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**Energence® Rooftop Units
High Efficiency - 60 Hz**

**COMMERCIAL
PRODUCT SPECIFICATIONS**

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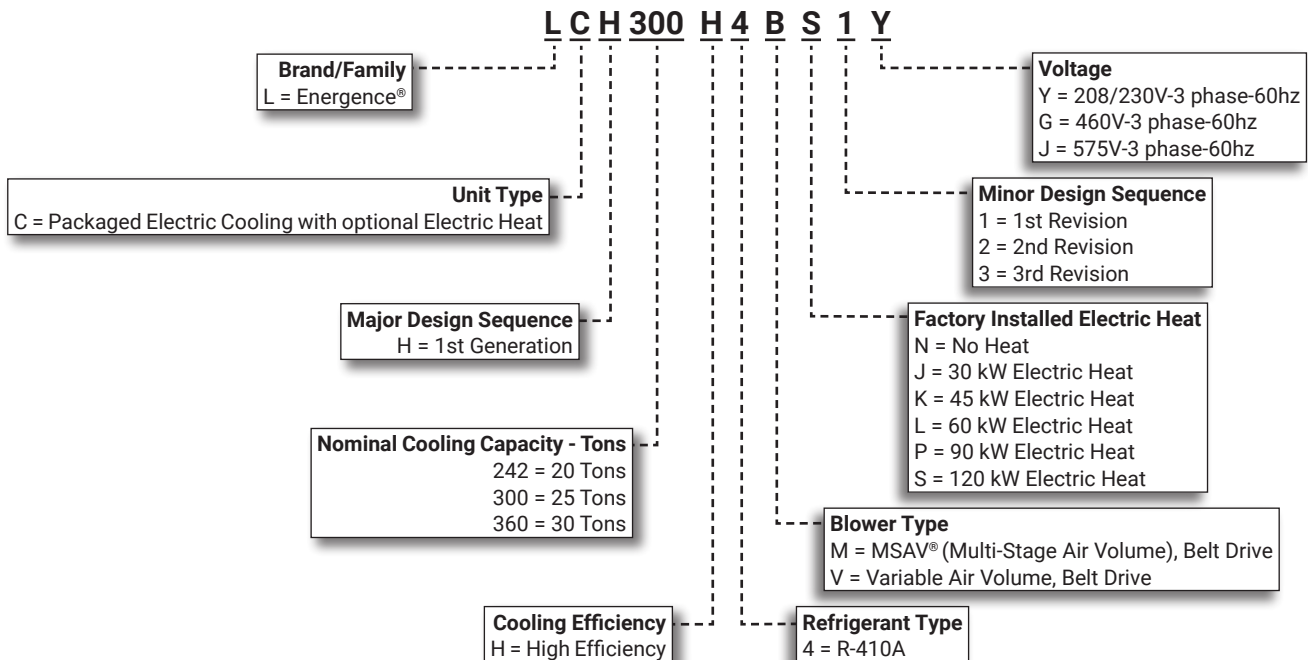
SMART WIRE™ SYSTEM



**ASHRAE 90.1
COMPLIANT**

**20 to 30 Tons
Net Cooling Capacity – 238,000 to 354,000 Btuh
Optional Electric Heat - 30 to 120 kW**

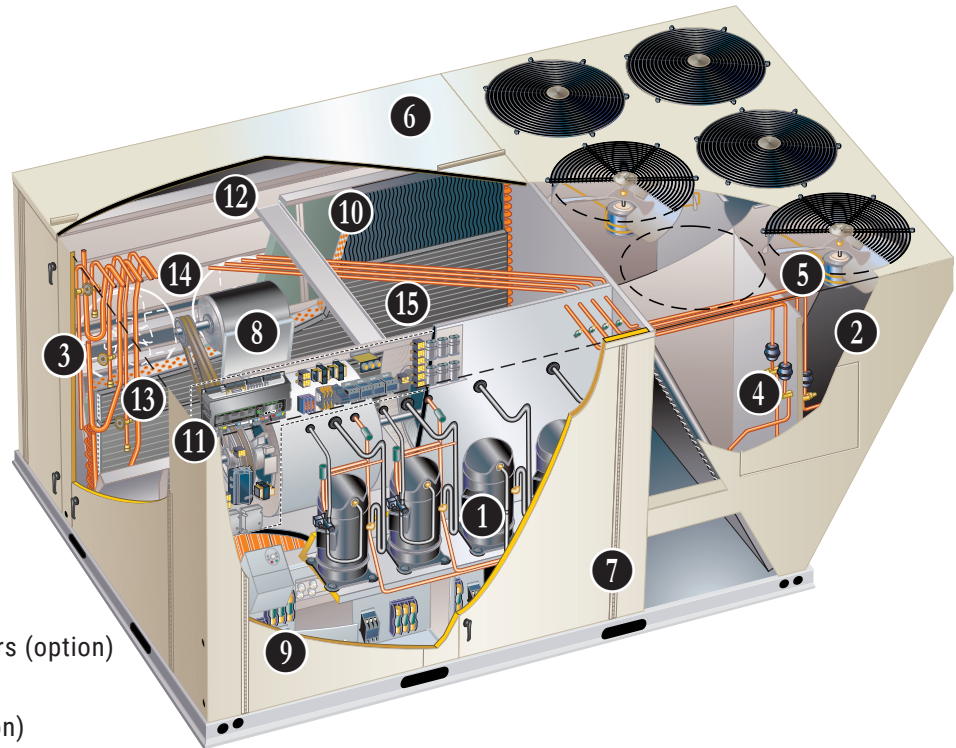
MODEL NUMBER IDENTIFICATION



FEATURE HIGHLIGHTS

Lennox' Energence® packaged rooftop unit product line was created to save energy with intelligence by offering some of the highest energy efficiency ratings available with a powerful, easy to use unit controller. This makes Energence rooftop units perfect for business owners looking for an HVAC product with the lowest total cost of ownership.

