LENNOX

ELITE[®] SERIES Upflow / Horizontal - Two-Stage Heat - Constant Torgue Blower - 60 Hz

RESIDENTIAL PRODUCT SPECIFICATIONS Bulletin No. 210871 April 2024 Supersedes all previous versions

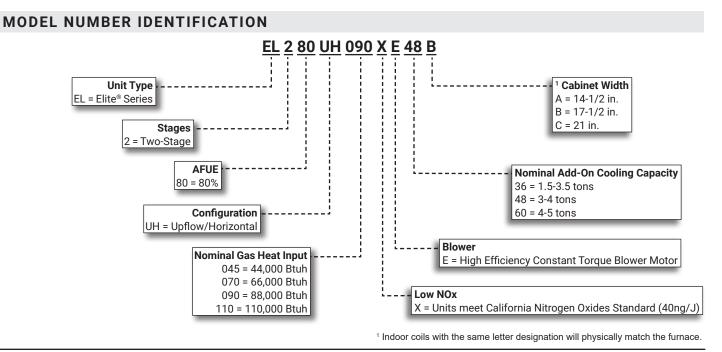
GAS FURNACES

EL280UHE





AFUE - 80% Input - 44,000 to 110,000 Btuh Nominal Add-on Cooling - 1.5 to 5 Tons



- 1. Lennox Duralok[™] Heat Exchanger
- 2. Inshot Burners
- 3. SureLight® Hot Surface Ignitor
- 4. Two-Stage Gas Control Valve
- 5. Two-Speed Combustion Air Inducer
- 6. Flame Rollout Switches
- 7. SureLight[®] Integrated Furnace Control
- 8. Power Saver[™] Constant Torque Blower
- 9. Insulated Cabinet
- 10. Safety Interlock Switch
- 11. Gas Piping And Electrical Inlets

NOTE - EL280UHE FURNACES ARE NOT AVAILABLE IN CANADA!

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APPROVALS AND WARRANTY

APPROVALS

- AHRI Certified
- CSA International Certified
- Tested and rated according to US DOE test procedures and FTC labeling regulations
- ISO 9001 Registered Manufacturing Quality System
- Blower data from unit tests conducted in Lennox Laboratory air test chamber
- NOTE This furnace has not been CSA International design certified for installation in mobile homes, recreational vehicles, or outdoors.

California Only

- These furnaces do not meet the South Coast Air Quality Management District (SCAQMD) Rule 1111 and San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 4905 NOx emission limit (14 ng/J) and cannot be installed within the SCAOMD and SJVAPCD areas
- All "X" model furnaces are approved by the California Energy Commission and meets California Nitrogen Oxides Standard (NOx) limits of 40 ng/J

WARRANTY

- Duralok[™] Aluminized Steel Heat Exchanger:
 - · Limited twenty years in residential applications
 - Limited ten years in non-residential applications
- All other covered components:
- Limited five years in residential installations
- Limited one year in non-residential installations

NOTE - Refer to Lennox[®] Basic Limited Warranty at www.Lennox.com for additional details.

FEATURES

APPLICATIONS

- Input capacities of 44,000, 66,000, 88,000 and 110.000 Btuh
- Energy efficiency (AFUE) 80%
- · Compact cabinet for upflow, horizontal-left or horizontalright applications
- Lennox add-on indoor coils, high-efficiency air cleaners and humidifiers can easily be added to furnace
- Shipped factory assembled with all controls installed and wired
- · Ready for installation in upflow or horizontal right-hand position without any modifications
- **NOTE** Horizontal left-hand requires repositioning of pressure switch.
- Removable bottom seal panel shipped in place for side return air is easily removed for bottom/end return air applications
- Each unit factory test operated to ensure proper operation

HEATING SYSTEM

Lennox Duralok[™] Heat Exchanger Assembly

- Heavy gauge aluminized steel heat exchanger
- Crimped seam clamshell type design
- Designed for normal expansion and contraction
- Minimum resistance to air flow

- Laboratory life cycle tested in excess of industry standards
- · Compact size of heat permits low overall design of furnace cabinet

2 Inshot Burners

- Aluminized steel inshot burners provide efficient, troublefree operation
- Burner venturi mixes air and gas in correct proportion for proper combustion
- Burner assembly is removable from the unit as a single component for ease of service

3 SureLight[®] Hot Surface Ignitor

- Tough, reliable, long-life, trouble-free performance
- Silicon nitride ignitor
- Cemented to steatite block for protection against current leakage
- · Ignition leads constructed of nickel plated copper enclosed in high temperature Teflon® insulation for dependable operation



4 Two-Stage Gas Control Valve

 24 volt redundant combination two-stage gas control valve combines manual shut off switch (On-Off), automatic electric valve (dual) and gas pressure regulation into a compact combination control

HEATING SYSTEM (continued)

5 Two-Speed Combustion Air Inducer

- Heavy duty, permanent split capacitor (PSC) two-speed blower prepurges heat exchanger and safely vents flue products
- Dual pressure switches (low fire/high fire) prove blower operation before allowing gas valve to open
- · Operates only during heating cycle
- Direct access allows inducer assembly to be rotated 90° clockwise or counterclockwise to facilitate easy vent attachment

6 Flame Rollout Switches (2)

- Factory installed on burner box
- Switch provides protection from abnormal operating conditions
- Manual reset

Limit Controls

- Primary limit factory installed on vestibule panel
- Secondary limit factory installed on blower housing
- Automatic reset

Optional Accessories

High Altitude Pressure Switch Kit

• Required on most units for proper unit operation at altitudes from 4501 to 10,000 ft.

Natural Gas to LPG/Propane Conversion Kit

• Required for field changeover from natural gas to LPG/ Propane

LPG/Propane to Natural Gas Conversion Kit

• Required for field changeover from LPG/Propane to natural gas

Vent Adaptor (Upflow Applications Only)

- Allows venting through a masonry chimney without the need of a flue liner
- Manual reset temperature sensor protects against abnormal operating conditions
- Sensor wiring may be routed from either side of adaptor
- Minimum winter design temperatures:
 - -10°F when used with interior masonry chimneys.
 - +5°F when used with exterior masonry chimneys
- **NOTE** Refer to Winter Design Temperatures Map on page 8 for application information. Also refer to the installation instructions for detailed information.

