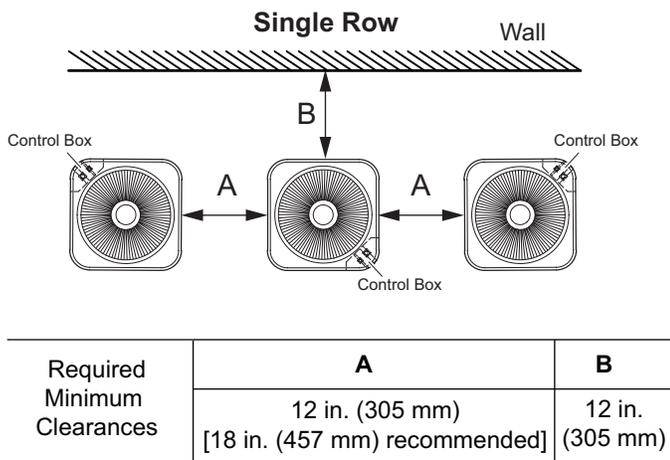
## SINGLE-UNIT INSTALLATION



### Single-Unit Installation Notes:

- Service Clearance - 24 in. (610 mm) on one of the sides adjacent to the Control Box.
- One of other 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).
- 48 in. (1219 mm) clearance required on top of unit.

## MULTI-UNIT INSTALLATIONS



### Multi-Unit Installation Notes:

- Recommended service clearance of 24 in. (610 mm) on one side.
- 48 in. (1219 mm) clearance required on top of the unit.

## TXV USAGE

All Lennox coils and air handlers are shipped with a factory installed TXV. In most cases, no substitution is needed. If a different size TXV is required, it will be listed in the "TXV SUBSTITUTION" table by size. The correct TXV must be ordered separately and field installed.

| Size | Order Number |
|------|--------------|
| 036  | 26Z70        |
| 048  | 26Z71        |
| 060  | 26Z72        |

## AHRI STANDARD 210-240-2023

Standard Ratings relating to cooling or heating capacities shall be net values, including the effects of circulating-fan heat, but not including supplementary electric heat. Power input used for calculating efficiency shall be the Total Power.

Standard Ratings of units which do not have indoor air-circulating fans furnished as part of the model, i.e., Coil-only System, shall be established by subtracting from the total cooling capacity 1,505 Btu/h per 1,000 SCFM, and by adding the same amount to the heating capacity for non-mobile-home, non-Space Constrained units. Total Power for both heating and cooling shall be increased by 441 W per 1,000 SCFM of indoor air circulated.

## TXV SUBSTITUTION - R-454B

A general guide for replacing the factory installed R-454B TXV if the indoor unit (coil/air handler) is larger or smaller than the outdoor unit.

| Outdoor Unit |      | Indoor Unit |       | Indoor TXV Furnished | Indoor TXV Replacement |
|--------------|------|-------------|-------|----------------------|------------------------|
| Size         | Tons | Size        | Tons  |                      |                        |
| 036          | 3    | 42          | 3.5   | 26Z71                | 26Z70                  |
| 036          | 3    | 48          | 4     | 26Z71                | 26Z70                  |
| 036          | 3    | 49          | 4     | 26Z71                | 26Z70                  |
| 036          | 3    | 50/60       | 4/5   | 26Z71                | 26Z70                  |
| 036          | 3    | 51/61       | 4/5   | 26Z71                | 26Z70                  |
| 036          | 3    | 60          | 5     | 26Z72                | 26Z70                  |
| 048          | 4    | 30/36       | 2.5/3 | 26Z70                | 26Z71                  |
| 048          | 4    | 36          | 3     | 26Z70                | 26Z71                  |
| 048          | 4    | 60          | 5     | 26Z72                | 26Z71                  |
| 060          | 5    | 50/60       | 4/5   | 26Z71                | 26Z72                  |
| 060          | 5    | 51/61       | 4/5   | 26Z71                | 26Z72                  |

### TXV Ranges:

**26Z70** - 1.5 to 3 ton systems - Use on 3 ton (036) and lower systems.

**26Z71** - 3.5-4 ton systems - Use on 4 ton (048) and down to 3.5 ton (042) systems.

**26Z72** - 5 ton systems - Use on 5 ton (060) systems only.



## REVISIONS

| Sections                | Description of Change  |
|-------------------------|--|
| Installation Clearances | Added information for Multi-Unit installation clearances.              |
| Optional Accessories    | Added Indoor Blower Speed Relay Kit and Indoor Blower Speed Relay Kit. |



Visit us at [www.Lennox.com](http://www.Lennox.com)

For the latest technical information, [www.LennoxCommercial.com](http://www.LennoxCommercial.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.

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