1. Scroll Compressors
2. Environ™ Coil System
3. Thermal Expansion Valves
4. Filters/Driers
5. Outdoor Coil Fan Motors
6. Heavy Gauge Steel Cabinet
7. Hinged Access Panels
8. Variable or MSAV® Multi-Stage Air Volume Blower
9. Electric Heat (option)
10. Air Filters
11. Prodigy® Control System
12. Economizer (option)
13. Downflow Barometric Relief Dampers (option)
14. Power Exhaust
15. Humiditrol® Dehumidification (option)



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APPROVALS AND WARRANTY

APPROVALS

- AHRI Standard 340/360 certified (242 models)
- Tested at conditions included in AHRI Standard 340/360 (300 and 360 models)
- ETL and CSA listed
- CSA certified energy ratings
- Unit and components ETL, NEC and CEC bonded for grounding to meet safety standards for servicing
- All models are ASHRAE 90.1-2019 energy efficiency compliant and meet or exceed requirements of Section 6.8
- All models meet DOE 2023 energy efficiency standards
- MSAV® Multi-Stage Air Volume models meet California Code of Regulations, Title 24 and ASHRAE 90.1-2019 Section 6.4.3.10 requirements for staged airflow
- ENERGY STAR® certified
- ISO 9001 Registered Manufacturing Quality System

WARRANTY

- Compressors - Limited five years
- Environ™ Coil System - Limited three years
- Prodigy® 2.0 Unit Controller - Limited three years
- Variable-Frequency Drive (VFD) - Limited five years
- High Performance Economizers (optional) - Limited five year
- All other covered components - Limited one year

FEATURES AND BENEFITS

COOLING SYSTEM

- Designed to maximize sensible and latent cooling performance at design conditions
- System can operate from 0°F to 125°F without any additional controls

R-410A Refrigerant

- Non-chlorine based
- Ozone friendly

1 Scroll Compressors

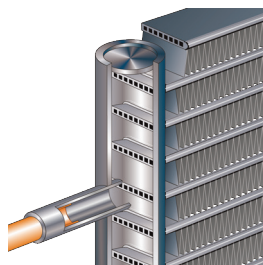
- Scroll compressors on all models for high performance, reliability and quiet operation
- Resiliently mounted on rubber grommets for quiet operation

Compressor Crankcase Heaters

- Protects against refrigerant migration that can occur during low ambient operation or during extended off cycles

2 Condenser Coil - Environ™ Coil System

- Lightweight, all aluminum brazed fin construction
- Constructed of three components
 - A flat extrusion tube
 - Fins in-between the flat extrusion tube
 - Two refrigerant manifolds



Environ™ Coil System Features:

- Improved heat transfer performance due to high primary surface area (flat tubes) versus secondary surface (fins)
- Smaller internal volume (reduced refrigerant charge)
- High durability

- All aluminum construction
- Fewer brazed joints
- Compact design
- Reduced unit weight
- Easy maintenance/cleaning
- Mounting brackets with rubber inserts
- Angled cabinet design protects coil from damage

Evaporator Coil

- Copper tube construction
- Enhanced rippled-edge aluminum fins
- Flared shoulder tubing connections
- Silver soldered construction
- Factory leak tested
- Cross-row circuiting with rifled tubing

NOTE - MSAV® Multi-Stage Air Volume models have face-split evaporator coils designed to keep condensate water off of an inactive part of the coil so the condensate will not re-enter the air stream. Variable air volume (VAV) models have row-split, intertwined evaporator coils.

3 Thermal Expansion Valves

- Ensures optimal performance throughout the application range
- Removable element head

4 Filter/Driers

- High capacity filter/drier protects the system from dirt and moisture

FEATURES AND BENEFITS

COOLING SYSTEM (continued)

High Pressure Switches

Protects the compressor from overload conditions such as dirty condenser coils, blocked refrigerant flow or loss of outdoor fan operation

Low Pressure Switches

- Protects the compressors from low pressure conditions such as low refrigerant charge or low/no airflow

Antimicrobial Condensate Drain Pan

- Composite pan, sloped to meet drainage requirements per ASHRAE 62.1
- Antimicrobial additive prevents growth of mold and mildew, which improves indoor air quality and reduces drain line blockage
- Side drain connections

NOTE - Stainless steel drain pan available as a factory installed option.

Indoor Coil Freeze Protection

- Protects the evaporator coil from damaging ice build-up due to conditions such as low/no airflow or low refrigerant charge

5 Outdoor Coil Fan Motors

- Thermal overload protected
- Totally enclosed
- Permanently lubricated ball bearings
- Shaft up
- Wire basket mount

Outdoor Coil Fans

- PVC coated fan guard furnished

Required Selections

Cooling Capacity

- Specify nominal cooling capacity

Options/Accessories

Factory Installed

Discharge Air Temperature Sensor

- Sensor sends information to the unit controller to cycle up to 2 stages of heating or 4 stages of cooling to maintain the discharge air setpoints for heating or cooling

NOTE - Automatically furnished with all Variable Air Volume (VAV) units. Sensor is shipped with the unit for remote field installation in the supply duct

Factory or Field Installed

Condensate Drain Trap

- Available in copper or PVC
- Field installed only, may be factory ordered to ship with unit

Drain Pan Overflow Switch

- Monitors condensate level in drain pan
- Shuts down unit if drain becomes clogged

Stainless Steel Drain Pan

- Non-corrosive drain pan

CABINET

6 Construction

- Heavy-gauge steel panels
- Full perimeter heavy-gauge galvanized steel base rail
- Base rails have rigging holes
- Three sides of the base rail have forklift slots
- Raised edges around duct and power entry openings in the bottom of the unit for water protection

Airflow Choice

- Units are shipped in downflow (vertical) return air flow configuration

NOTE - Units can be field converted to horizontal air flow with optional Horizontal Return Air Panel Kit and Horizontal Roof Curb.