BLOWER

- Direct drive blower
- · Statically and dynamically balanced
- · Resiliently mounted
- · Blower assembly easily removed for servicing
- Power Saver[™] Constant Torque Blower Motor • DC Brushless Motor
- High Efficiency Constant Torque
- ECM (Electronically Commutated Motor)
- Motor is programmed to provide constant torque at each of the selectable speeds
- Motor is controlled by the Integrated Furnace Control
- Blower speeds are easily changed on the integrated furnace control
- See blower data tables

CONTROLS

8 SureLight[®] Integrated Two-Stage Furnace Control Board

- Contains all necessary controls and relays to operate furnace
- Combustion air inducer is operated by the integrated furnace control
- Prior to ignition, a pre-purge cycle for 15 seconds is initiated
- After the main burners are turned off, a post-purge cycle for 5 seconds is run
- Flame sensor assures safe and reliable operation
- Should loss of flame occur the integrated furnace control will initiate 4 re-attempts at ignition before locking out unit operation for 60 minutes
- Watchguard type circuit automatically resets ignition controls after one hour of continuous thermostat demand after unit lockout, eliminating nuisance calls for service
- Jumper settings for single or two stage thermostat operation
- Two selectable 2nd stage recognition times (10 and 15 minutes) are available on the board when the furnace is used with a single stage thermostat
- When used with a two stage thermostat, furnace will only initiate second stage operation with a second stage thermostat demand
- Fan control consists of adjustable blower timed-off delay (60, 90, 120, 180 seconds - factory setting 90 seconds) and fixed blower timed-on delay (30 seconds heating, 2 seconds cooling)
- For air-conditioning applications, blower is automatically energized on thermostat demand for cooling
- Two accessory terminals furnished for additional power supply requirements for 120 volt (less than 1 amp) power humidifiers and powered air cleaners
- A separate 24V accessory terminal is also provided for low voltage accessories
- Ignition control has single red LED to indicate status and as an aid in troubleshooting



CONTROLS (continued)

24 Volt Transformer (40VA)

- · Furnished and factory installed on outside of control box
- · Circuit breaker (furnished) is wired in series

Field Wiring Make-Up Box

- Furnished for line voltage wiring
- · Factory installed internally on left side of furnace
- Box may be installed internally on right side of furnace

Optional Accessories

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
- 7:28 pm 65° 🕷

 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 IO™
- · 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 Lennox® Communicating thermostats
- High Definition Color Display with Subbase, Smart Hub Controller, wallplate (for retrofit installations) furnished for easy installation
- See the Lennox[®] E30 Smart Wi-Fi Thermostat Product Specifications bulletin for more information

Remote Outdoor Temperature Sensor

- Used with the Lennox[®] F30 Smart Thermostat
- When installed outdoors, sensor allows thermostat to display outdoor temperature
- **NOTE** Sensor is required for Enhanced Dehumidification Control (EDA) applications.
- **NOTE** The outdoor sensor is furnished as standard with Lennox[®] Communicating outdoor units, optional for conventional units.

Thermostat

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

Furnace Twinning Panel

- Required to operate two identical furnaces simultaneously from a single thermostat
- For single stage conventional (1 heat/1 cool), multistage conventional (2 heat/2 cool) and heat pump (3 heat/2 cool) equipment
- Can be used with common or separate ducted systems
- Contains PC Control Board with terminal strip connections for thermostat and HVAC equipment
- LEDs indicate system operating status
- Uses standard 18-gauge thermostat wire
- Power Supply: 24 VAC, 40VA (transformer not furnished)
- Mounting base with hardware furnished
- Dimensions (H x W x D): 10 x 5 x 2 in.
- **NOTE** Only identical furnaces should be twinned in order to ensure that both furnace blowers start at the same time. If furnaces are not identical, back draft dampers can be installed in either the supply or return duct.

Up to four identical furnaces can be twinned. Requires two panels that are wired together.

Furnace Twinning Kit

- · Required to operate two furnaces simultaneously.
- Kit consists of twinning relays, guick connect terminals and mounting hardware
- Used for two-stage heating/single-stage cooling with either a single-stage or two-stage thermostat

Transformer (75VA)

- Recommended when furnace is used with zoning or defrost thermostats and other 24V accessories requiring a higher VA rating
- · Circuit breaker (furnished) is wired in series
- Replaces the standard 40VA transformer





CABINET

- Low-profile, narrow width cabinet allows easy installation
- · Heavy-gauge, cold rolled steel construction
- Pre-painted finish
- Flue outlet on top of cabinet for upflow applications, can be relocated to either side of cabinet for horizontal applications
- Flanges provided on supply air opening for ease of plenum connection or alignment with indoor coil
- Insulated with foil faced insulation on sides and back of heating compartment and mat faced insulation in blower compartment
- Sealed blower compartment
- Inner blower compartment access panel seals blower compartment from air leakage
- · Cabinet door can be removed without any tools
- Complete service access

Safety interlock switch automatically shuts off power to unit when inner blower compartment access panel is removed

Gas piping and electrical inlets are provided in both sides of cabinet

Low Leakage Cabinet

• All models have less than 2% air leakage and meet ANSI/ASHRAE Standard 193-2010 "Method of Test for Determining the Air Tightness of HVAC Equipment"

Bottom/Side Return Air Entry:

- Upflow/horizontal with bottom return air entry:
 - Remove furnished bottom seal panel from cabinet
- · Upflow only with side return-air entry:
 - Corners are marked on either side of cabinet for return air cut-out
- See dimension drawings
- **NOTE** 60C size units that require air volumes over 1800 cfm must have one of the following:
 - Single side return air <u>and</u> Optional Return Air Base with transition that must accommodate required $20 \times 25 \times 1$ inch air filter to maintain proper velocity
 - Bottom return air
 - Return air from both sides
 - Bottom and one side return air
- See Blower Data Tables for additional information

Coil Match-Up

- All furnaces exactly match Lennox cased upflow indoor coils and horizontal indoor coils with same letter designation (A, B, C, D) in model number
- No adaptor required
- · Engaging holes furnished on cabinet for alignment
- Lennox uncased coils match furnaces without any overhang but require an optional adaptor base or field fabricated transition to match furnace opening
- See coil bulletin for additional information

Optional Accessories

Horizontal Suspension Kit

- Provides suspension of unit and indoor coil in horizontal applications
- Allows complete service access
- Consists of corner mounted hanging brackets with vibration isolators, return air end support rail and hardware for assembly
- Metal hanging straps must be field provided

Return Air Base

- A field fabricated transition or Return Air Base is required when using an IAQ product higher than 14-3/16 in. installed next to the unit and serviced from the front. IAQ products higher than 20 in. require a field fabricated transition
- Base must be used for 60C models with air volumes over 1800 cfm in upflow applications when only one side return is required
- Cabinet is shipped flat for easy field assembly and is prepainted steel to match the furnace. See Dimension Drawing

High Performance Economizer (Commercial Applications Only)

- Designed for applications requiring outdoor air to be utilized in a commercial HVAC system. Allows the entry of fresh outdoor air for free cooling, reducing the requirement for mechanical cooling
- Heavy gauge galvanized steel cabinet lined with thick fiberglass insulation
- Mixed air sensor, outdoor air sensor and 24VAC transformer furnished
- Approved for California Title 24 building standards.
- ASHRAE 90.1-2010 compliant
- See separate Product Specifications bulletin for additional information and available control and sensor options

FILTER (not furnished)

 Filter and provisions for external mounting must be field provided

Optional Accessories

Air Filter and Rack Kit for Horizontal Return Air (End) Applications

- Washable or vacuum cleanable polyurethane frame type filter and external end return air rack available for field installation
- Rack has filter door for easy filter servicing
- Flanges on rack allow easy duct connection
- See dimension drawing

Air Filter and Rack Kit for Upflow Side Return Air

- Applications Not for use with Return Air Base
- Washable or vacuum cleanable polyurethane frame type filter and external side return air rack available for field installation
- Available in single and ten pack kits
- · Rack has filter door for easy filter servicing
- Flanges on rack allow easy duct connection
- Field installs on either side of unit cabinet (See dimension drawing)

99% WINTER DESIGN TEMPERATURES FOR THE CONTIGUOUS UNITED STATES



This map is a necessarily generalized guide to temperatures in the contiguous Unites States. Temperatures shown for areas such as mountainous regions and large urban centers may not be accurate. The data used to develop this map was taken from the 1993 ASHRAE Fundamentals Handbook (Chapter 24, Table 1: Climate Conditions for the United States). Reprinted with permission from NFPA 54: National Fuel Gas Code 1999, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association on the referenced subject, which is represented only by the standard in its entirety.

INSTALLATION CLEARANCES

| UPFLOW POSITION | | | | | | | | | | |
|------------------------|-------------|--------------------|--|--|--|--|--|--|--|--|
| Vent Type | Type B1 | Туре С | | | | | | | | |
| Sides | 0 (0) | ¹ 0 (0) | | | | | | | | |
| Rear | 0 (0) | 0 (0) | | | | | | | | |
| Тор | 1 (25) | 1 (25) | | | | | | | | |
| Front | 2-1/4 (57) | 2-1/4 (57) | | | | | | | | |
| Front (service/alcove) | 24 (610) | 24 (610) | | | | | | | | |
| Floor | Combustible | Combustible | | | | | | | | |
| Flue | 1 (25) | 6 (152) | | | | | | | | |
| | | | | | | | | | | |

NOTE – Air for combustion must conform to the methods outlined in the National Fuel Gas Code (NFPA 54/ANSI-Z223.1).

NOTE – In the U.S. flue sizing must conform to the methods outlined in the current National Fuel Gas Code (NFPA 54/ANSI-Z223.1) or applicable provisions of local building codes.

¹ Left side requires 4 in. if single wall vent is used on 14-1/2 in. "A" width cabinets, 2 in. on 17-1/2 in. "B" width cabinets.

HORIZONTAL POSITION

| Vent Type | Type B1 | Туре С |
|-----------------|--------------------|--------------------|
| End | ¹ 2 | 1 2 |
| Rear | 0 (0) | 0 (0) |
| Тор | ¹ 0 (0) | ¹ 0 (0) |
| Front | 2-1/4 (57) | 2-1/4 (57) |
| Front (service) | 24 (610) | 24 (610) |
| Floor | Combustible | Combustible |
| Flue | 1 (25) | 6 (152) |

NOTE – Air for combustion must conform to the methods outlined in the National Fuel Gas Code (NFPA 54/ANSI-Z223.1).

NOTE – In the U.S. flue sizing must conform to the methods outlined in the current National Fuel Gas Code (NFPA 54/ANSI-Z223.1) or applicable provisions of local building codes.

¹ Line contact installation permissible between jacket top or sides and building joists.

| Gas | | Model No. | EL280UH045E36A | EL280UH070E36A |
|------------------------|------|--|----------------|-----------------|
| Heating | | Model No Low NOx | | EL280UH070XE36A |
| Performance | | ¹ AFUE | 80% | 80% |
| | High | Input - Btuh | 44,000 | 66,000 |
| | Fire | Output - Btuh | 35,000 | 54,000 |
| | | Temperature rise range - °F | 30 - 60 | 30 - 60 |
| | (| Gas Manifold Pressure (in. w.g.) Nat. Gas / LPG/Propane | 3.5 / 10.0 | 3.5 / 10.0 |
| | Low | Input - Btuh | 29,000 | 43,000 |
| | Fire | Output - Btuh | 23,000 | 35,000 |
| | | Temperature rise range - °F | 20 - 50 | 20 - 50 |
| | (| Gas Manifold Pressure (in. w.g.) Nat. Gas / LPG/Propane | 1.7 / 4.5 | 1.7 / 4.5 |
| High static - in. w.g. | | Heating | 0.5 | 0.5 |
| | | Cooling | 0.5 | 0.5 |
| Connections | | Flue connection – in. round | 4 | 4 |
| n. | | Gas pipe size IPS | 1/2 | 1/2 |
| ndoor | Whee | el nominal diameter x width - in. | 10 x 8 | 10 x 8 |
| Blower | | Motor output - hp | 1/2 | 1/2 |
| | | Tons of add-on cooling | 1.5 - 3.5 | 2 - 3.5 |
| | | Air Volume Range - cfm | 250 - 1500 | 350 - 1375 |
| Electrical Data | | Voltage | 120 volts - 60 | hertz - 1 phase |
| | | Blower motor full load amps | 6.1 | 6.1 |
| | Ν | Aaximum overcurrent protection | 15 | 15 |
| Shipping Data | | lbs 1 package | 111 | 121 |

NOTE - Filters and provisions for mounting are not furnished and must be field provided.