Power Entry

- Electrical lines can be routed through the unit base or through horizontal access knock-outs

Exterior Panels

- Constructed of heavy-gauge, galvanized steel
- Textured pre-paint with polyurethane finish
- Cyclic salt fog and UV exposure up to 1,680 hours per ASTM D5894

Insulation

- Fully insulated with non-hygroscopic fiberglass insulation (conditioned areas)
- Unit base is fully insulated
- Base insulation serves as an air seal to the roof curb, eliminating the need to add a seal during installation

7 Hinged Access Panels

- Filter section
- Blower section
- Heating section
- Compressor/controls section
- Panel seals and quarter-turn latching handles provide a tight air and water seal

Options/Accessories

Factory Installed

Corrosion Protection

- Completely flexible immersed coating
- Electrodeposited dry film process
- AST ElectroFin E-Coat
- Meets Mil Spec MIL-P-53084, ASTM B117 Standard Method Salt Spray Testing
- Indoor Corrosion Protection:
 - Coated coil
 - Coated reheat coil (Humiditrol®)
 - Painted blower housing
 - Painted base
- Outdoor Corrosion Protection:
 - Coated coil
 - Painted outdoor base

FEATURES AND BENEFITS

CABINET (continued)

Field Installed

Combination Coil/Hail Guards

- Heavy gauge steel frame
- Painted to match cabinet
- Expanded metal mesh protects outdoor coil

Grille Guards

- Protects the space between outdoor coils and main cabinet

Horizontal Return Air Panel Kit

- Required for horizontal applications with Horizontal Roof Curb
- Contains panel with return air opening for field replacement of existing unit panel and panel to cover bottom return air opening in unit
- See dimension drawings

BLOWER

- A wide selection of supply air blower options are available to meet a variety of airflow requirements

8 Motor

- Overload protected
- Ball bearings
- Belt drive motors are offered on all models and are available in several different sizes to maximize air performance

NOTE - All blower motors 5 hp and above meet minimum energy efficiency standards in accordance with the Energy Independence and Security Act (EISA) of 2007

Supply Air Blower

- Forward curved blades
- Double inlet
- Blower wheel statically and dynamically balanced
- Ball bearings
- Adjustable pulley (allows speed change)
- Blower assembly slides out of unit for servicing
- Grease fittings furnished

Supply Static Pressure Transducer (VAV Models Only)

- Sends information to the Prodigy® 2.0 unit controller to control VFD blower speed
- Shipped with the unit for remote field installation in the supply duct

Required Selections

Supply Air Blower Selection

- Specify MSAV® Multi-Stage Air Volume or Variable Air Volume (VAV)
- Variable Air Volume (VAV) variable frequency drive (VFD) varies the air volume to maintain a constant duct static pressure
- MSAV® Multi-Stage Air Volume models stage the amount of airflow according to compressor stages, heating demand, ventilation demand or smoke alarm

- Utilizes a Variable Frequency Drive (VFD) to stage the supply air blower airflow
- VFD alters the frequency and voltage of the power supply to the blower to control blower speed
- The amount of airflow for each stage can be set according to a parameter in the Prodigy® 2.0 unit controller
- Unit is shipped from the factory with preset airflows
- The MSAV® Multi-Stage Air Volume supply air blower option can be ordered with or without an Electronic Bypass Control
- If equipped with the bypass control the MSAV® Multi-Stage Air Volume features automatic electronic bypass control of the VFD
- In case of a VFD malfunction, a VFD alarm is generated by the Prodigy® 2.0 unit controller
- Unit controller will automatically switch to full blower speed if a VFD alarm is generated
- VFD has an operational range of 0 to 125° F outdoor air ambient temperature
- Lower operating costs are obtained when the blower is operated on lower speeds

NOTE - Units equipped a Variable Frequency Drive (VFD) are designed to operate on balanced, three-phase power. Operating units on unbalanced three-phase power will reduce the reliability of all electrical components in the unit. Unbalanced power is a result of the power delivery system supplied by the local utility company. Factory-installed inverters are sized to drive blower motors with an equivalent current rating using balanced three-phase power. If unbalanced three-phase power is supplied; the installer must replace the existing factory-installed inverter with an inverter that has a higher current rating to allow for the imbalance. Refer to the installation instructions for additional information and replacement information.

Ordering Information

- Specify motor horsepower and drive kit number when base unit is ordered

Options/Accessories

Factory Installed

Supply VFD Blower Bypass Control

- Allows MSAV® Multi-Stage Air Volume or VAV units to operate as a constant air volume (CAV) unit in case of variable frequency drive (VFD) failure

NOTE - Bypass control for VAV models is a manual operation only. All supply air duct registers must be opened manually before operating bypass control.

Field Installed

Supply Static Limit Switch

- Manual reset switch for supply static high pressure limit
- Prevents exceeding pressure limit in supply air duct
- Optional Mounting Kit includes tubing and adaptors

ELECTRICAL

NOTE - All units include terminal block and fuse block in power entry junction box for single power entry

FEATURES AND BENEFITS

application.