¹ Annual Fuel Utilization Efficiency based on DOE test procedures and according to FTC labeling regulations. Isolated combustion system rating for non-weatherized furnaces.

| Gas | | Model No. | EL280UH090E36B | EL280UH090E48B |
|------------------------|------|--|----------------|-----------------|
| Heating | | Model No Low NOx | | EL280UH090XE48B |
| Performance | | ¹ AFUE | 80% | 80% |
| | High | Input - Btuh | 88,000 | 88,000 |
| | Fire | Output - Btuh | 71,000 | 72,000 |
| | | Temperature rise range - °F | 35 - 65 | 30 - 60 |
| | (| Gas Manifold Pressure (in. w.g.) Nat. Gas / LPG/Propane | 3.5 / 10.0 | 3.5 / 10.0 |
| | Low | Input - Btuh | 57,000 | 57,000 |
| | Fire | Output - Btuh | 47,000 | 46,000 |
| | | Temperature rise range - °F | 25 - 55 | 20 - 50 |
| | (| Gas Manifold Pressure (in. w.g.) Nat. Gas / LPG/Propane | 1.7 / 4.5 | 1.7 / 4.5 |
| High static - in. w.g. | | Heating | 0.5 | 0.5 |
| | | Cooling | 0.5 | 0.5 |
| Connections | | Flue connection – in. round | 4 | 4 |
| in. | | Gas pipe size IPS | 1/2 | 1/2 |
| Indoor | Whee | el nominal diameter x width - in. | 10 x 9 | 10 x 10 |
| Blower | | Motor output - hp | 1/2 | 3/4 |
| | | Tons of add-on cooling | 2 - 3.5 | 3 - 4 |
| | | Air Volume Range - cfm | 350 - 1600 | 765 - 1800 |
| Electrical Data | | Voltage | 120 volts - 60 | hertz - 1 phase |
| | | Blower motor full load amps | 6.1 | 8.2 |
| | Ν | Aaximum overcurrent protection | 15 | 15 |
| Shipping Data | | lbs 1 package | 136 | 140 |

NOTE - Filters and provisions for mounting are not furnished and must be field provided.

¹ Annual Fuel Utilization Efficiency based on DOE test procedures and according to FTC labeling regulations. Isolated combustion system rating for non-weatherized furnaces.

| SPECIFICATIO | NS | | | |
|---------------------------------------|------------------------|--|----------------|-----------------|
| Gas | | Model No. | EL280UH110E48C | EL280UH110E60C |
| Heating | | Model No Low NOx | | EL280UH110XE60C |
| Performance High static - in. w.g. | | ¹ AFUE | 80% | 80% |
| | High | Input - Btuh | 110,000 | 110,000 |
| | Fire | Output - Btuh | 89,000 | 88,000 |
| | | Temperature rise range - °F | 35 - 65 | 30 - 60 |
| | | Gas Manifold Pressure (in. w.g.) Nat. Gas / LPG/Propane | 3.5 / 10.0 | 3.5 / 10.0 |
| | Low | Input - Btuh | 72,000 | 72,000 |
| | Fire | Output - Btuh | 58,000 | 59,000 |
| | | Temperature rise range - °F | 25 - 55 | 20 - 50 |
| | | Gas Manifold Pressure (in. w.g.) Nat. Gas / LPG/Propane | 1.7 / 4.5 | 1.7 / 4.5 |
| High static - in. w.g. | | Heating | 0.5 | 0.5 |
| | | Cooling | 0.5 | 0.5 |
| Connections | | Flue connection – in. round | 4 | 4 |
| in. | | Gas pipe size IPS | 1/2 | 1/2 |
| Indoor | Whe | eel nominal diameter x width - in. | 10 x 10 | 11-1/2 x 10 |
| Blower | | Motor output - hp | 3/4 | 1 |
| | | Tons of add-on cooling | 3 - 4 | 4 - 5 |
| | Air Volume Range - cfm | | 865 - 1780 | 1100 - 2200 |
| Electrical Data | | Voltage | 120 volts - 60 | hertz - 1 phase |
| | | Blower motor full load amps | 8.2 | 10 |
| | | Maximum overcurrent protection | 15 | 15 |
| Shipping Data | | lbs 1 package | 152 | 156 |
| | | | | |

NOTE - Filters and provisions for mounting are not furnished and must be field provided. ¹Annual Fuel Utilization Efficiency based on DOE test procedures and according to FTC labeling regulations. Isolated combustion system rating for non-weatherized furnaces.

| Furnace Twinning Panel | | | Y3653 | Y3653 | Y3653 |
|--------------------------------------|------------------|----------------------|-------------|-------------|-------------|
| | | | | | |
| Furnace Twinning Kit | | | 16W72 | 16W72 | 16W72 |
| Transformer (75VA) | | | 27J32 | 27J32 | 27J32 |
| FILTERS | | | | | |
| ¹ Air Filter and Rack Kit | Horizontal (end) | | 87L95 | 87L96 | 87L97 |
| | · · / | Size of filter - in. | 14 x 25 x 1 | 18 x 25 x 1 | 20 x 25 x 1 |
| | Side Return | Single | 44J22 | 44J22 | 44J22 |
| | | Ū. | | | |
| | | Ten Pack | 66K63 | 66K63 | 66K63 |
| | | 16 x 25 x 1 | 16 x 25 x 1 | 16 x 25 x 1 | |
| | | | 1 | 1 | |
| VENTING | | | | | |

¹ Cleanable polyurethane, frame-type filter.

GAS HEAT ACCESSORIES - ORDER SEPARATELY

| Input | F | High Altitude Pressure Switch | | Natural Gas to LPG/Propane Kit | LPG/Propane to Natural Gas Kit | Natural Gas High Altitude Orifice Kit | LPG/Propane High Altitude Orifice Kit |
|-------|--------------|----------------------------------|-------|--------------------------------------|--------------------------------------|---|---|
| | 0 - 4500 ft. | 0 ft. 4501 - 7500 ft. 7501 - 10, | | 0 - 7500 ft. | 0 - 7500 ft. | 7501 - 10,000 ft. | 7501 - 10,000 ft. |
| 045 | No Change | 91W53 | 73W35 | 11K51 | 77W09 | 73W37 | 11K46 |
| 070 | No Change | 91W53 | 73W35 | 11K51 | 77W09 | 73W37 | 11K46 |
| 090 | No Change | 91W53 | 73W35 | 11K51 | 77W09 | 73W37 | 11K46 |
| 110 | No Change | 91W53 | 73W35 | 11K51 | 77W09 | 73W37 | 11K46 |

HIGH ALTITUDE DERATE

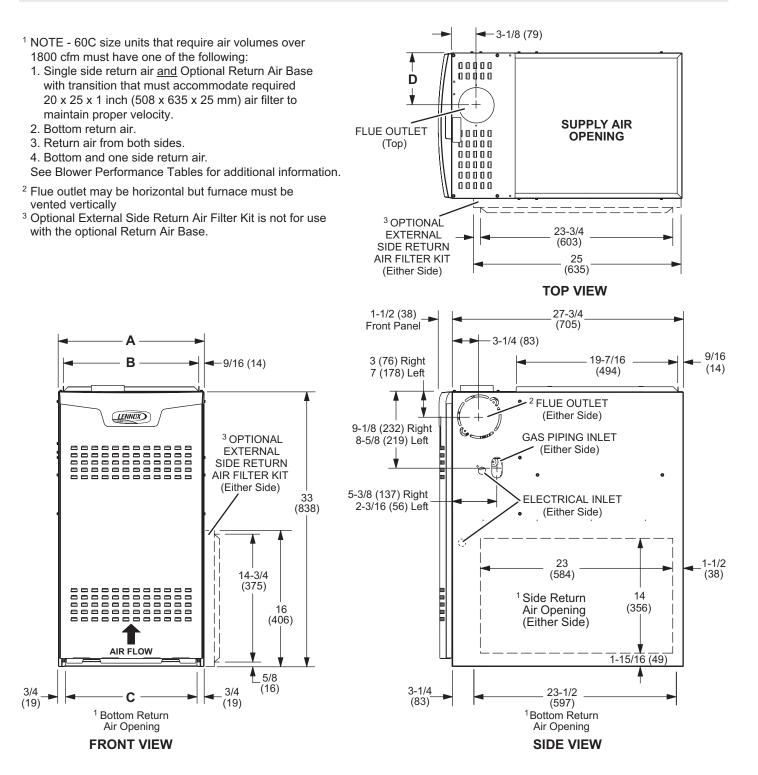
NOTE - Units may be installed at altitudes up to 4500 ft. above sea level without any modifications. At altitudes above 4500 ft. units must be derated to match information in the shaded area shown below.

NOTE - This is the only permissible derate for these units.

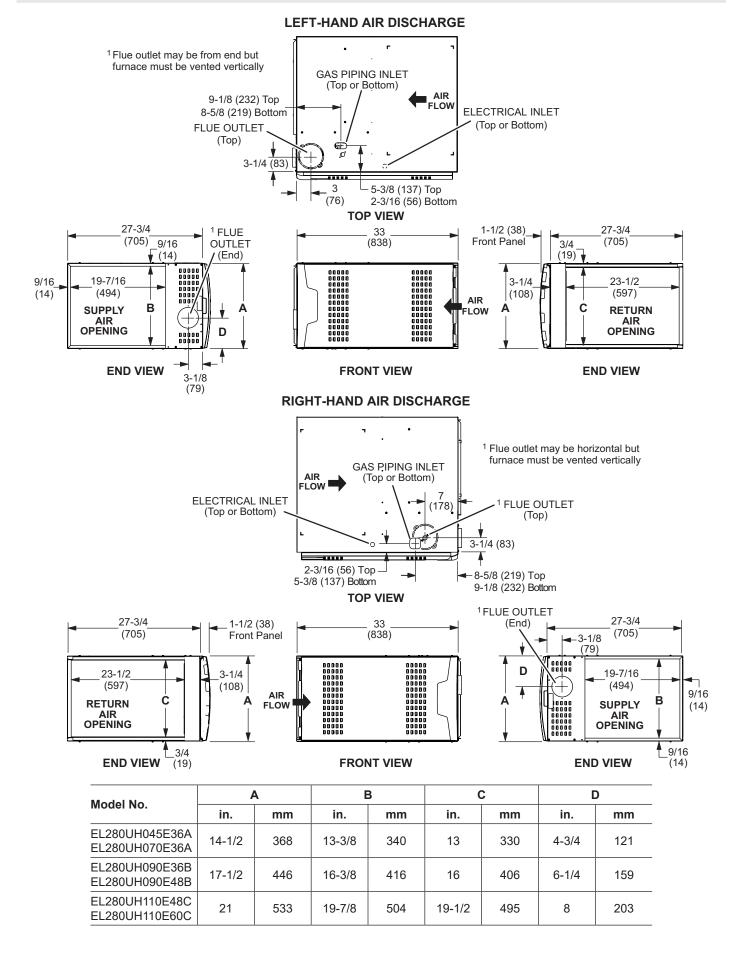
| | | | | | Gas Mani | fold Press | sure (Outle | et) in. w.g. | | | | |
|-------|--------------|-------------|--------------|-------------|-----------------|-------------|--------------|--------------|--------------------------|-------------|--------------|-------------|
| | | 0 - 450 | 0 Feet | | 4501 -7500 Feet | | | | 7501 - 10,000 ft. | | | |
| Input | Natural Gas | | LPG/Propane | | Natural Gas | | LPG/Propane | | ¹ Natural Gas | | LPG/Propane | |
| | High Fire | Low Fire | High Fire | Low Fire | High Fire | Low Fire | High Fire | Low Fire | High Fire | Low Fire | High Fire | Low Fire |
| 045 | 3.5 | 1.7 | 10 | 4.5 | 3.2 | 1.5 | 10 | 4.5 | 3.5 | 1.7 | 10 | 4.5 |
| 070 | 3.5 | 1.7 | 10 | 4.5 | 3.2 | 1.5 | 10 | 4.5 | 3.5 | 1.7 | 10 | 4.5 |
| 090 | 3.5 | 1.7 | 10 | 4.5 | 3.2 | 1.5 | 10 | 4.5 | 3.5 | 1.7 | 10 | 4.5 |
| 110 | 3.5 | 1.7 | 10 | 4.5 | 3.2 | 1.5 | 10 | 4.5 | 3.5 | 1.7 | 10 | 4.5 |

¹ Natural Gas High Altitude Orifice Kit required.

DIMENSIONS

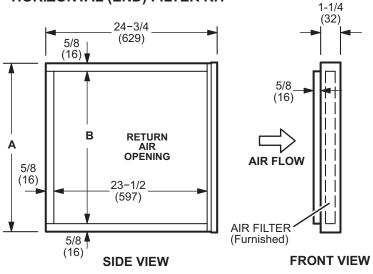


| Medel Ne | ŀ | 4 | E | 3 | (|) | D | |
|----------------------------------|--------|-----|--------|-----|--------|-----|-------|-----|
| Model No. | in. | mm | in. | mm | in. | mm | in. | mm |
| EL280UH045E36A EL280UH070E36A | 14-1/2 | 368 | 13-3/8 | 340 | 13 | 330 | 4-3/4 | 121 |
| EL280UH090E36B EL280UH090E48B | 17-1/2 | 446 | 16-3/8 | 416 | 16 | 406 | 6-1/4 | 159 |
| EL280UH110E48C EL280UH110E60C | 21 | 533 | 19-7/8 | 504 | 19-1/2 | 495 | 8 | 203 |