SmartWire™ System

- Keyed and color-coded wiring connectors prevent miswiring
- Wire coloring scheme is standardized across all models
- Each connection is intuitively labeled to make troubleshooting and servicing quick and easy

Electrical Plugs

- Positive connection electrical plugs connect common accessories or maintenance parts for easy removal or installation

Required Selections

Voltage Choice

- Specify when ordering base unit

Options/Accessories

Factory Installed

Circuit Breakers

- HACR type
- Overload and short circuit protection
- Factory wired and mounted in the power entry panel
- Current sensitive and temperature activated
- Manual reset

SCR (Silicon Controlled Rectifier) Electric Heat Control

- Modulates small, precise increments of power to the electric heat load eliminating temperature fluctuations associated with mechanical controls
- Almost instantaneous operation with no moving parts
- Zero-Cross (fast cycling) feature improves electric heater life with less contraction and expansion of the heating elements
- The SCR operates when there is no call for heat from the building control system or thermostat
- SCR air tempering is controlled by a secondary thermostat and remote duct sensor (ordered separately)
- A call for heat overrides the SCR and modulates the SCR to 100% heat output
- A call for cooling overrides the SCR

NOTE - SCR option is not available with 45 kW, 60 kW and 90kW electric heat (208/230V) models.

NOTE - Blower Proving Switch is required and must be ordered separately for factory installation. See Controls in the Options/Accessories table.

NOTE - Available for use with conventional thermostat controls or Novar® control systems only.

Phase/Voltage Detection

- Monitors power supply to assure phase is correct at unit start-up
- If phase is incorrect, the unit will not start and an alarm code is reported to the unit controller
- Protects unit from being started with incorrect phasing which could lead to issues such as compressors running backwards

- Voltage detection monitors power supply voltage to assure proper voltage
- If voltage is not correct (over/under voltage conditions) the unit will not start and an alarm code is reported to the unit controller

NOTE - Phase/voltage detection is furnished when the MSAV® Multi-Stage Air Volume or VAV (Variable Air Volume) option is ordered.

Factory or Field Installed

Disconnect Switch

- Accessible outside of unit
- Spring loaded weatherproof cover furnished

9 Electric Heat

- Helix wound nichrome elements
- Individual element limit controls
- Wiring harness
- Unit fuse block
- See Options/Accessories tables for ordering information

GFI Service Outlets (2)

- 115V ground fault circuit interrupter (GFCI) type options:
 - Factory installed and wired, unit powered
 - Factory installed, non-powered, field wired
 - Field installed, non-powered, field wired

Field Installed

GFI Weatherproof Cover

- Single-gang cover
- Heavy-duty UV-resistant polycarbonate case construction
- Hinged base cover with gasket

INDOOR AIR QUALITY

10 Air Filters

- Disposable 2 inch filters furnished as standard

Options/Accessories

Factory or Field Installed

Healthy Climate® High Efficiency Air Filters

- Disposable MERV 8 or MERV 13 (Minimum Efficiency Reporting Value based on ASHRAE 52.2) efficiency 2-inch pleated filters

Replacement Filter Media Kit With Frame

- Replaces existing pleated filter media
- Includes washable metal mesh screen and metal frame with clip for holding replaceable non-pleated filter

Field Installed

Indoor Air Quality (CO₂) Sensors

- Monitors CO₂ levels, reports to the Prodigy® 2.0 unit controller which adjusts economizer dampers as needed

CONTROL SYSTEM

PRODIGY® CONTROL SYSTEM



11 The Prodigy 2.0 unit controller is a microprocessor-based controller that provides flexible control of all unit functions.

Features:

- LCD Display
- Easy to read menu (4 lines x 20 character display)
- Buttons for menu navigation during setup and diagnostic
- Menu navigation LEDs for Data, Setup, Service, Settings
- Main Menu and Help Buttons for quick navigation to home screen and built-in help functions
- Scroll, Value Adjustment Select and Save Buttons
- Setup menu insures proper installation and simplified setup of the rooftop unit
- Profile setup copies key settings between units with the same configuration to reduce setup time
- USB port allows a technician to download and transfer unit information to help verify service was performed
- USB software updates on the Prodigy Control System enhance functionality without the need to change components
- Unit Controller Software
- Unit self-test verifies individual critical component and system performance
- Economizer test function assures economizer is operating correctly
- Time Clock with Run-Time Information

Built-In Functions Include:

- Adjustable Blower On/Off Delay
- Built-in Control Parameter Defaults
- Compressor Time-Off Delay
- DDC Compatible
- Dirty Filter Switch Input
- Discharge Air Temperature Control
- Display/Sensor Readout
- Economizer Control Options (See Economizer / Exhaust Air / Outdoor Air sections)
- Fresh Air Tempering
- Over 100 diagnostic and status messages in English
- Exhaust Fan Control Modes for fresh air damper position
- Permanent Diagnostic Code Storage
- Field Adjustable Control Parameters (Over 200 settings)
- Indoor Air Quality Input (Demand Control Ventilation)
- Low Ambient Controls for cooling operation down to 0°F
- Gas Valve Time Delay Between First and Second Stage

- Minimum Compressor Run Time
- Network Capable (Can be daisy chained to other units or controls)
- Night Setback Mode
- Return Air Temperature Limit Control
- Safety Switch Input allows Controller to respond to a external safety switch trip
- Service Relay Output
- Smoke Alarm Mode has four choices (unit off, positive pressure, negative pressure, purge)
- Up to 2 heat/2 cool (standard Prodigy unit controller thermostat input)
- Up to 3 cool with additional relay
- Up to 4 cool with room sensor or network operation
- "Strike Three" Protection
- Gas Reheat Control allows simultaneous heating and cooling operation for humidity control of process air applications such as supermarkets
- On Demand Dehumidification monitors and controls condenser hot gas reheat operation with Humiditrol® dehumidification option
- Thermostat Bounce Delay
- Warm Up Mode Delay
- LED Indicators
- PC Interface connects the Prodigy 2.0 unit controller to a PC with the Lennox Unit Controller Software
- Room Sensor Operation controls temperature

NOTE - Prodigy Control System features shown vary with the type of rooftop unit the control is installed in.