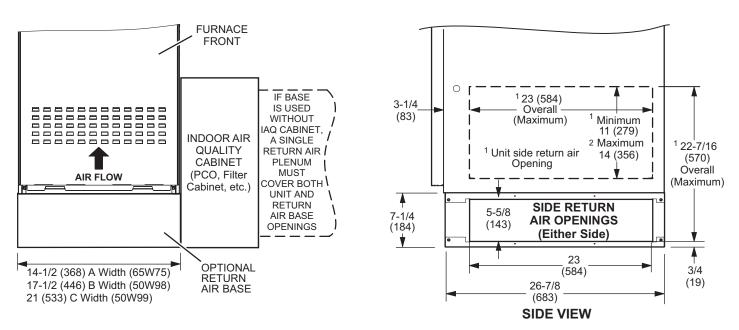
EL280UHE / Page 13

HORIZONTAL (END) FILTER KIT



| Furnace Cabinet Width | Catalog | Catalog A | | | В | | |
|-----------------------------|---------|-----------|-----|--------|-----|--|--|
| | Number | in. | mm | in. | mm | | |
| Α | 87L95 | 14 | 356 | 12-3/4 | 324 | | |
| В | 87L96 | 18 | 457 | 16-3/4 | 425 | | |
| С | 87L97 | 21 | 533 | 18-3/4 | 476 | | |

Optional Return Air Base (Upflow Applications Only - For use with A, B and C width cabinets)



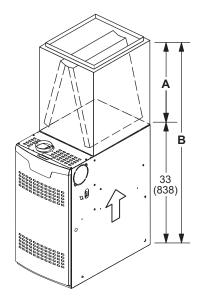
NOTE- Optional Side Return Air Filter Kits are not for use with Optional Return Air Base.

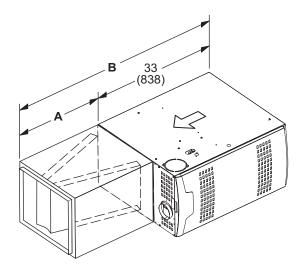
¹ Both the unit return air opening and the base return air opening must be covered by a single plenum or IAQ cabinet. Minimum unit side return air opening dimensions for units requiring 1800 cfm or more of air (W x H): 23 x 11 in. (584 x 279 mm). The opening can be cut as needed to accommodate plenum or IAQ cabinet while maintaining dimensions shown. Side return air openings must be cut in the field. There are cutting guides stenciled on the cabinet for the side return air opening. The size of the opening must not extend beyond the markings on the furnace cabinet.

² To minimize pressure drop, the largest opening height possible, up to 14 in. (356 mm), is preferred.

| | | | /CX35 ised | | | C35 Uncased | | | | |
|---|--------|-----|---------------|------|--------|----------------|--------|------|--|--|
| Model No | Α | Α | | В | | | В | | | |
| | in. | mm | in. | mm | in. | mm | in. | mm | | |
| C35/CX35-18/24A C35/CX35-18/24B | 16-1/2 | 419 | 49-1/2 | 1257 | 14-1/8 | 359 | 47-1/8 | 1197 | | |
| C35/CX35-24A C35/CX35-24B | 18-1/2 | 470 | 51-1/2 | 1308 | 16-3/8 | 416 | 49-3/8 | 1254 | | |
| | 20-1/2 | 521 | 53-1/2 | 1359 | | | | | | |
| C35/CX35-30A C35/CX35-30B | 22-1/2 | 572 | 55-1/2 | 1410 | 20-3/4 | 527 | 53-3/4 | 1365 | | |
| C35/CX35-30/36A C35/CX35-30/36B C35/CX35-30/36C | 24-1/2 | 622 | 57-1/2 | 1461 | 22-1/4 | 565 | 55-1/4 | 1403 | | |
| C35/CX35-36A C35/CX35-36B | 24-1/2 | 622 | 57-1/2 | 1461 | 22-3/8 | 568 | 55-3/8 | 1407 | | |
| | 24-1/2 | 622 | 57-1/2 | 1461 | | | | | | |
| C35/CX35-48B C35/CX35-48C | 27-1/2 | 699 | 60-1/2 | 1537 | 26-1/4 | 667 | 59-1/4 | 1505 | | |
| | 24-1/2 | 622 | 57-1/2 | 1461 | | | | | | |
| C35/CX35-49C | 29-1/2 | 749 | 62-1/2 | 1588 | 28-1/2 | 724 | 61-1/2 | 1562 | | |
| C35/CX35-50/60C | 27-1/2 | 699 | 60-1/2 | 1537 | 25-7/8 | 657 | 58-7/8 | 1495 | | |
| CX35-60C | 31-1/2 | 800 | 64-1/2 | 1638 | 30-5/8 | 778 | 63-5/8 | 1616 | | |

UPFLOW POSITION





HORIZONTAL POSITION

| Ma | odel No. | A | 4 | В | | |
|--|---|--------|-----|--------|------|--|
| IVIC | del NO. | in. | mm | in. | mm | |
| | CH | 1X35 | | | | |
| CHX35-18A, CHX35-24A, CHX35-24B, CHX35-30B, | CHX35-36A, CHX35-36B, CHX35-36C, CHX35-42C, CHX35-48C | 26-1/2 | 673 | 59-1/2 | 1511 | |
| CHX35-30A, CHX35-42B, CHX35-48B, | CHX35-51/61C | 31-1/2 | 880 | 64-1/2 | 1638 | |

BLOWER DATA

EL280UH045E36A PERFORMANCE (Less Filter)

| External | | Air Volume / Watts at Various Blower Speeds | | | | | | | | | | | | | |
|--------------------|------|---|------|-----------------------|------------|---------------------|------|----------------------|--------------|-------|--|--|--|--|--|
| Static Pressure | | gh ack) | | m-High own) | Med (Bl | l ium ue) | | m-Low low) | Low (Red) | | | | | | |
| in. w.g. | cfm | Watts | cfm | Watts | cfm | Watts | cfm | Watts | cfm | Watts | | | | | |
| 0.00 | 1441 | 306 | 1232 | 168 | 1056 | 107 | 1002 | 90 | 1036 | 103 | | | | | |
| 0.10 | 1436 | 310 | 1199 | 175 | 1022 | 113 | 875 | 79 | 875 | 82 | | | | | |
| 0.20 | 1431 | 315 | 1166 | 183 | 987 | 120 | 747 | 68 | 714 | 62 | | | | | |
| 0.30 | 1413 | 324 | 1138 | 192 | 938 | 129 | 696 | 76 | 514 | 49 | | | | | |
| 0.40 | 1378 | 337 | 1104 | 199 | 905 | 137 | 640 | 81 | 448 | 55 | | | | | |
| 0.50 | 1350 | 345 | 1070 | 206 | 858 | 146 | 588 | 87 | 367 | 60 | | | | | |
| 0.60 | 1321 | 357 | 1031 | 215 | 824 | 152 | 533 | 93 | 311 | 65 | | | | | |
| 0.70 | 1292 | 366 | 993 | 226 | 773 | 159 | 488 | 98 | 272 | 69 | | | | | |
| 0.80 | 1267 | 378 | 969 | 233 | 737 | 165 | 426 | 104 | 232 | 73 | | | | | |
| 0.90 | 1239 | 385 | 926 | 243 | 691 | 173 | 382 | 108 | - | - | | | | | |
| 1.00 | 1210 | 394 | 891 | 250 | 649 | 179 | - | - | - | - | | | | | |

EL280UH070E36A PERFORMANCE (Less Filter)

| External | | Air Volume / Watts at Various Blower Speeds | | | | | | | | | | | | | |
|--------------------|------|---|------|-----------------------|------|---------------------|-----|-----------------------|--------------|-------|--|--|--|--|--|
| Static Pressure | | gh ack) | | m-High own) | | lium lue) | | m-Low llow) | Low (Red) | | | | | | |
| in. w.g. | cfm | Watts | cfm | Watts | cfm | Watts | cfm | Watts | cfm | Watts | | | | | |
| 0.00 | 1458 | 302 | 1325 | 240 | 1200 | 165 | 966 | 97 | 877 | 78 | | | | | |
| 0.10 | 1425 | 314 | 1300 | 247 | 1163 | 177 | 922 | 102 | 801 | 75 | | | | | |
| 0.20 | 1391 | 326 | 1275 | 253 | 1126 | 189 | 877 | 108 | 725 | 71 | | | | | |
| 0.30 | 1369 | 336 | 1245 | 266 | 1099 | 196 | 840 | 115 | 673 | 77 | | | | | |
| 0.40 | 1335 | 348 | 1217 | 271 | 1059 | 205 | 796 | 122 | 625 | 85 | | | | | |
| 0.50 | 1312 | 355 | 1183 | 284 | 1029 | 216 | 761 | 128 | 580 | 87 | | | | | |
| 0.60 | 1282 | 366 | 1156 | 292 | 995 | 223 | 718 | 137 | 530 | 95 | | | | | |
| 0.70 | 1255 | 378 | 1123 | 303 | 959 | 231 | 680 | 144 | 482 | 99 | | | | | |
| 0.80 | 1227 | 386 | 1094 | 309 | 929 | 240 | 638 | 149 | 429 | 107 | | | | | |
| 0.90 | 1196 | 397 | 1065 | 321 | 902 | 247 | 605 | 157 | 371 | 111 | | | | | |
| 1.00 | 1170 | 405 | 1034 | 328 | 865 | 254 | 570 | 165 | - | - | | | | | |

EL280UH090E36B PERFORMANCE (Less Filter)

| External | | Air Volume / Watts at Various Blower Speeds | | | | | | | | | | | | | | |
|--------------------|------|---|------|-----------------------|------|-------------|------|----------------------|--------------|-------|--|--|--|--|--|--|
| Static Pressure | | gh ack) | | m-High own) | | lium ue) | | m-Low low) | Low (Red) | | | | | | | |
| in. w.g. | cfm | Watts | cfm | Watts | cfm | Watts | cfm | Watts | cfm | Watts | | | | | | |
| 0.00 | 1552 | 289 | 1463 | 219 | 1299 | 153 | 1059 | 89 | 1169 | 104 | | | | | | |
| 0.10 | 1524 | 300 | 1418 | 231 | 1260 | 167 | 1012 | 95 | 973 | 86 | | | | | | |
| 0.20 | 1495 | 311 | 1374 | 243 | 1220 | 182 | 965 | 102 | 777 | 67 | | | | | | |
| 0.30 | 1460 | 322 | 1323 | 254 | 1183 | 188 | 908 | 110 | 709 | 73 | | | | | | |
| 0.40 | 1424 | 334 | 1297 | 263 | 1129 | 200 | 853 | 115 | 650 | 82 | | | | | | |
| 0.50 | 1390 | 343 | 1259 | 274 | 1100 | 205 | 802 | 128 | 575 | 87 | | | | | | |
| 0.60 | 1358 | 357 | 1227 | 283 | 1064 | 213 | 736 | 132 | 517 | 96 | | | | | | |
| 0.70 | 1329 | 364 | 1185 | 294 | 1013 | 223 | 684 | 138 | 437 | 100 | | | | | | |
| 0.80 | 1289 | 376 | 1144 | 305 | 968 | 232 | 639 | 147 | 380 | 105 | | | | | | |
| 0.90 | 1246 | 385 | 1108 | 311 | 929 | 238 | 572 | 152 | 344 | 108 | | | | | | |
| 1.00 | 1215 | 396 | 1059 | 323 | 881 | 250 | 510 | 158 | - | - | | | | | | |

BLOWER DATA

| External | | Air Volume / Watts at Various Blower Speeds | | | | | | | | | | | | | |
|--------------------|------|---|------|----------------------|------|-------------|------|----------------------|--------------|-------|--|--|--|--|--|
| Static Pressure | | gh ack) | | m-High wn) | | lium ue) | | m-Low low) | Low (Red) | | | | | | |
| in. w.g. | cfm | Watts | cfm | Watts | cfm | Watts | cfm | Watts | cfm | Watts | | | | | |
| 0.00 | 1768 | 372 | 1567 | 260 | 1460 | 199 | 1350 | 178 | 1265 | 128 | | | | | |
| 0.10 | 1743 | 383 | 1538 | 269 | 1419 | 213 | 1321 | 187 | 1213 | 141 | | | | | |
| 0.20 | 1718 | 395 | 1509 | 279 | 1379 | 228 | 1292 | 195 | 1161 | 155 | | | | | |
| 0.30 | 1681 | 412 | 1466 | 293 | 1344 | 237 | 1245 | 207 | 1113 | 164 | | | | | |
| 0.40 | 1661 | 423 | 1434 | 307 | 1298 | 247 | 1198 | 217 | 1059 | 172 | | | | | |
| 0.50 | 1619 | 435 | 1396 | 317 | 1259 | 258 | 1155 | 227 | 1017 | 178 | | | | | |
| 0.60 | 1592 | 449 | 1357 | 328 | 1210 | 270 | 1106 | 235 | 968 | 188 | | | | | |
| 0.70 | 1554 | 460 | 1313 | 339 | 1176 | 279 | 1056 | 244 | 924 | 198 | | | | | |
| 0.80 | 1520 | 472 | 1274 | 348 | 1131 | 289 | 1019 | 254 | 873 | 205 | | | | | |
| 0.90 | 1457 | 477 | 1239 | 357 | 1097 | 295 | 977 | 263 | 821 | 214 | | | | | |
| 1.00 | 1291 | 429 | 1195 | 369 | 1055 | 306 | 936 | 271 | 738 | 224 | | | | | |