NOTE - See separate Prodigy Control System Product Specifications Bulletin for additional information.

CONTROL SYSTEM

PRODIGY® CONTROL SYSTEM (continued)

Controls Options

Factory or Field Installed

Blower Proving Switch

- Monitors blower operation, shuts down unit if blower fails

Dirty Filter Switch

- Senses static pressure increase indicating dirty filter condition

Fresh Air Tempering

- Used in applications with high outside air requirements
- Controller energizes the first stage heat as needed to maintain a minimum supply air temperature for comfort, regardless of the thermostat demand
- When ordered as a factory option, sensor ships with the unit for field installation

Smoke Detector

- Photoelectric type
- Installed in supply air section, return air section or both sections
- Available with power board and single sensor (supply or return) or power board and two sensors (supply and return)
- Power board located in unit control compartment

Interoperability via BACnet® or LonTalk® Protocols

- Communication compatible with third-party automation systems that support the BACnet Application Specific Controller device profile, LonMark® Space Comfort Controller functional profile, or LonMark Discharge Air Controller functional profile

Commercial Control Systems

After-Market DDC

- Novar® Unit Controller and options

Thermostats

- Control system and thermostat options
- After-Market unit controller options

Field Installed

General Purpose Control Kit

- Plug-in control provides additional analog and digital inputs/outputs for field installed options

OPTIONS / ACCESSORIES

ECONOMIZER

- Economizer operation is set and controlled by the Prodigy 2.0 unit controller
- Simple plug-in connections from economizer to unit controller for easy installation
- All Emergence rooftop units are equipped with factory installed CEC Title 24 approved sensors for outside, return and discharge air temperature monitoring

NOTE - Optional sensors may be used instead of unit sensors to determine whether outdoor air is suitable for free cooling. See Options/Accessories table.

Factory or Field Installed

12 High Performance Economizer

- Approved for California Title 24 building standards
- Low leakage dampers are Air Movement and Control Association International (AMCA) Class 1A Certified - Maximum 3 CFM per sq. ft. leakage at 1 in. w.g.
- ASHRAE 90.1-2019 compliant
- Outdoor Air Hood with mist elimination is included when economizer is factory installed and is furnished with economizer when ordered for field installation
- Gear-driven action
- High torque 24-volt fully-modulating spring return damper motor
- Return air and outdoor air dampers
- Plug-in connections to unit
- Stainless steel bearings
- Enhanced neoprene blade edge seals
- Flexible stainless steel jamb seals

NOTE - High Performance Economizers are not approved for use with enthalpy controls in Title 24 applications.

NOTE - The Free Cooling setpoint for Title 24 applications must be set based on the Climate Zone where the system is installed. See Section 140.4 "Prescriptive Requirements for Space Conditioning Systems" of the California Energy Commission's 2019 Building Energy Efficiency Standards.

NOTE - Refer to Installation Instructions for complete setup information.

OPTIONS / ACCESSORIES

ECONOMIZER (continued)

Differential Sensible Control

- Factory setting
- Uses outdoor air and return air sensors that are furnished with the unit
- The Prodigy® 2.0 unit controller compares outdoor air temperature with return air
- When the outdoor air is below the configured setpoint and cooler than return air, the controller activates the economizer

NOTE - Differential Sensible Control can be configured in the field to provide Offset Differential Sensible Control or Single Sensible Control.

NOTE - In Offset Differential Sensible Control mode, the economizer is enabled if the temperature differential (offset) between outdoor air and return air reaches the configured setpoint.
In Single Sensible Control mode, the economizer is enabled when outdoor air temperature falls below the configured setpoint.

Global Control

- The unit controller communicates with a DDC system with one global sensor (enthalpy or sensible)
- Determines whether outside air is suitable for free cooling on all units connected to the control system
- Sensor must be field provided

NOTE - Global control with enthalpy is not approved for Title 24 applications.

Factory or Field Installed

Single Enthalpy Temperature Control (Not for Title 24)

- Outdoor air enthalpy sensor enables Economizer if the outdoor enthalpy is less than the setpoint of the control

Differential Enthalpy Control (Not for Title 24)

- Order two Single Enthalpy Controls
- One is field installed in the return air section
- One is installed in the outdoor air section
- Allows the economizer control to select between outdoor air or return air, whichever has lower enthalpy

Field Installed

Outdoor Air CFM Control

- Maintains constant outdoor air volume levels on the supply air fan and varying unit airflows
- Velocity sensor located in the rooftop unit outdoor air section, the Prodigy® 2.0 unit controller changes the economizer position to help minimize the effect of supply fan speed changes on outdoor air volume levels
- Setpoint for outdoor air volume is established by field testing

NOTE - Not available with Demand Control Ventilation (CO₂ Sensor) or Building Pressure Control.

Building Pressure Control

- Maintains constant building pressure level
- Includes a static pressure transducer and outdoor static pressure assembly
- Using differential pressure information between the outdoor air and the building air, the Prodigy® 2.0 unit controller changes the economizer position to help maintain a constant building pressure

NOTE - Not available with Demand Control Ventilation (CO₂ Sensor) or Outdoor Air CFM Control.