EL280UH090E48B PERFORMANCE (Less Filter)

EL280UH110E48C PERFORMANCE (Less Filter)

| External | Air Volume / Watts at Various Blower Speeds | | | | | | | | | | | |
|--------------------|---|-------------------|------|-----------------------|------|--------------------|------|----------------------|--------------|-------|--|--|
| Static Pressure | | gh ack) | | m-High own) | | lium ue) | | m-Low low) | Low (Red) | | | |
| in. w.g. | cfm | Watts | cfm | Watts | cfm | Watts | cfm | Watts | cfm | Watts | | |
| 0.00 | 1829 | 339 | 1628 | 240 | 1493 | 187 | 1418 | 150 | 1293 | 128 | | |
| 0.10 | 1788 | 355 | 1586 | 250 | 1450 | 199 | 1365 | 166 | 1241 | 134 | | |
| 0.20 | 1747 | 371 | 1543 | 259 | 1407 | 210 | 1313 | 182 | 1188 | 139 | | |
| 0.30 | 1714 | 384 | 1501 | 273 | 1369 | 219 | 1280 | 189 | 1141 | 149 | | |
| 0.40 | 1681 | 395 | 1458 | 286 | 1323 | 231 | 1229 | 197 | 1088 | 162 | | |
| 0.50 | 1638 | 409 | 1421 | 296 | 1271 | 240 | 1174 | 209 | 1032 | 172 | | |
| 0.60 | 1604 | 423 | 1379 | 308 | 1227 | 251 | 1131 | 218 | 981 | 178 | | |
| 0.70 | 1569 | 432 | 1328 | 316 | 1191 | 259 | 1083 | 229 | 926 | 189 | | |
| 0.80 | 1533 | 447 | 1285 | 326 | 1138 | 268 | 1040 | 236 | 871 | 197 | | |
| 0.90 | 1489 | 459 | 1245 | 338 | 1089 | 283 | 974 | 249 | 828 | 206 | | |
| 1.00 | 1455 | 472 | 1208 | 348 | 1045 | 294 | 934 | 255 | 763 | 215 | | |

BLOWER DATA

EL280UH110E60C PERFORMANCE (Less Filter)

Air Volume / Watts at Different Blower Speeds

External Static Bottom Return Air, Side Return Air from Both Sides or Return Air from Bottom and One Side.

Single Side Return Air - Air volumes in **bold** (over 1800 cfm) require Optional Return Air Base <u>and</u> field fabricated transition to accommodate 20 x 25 x 1 in. air filter in order to maintain proper air velocity.

Pressu

| Pressure | | | | | | | | | | | maintain proper air vereerty. | | | | | | | | | |
|----------|------|-------------------|------|-----------------------------|------|---------------------|------|-----------------------------|------|------------------|-------------------------------|---------------------|------|-------------------------------------|------|---------------------|------|-----------------------------|------|------------------|
| in. w.g. | | gh ack) | Hi | l ium- gh own) | | dium lue) | L | lium- ow llow) | | ow ed) | | i gh ack) | Hi | lium- i gh own) | | dium lue) | L | lium- ow llow) | | ow ed) |
| | cfm | Watts | cfm | Watts | cfm | Watts | cfm | Watts | cfm | Watts | cfm | Watts | cfm | Watts | cfm | Watts | cfm | Watts | cfm | Watts |
| 0.00 | 2242 | 596 | 1989 | 413 | 1821 | 327 | 1713 | 271 | 1545 | 194 | 2201 | 590 | 1946 | 415 | 1806 | 322 | 1686 | 264 | 1523 | 190 |
| 0.10 | 2196 | 614 | 1954 | 430 | 1794 | 337 | 1674 | 282 | 1499 | 204 | 2164 | 611 | 1911 | 430 | 1762 | 336 | 1647 | 279 | 1473 | 201 |
| 0.20 | 2151 | 632 | 1919 | 446 | 1768 | 347 | 1634 | 292 | 1454 | 214 | 2126 | 631 | 1876 | 444 | 1718 | 350 | 1608 | 294 | 1424 | 212 |
| 0.30 | 2115 | 645 | 1879 | 461 | 1706 | 364 | 1592 | 303 | 1402 | 227 | 2092 | 646 | 1839 | 458 | 1673 | 361 | 1563 | 306 | 1373 | 226 |
| 0.40 | 2084 | 662 | 1845 | 477 | 1670 | 377 | 1555 | 318 | 1357 | 238 | 2055 | 662 | 1800 | 474 | 1638 | 374 | 1520 | 317 | 1324 | 237 |
| 0.50 | 2062 | 678 | 1799 | 491 | 1624 | 390 | 1507 | 328 | 1309 | 249 | 2016 | 678 | 1764 | 488 | 1594 | 388 | 1477 | 328 | 1275 | 247 |
| 0.60 | 2016 | 693 | 1763 | 502 | 1584 | 402 | 1464 | 342 | 1255 | 261 | 1986 | 691 | 1727 | 501 | 1556 | 401 | 1440 | 339 | 1230 | 259 |
| 0.70 | 1991 | 705 | 1728 | 519 | 1547 | 413 | 1428 | 355 | 1208 | 269 | 1967 | 705 | 1684 | 515 | 1521 | 411 | 1394 | 352 | 1172 | 270 |
| 0.80 | 1950 | 724 | 1684 | 531 | 1492 | 426 | 1374 | 366 | 1156 | 281 | 1916 | 720 | 1656 | 526 | 1480 | 425 | 1350 | 364 | 1141 | 278 |
| 0.90 | 1912 | 733 | 1651 | 543 | 1460 | 439 | 1322 | 376 | 1105 | 292 | 1895 | 734 | 1618 | 538 | 1440 | 437 | 1310 | 376 | 1092 | 290 |
| 1.00 | 1876 | 753 | 1605 | 557 | 1426 | 450 | 1291 | 389 | 1038 | 303 | 1845 | 752 | 1577 | 553 | 1396 | 450 | 1267 | 389 | 1046 | 301 |

| REVISIONS | | | | | |
|----------------------|-------------------------|--|--|--|--|
| Sections | Description of Change | | | | |
| Optional Accessories | Added 75VA Transformer. | | | | |







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