EXHAUST

Factory or Field Installed

13 Downflow Barometric Relief Dampers

- Allow relief of excess air
- Aluminum blade dampers prevent blow back and outdoor air infiltration during off cycle
- Exhaust hood is factory installed when dampers are factory installed with economizer
- Exhaust hood is furnished with dampers when ordered for field installation
- Bird screen furnished

14 Standard Static Power Exhaust Fans

- Installs internal to unit for downflow applications only with economizer option
- Provides exhaust air pressure relief
- Interlocked to run when return air dampers are closed and supply air blower is operating
- Fans run based on air damper position (adjustable)
- Three 1/3 hp motors
- 20 in. diameter propeller-type fans
- Five blades
- Total power input of 1125 Watts
- Total air volume of 12,800 cfm at 0 in. w.g.
- Motor is inherently protected
- Totally enclosed
- Steel cabinet and hood painted to match unit

NOTE - Requires optional Downflow Economizer Barometric Relief Dampers. See Standard Static Power Exhaust Blower Tables.

OPTIONS / ACCESSORIES

EXHAUST (continued)

Factory or Field Installed

Horizontal Barometric Relief Dampers

- For use when unit is configured for horizontal applications requiring an economizer
- Allows relief of excess air
- Aluminum blade dampers prevent blow back and outdoor air infiltration during off cycle
- Field installed in return air duct
- Bird screen and hood furnished

NOTE - Horizontal Economizer Conversion kit is available for field installation.

Field Installed

High Static Power Exhaust

- Constant volume high static power exhaust blowers
- Choice of 50% (two, 2 hp motors) or 100% (three, 2 hp motors)
- Centrifugal-type power exhaust blowers
- Overload and sub-fuse protected
- Ball bearings
- Forward curved blades
- Blower wheel is statically and dynamically balanced
- Adjustable pulleys for speed adjustments
- Controlled by damper position.

NOTE - VAV/MSAV units can be ordered with High Static Power Exhaust (with VFD) and an optional factory installed Manual Supply VFD Blower Bypass for the Power Exhaust VFD's (see page 5). High Static Power Exhaust (with VFD) features a solid-state analog pressure transducer control which senses differential pressure between conditioned space and outdoor air to regulate exhaust blower speed. See High Static Power Exhaust Blower Tables.

NOTE - High Static Power Exhaust is field installed but must be ordered at the same time as the rooftop unit so the unit can be factory configured for this option.

Power Exhaust Control Options

Damper Position Control

- For Standard or High Static Power Exhaust without VFD
- Prodigy® 2.0 unit controller controls the power exhaust based on economizer damper position

Differential Pressure Transducer

- For High Static Power Exhaust with VFD
- Prodigy® 2.0 unit controller controls the power exhaust system based on a 0-10VDC signal from a differential pressure transducer, which compares atmospheric pressure to conditioned space static pressure
- The transducer is factory installed in the power exhaust section

Field Installed

Pressure Switch

- For Standard or High Static Power Exhaust without VFD
- Prodigy® 2.0 unit controller controls the power exhaust system based on one or two pressure switch(es)

NOTE - Order one per unit with Standard or High Static Power Exhaust without VFD.

NOTE - Order two per unit with Standard Static Power Exhaust for MSAV or VAV models.

OUTDOOR AIR

Factory or Field Installed

Outdoor Air Damper - Downflow or Horizontal With Air Hood

- Linked mechanical dampers
- 0 to 25% (fixed) outdoor air adjustable
- Installs in unit
- Includes outdoor air hood
- Automatic model features fully modulating spring return damper motor with plug-in connection
- Manual model features parallel blade, gear-driven dampers with adjustable fixed position

NOTE - Minimum mixed air temperature in heating mode is 30°F. Maximum mixed air temperature in cooling mode is 90°F.

OPTIONS / ACCESSORIES

ROOF CURBS

- Nailer strip furnished (downflow only)
- Mates to unit
- US National Roofing Contractors Approved
- Shipped knocked down

Downflow

Hybrid Roof Curbs

- Interlocking tabs fasten corners together
- No tools required for assembly
- Can also be fastened together with furnished hardware
- Available in 14, 18, and 24 inch heights

Horizontal

- Converts unit from downflow to horizontal (side) air flow
- Return air is on unit
- Supply air is on curb
- Available in 37 inch and 41 inch heights.
- See dimension drawings

NOTE - Requires Horizontal Return Air Panel Kit.

NOTE - Optional Insulation Kit is available to help prevent sweating.

CEILING DIFFUSERS

Field Installed

Ceiling Diffusers

(Flush or Step-Down)

- White powder coat finish on diffuser face and grilles
- Insulated UL listed duct liner
- Diffuser box has collars for duct connection
- Step-down diffusers have double deflection blades
- Flush diffusers have fixed blades
- Provisions for suspending
- Internally sealed to prevent recirculation
- Removable return air grille
- Adapts to T-bar ceiling grids or plaster ceilings

Transitions (Supply and Return)

- Used with diffusers
- Installs in roof curb
- Galvanized steel construction
- Flanges furnished for duct connection to diffusers
- Fully insulated

HUMIDITROL® DEHUMIDIFICATION SYSTEM OPTION

15 OVERVIEW

NOTE - Available for 300H and 360H models only with MSAV® Multi-Stage Air Volume option and without VFD Bypass Option.

- Factory installed option designed to control humidity
- Provides dehumidification on demand using ASHRAE 90.1 recommended method for comfort conditioning humidity control
- Unit comes equipped with one row reheat coil, solenoid valve and humidity controller
- In addition to a thermostat or room sensor used for conventional operation, a humidity sensor is required and must be located in the occupied space
- Remote Mounted Humidity Sensor Kit is required for field installation
- Humidity sensor provides input to the Unit Controller which is used to control activation of the dehumidification operation
- Reheat controls are located in the compressor control section of the unit for easy access

BENEFITS

- Improves indoor air quality
- Helps prevent damage due to high humidity levels
- Improves comfort levels by reducing space humidity levels

OPERATION

No Dehumidification Demand

- The unit will operate conventionally whenever there is a demand for cooling or heating and no dehumidification demand
- Free cooling is only permitted when there is no demand for dehumidification

Dehumidification Demand Only

- The Unit Controller is factory set at 60% relative humidity setpoint and can be adjusted at the Unit Controller or with optional Unit Controller Software
- Reheat operation will initiate on a dehumidification demand and does not require a cooling demand
- The unit will operate in the dehumidification mode until the relative humidity of the conditioned space is below the setpoint
- The reheat coil is sized to provide 68°F to 75°F supply air during reheat operation
- This reduces sensible cooling capacity and extends compressor run time to control humidity when the cooling load is low
- A solenoid valve diverts hot gas from the compressor to the reheat coil
- The cooled and dehumidified air from the evaporator is reheated as it passes through the reheat coil
- The de-superheated and partially condensed refrigerant continues to the outdoor condenser coil where condensing is completed
- The unit will continue to operate in this mode until the dehumidification demand is satisfied

NOTE - See Sequence of Operation for additional information.

Dehumidification and Cooling Demand (Thermostat/ Room Sensor Application)

- If both a dehumidification and a full cooling demand occur, the system will operate in cooling until the cooling demand is satisfied
- Then the system will energize the dehumidification mode

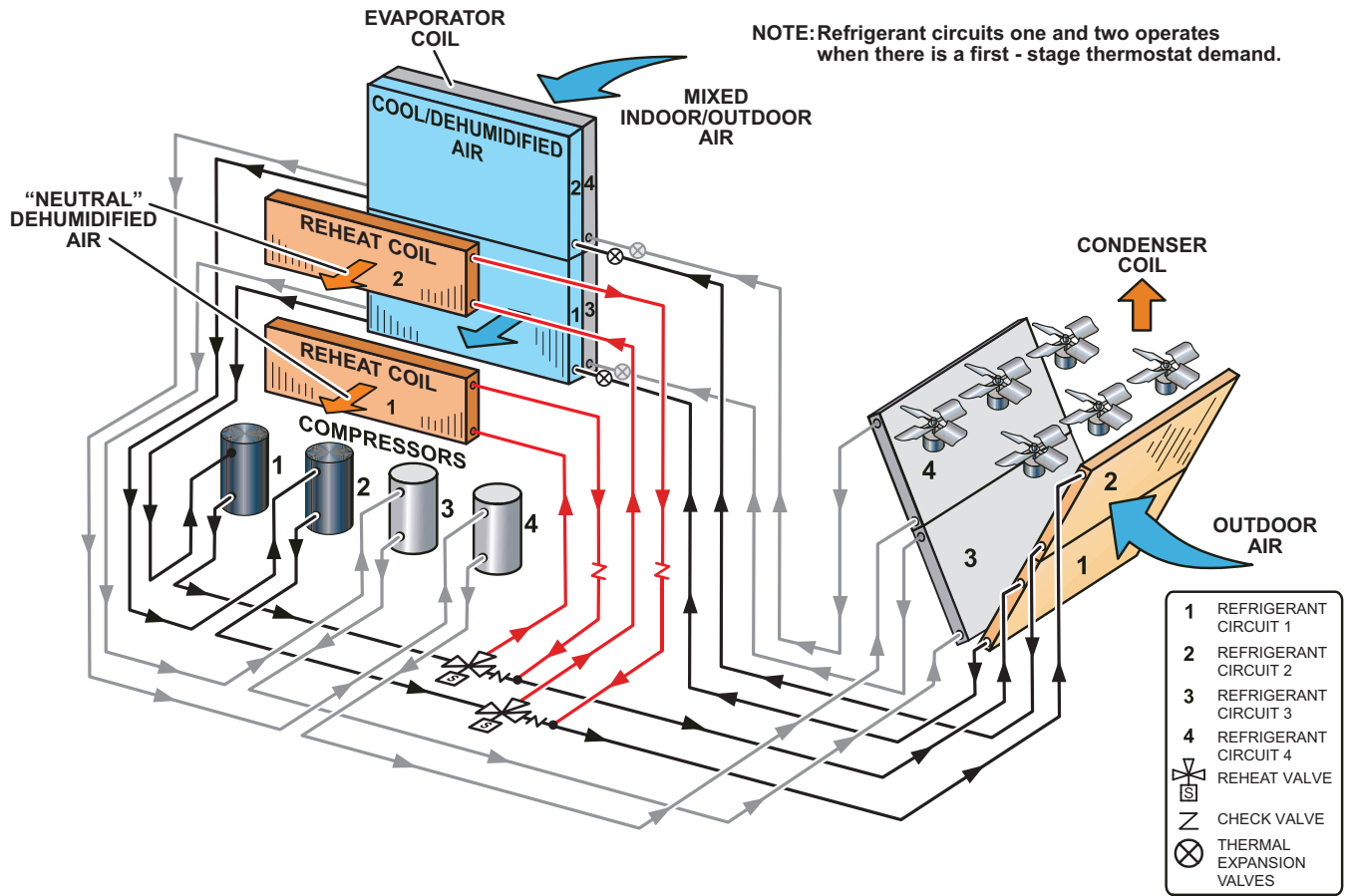
Options/Accessories

Humidity Sensor Kit

- Remote Mounted Humidity sensor required with factory installed Humiditrol® Dehumidification Option or Supermarket reheat field selectable option

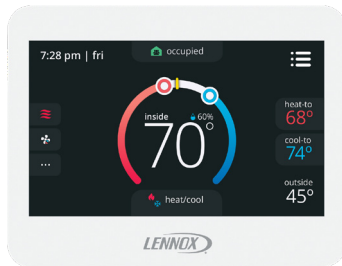
HUMIDITROL® DEHUMIDIFICATION SYSTEM OPTION

REFRIGERANT SCHEMATIC



OPTIONAL CONVENTIONAL TEMPERATURE CONTROL SYSTEMS

ComfortSense® 8500 Commercial 7-Day Programmable Thermostat



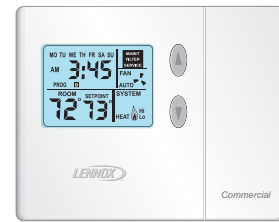
- Fully Communicating Sensor
- Full Color Touchscreen Interface
- Variable Speed System Control (On Compatible Units)
- Up To 4 Heat / 4 Cool
- Built-In Sensors For Temperature, Humidity And Optional CO₂
- Remote Sensor Options For Occupancy, Temperature
- BACnet Capable Options
- 5-2 or 7-Day Scheduling
- Smooth Setback Recovery
- Heat/Cool Auto-Changeover
- Four-Wire Installation
- FDD, ASHRAE, IECC Compliant

ComfortSense® 7500 Commercial 7-Day Programmable Thermostat



- Premium Universal Thermostat
- Full Color Touchscreen Interface
- Up To 4 Heat / 4 Cool
- Built-In Sensors For Temperature and Humidity
- Remote Sensors Options For Temperature, Discharge Air, Outdoor Air
- 5-2 or 7-Day Scheduling
- Smooth Setback Recovery
- Heat/Cool Auto-Changeover
- FDD, ASHRAE, IECC Compliant

ComfortSense® 3000 Commercial 5-2 Day Programmable Thermostat



- Conventional Multi-Stage Thermostat
- Intuitive Display
- Push-Button Operation
- Up To 2 Heat / 2 Cool
- Built-In Temperature Sensor
- Remote Temperature Sensing
- Up to 5-2 Day Scheduling
- Smooth Setback Recovery
- Heat/Cool Auto-changeover

Wired Temperature/Humidity Room Sensor (LCS-5030)



- Simple Push-Button Override
- Variable Speed System Control (On Compatible Units)
- Up To 4 Heat / 4 Cool
- AA Battery / 24VAC Powered
- SBUS Wired Operation
- Automatic Sensor Averaging
- Locking Hex Screw

Wired Temperature/Humidity Room Sensor



- Terminal blocks for wiring connections
- Five-wire sensor connection
- Off-white plastic enclosure
- Non-adjustable
- Relative humidity range: 0 -100%
- +/- 3% Accuracy

OPTIONAL CONVENTIONAL TEMPERATURE CONTROL SYSTEMS

Description	Catalog No.
ComfortSense® 8500 Commercial 7 Day Programmable Thermostat	
CS8500 7-Day Thermostat	No CO ₂ Sensing 17G75
	With CO ₂ Sensing 17G76
Sensors/Accessories	¹ Remote non-adjustable wall-mount 10k 47W37
	¹ Remote non-adjustable wall-mount 11k 94L61
Sysbus Network Cable (Yellow) for ComfortSense 8500 and LCS-5030 Wired Room Sensor	
Twisted pair 100% shielded communication cable, Red and Black	500 ft. box 27M19
22 AWG, yellow jacket, rated at 75°C, 300V, Plenum rated	1000 ft. box 94L63
Insulation - Low smoke PVC, NEC, CMP	2500 ft. roll 68M25
ComfortSense® 7500 Commercial 7-Day Programmable Thermostat	
CS7500 7-Day Thermostat	17G74
Sensors/Accessories	² Remote non-adjustable wall-mount 20k 47W36
	² Remote non-adjustable wall-mount 10k 47W37
	Remote non-adjustable discharge air (duct mount) 19L22
	Outdoor temperature sensor X2658
ComfortSense® 3000 Commercial 5-2 Day Programmable Thermostat	
CS3000 5-2 Day Thermostat	11Y05
Sensors/Accessories	Remote non-adjustable wall mount 10k averaging 47W37
	Thermostat wall mounting plate X2659
ComfortSense® Non-Programmable Thermostat	
CS3000 Non-Programmable Thermostat	51M32
Universal Thermostat Guard with Lock (clear)	
	Inside Dimensions (H x W) 5 7/8 x 8 3/8 in. 39P21
Temperature/Humidity Room Sensors	
LCS-5030 Wired Temperature/Humidity Room Sensor	21L07
A335MT13AE1 Wired Temperature/Humidity Room Sensor	21W06

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

² 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

**UNIT OPERATION WITH 2-STAGE THERMOSTAT OR THIRD PARTY UNIT CONTROLLERS (2 HEAT / 2 COOL)
(THIS SECTION NOT APPLICABLE FOR DISCHARGE AIR TEMPERATURE CONTROL)****SUPPLY AIR BLOWER SPEED**

Unit has the following supply air blower speed settings:

- Ventilation Speed
- Low Cooling Speed
- High Cooling Speed
- Heating Speed
- Smoke Speed (Used only in smoke removal option - not discussed)

COOLING MODE (2 Cool)**¹ Unit Features An Economizer And Outdoor Air Is Suitable****Y1 Demand:**

All compressors are off, supply air blower is set to Low Cooling Speed; economizer modulates (minimum to maximum open position) to maintain 55°F discharge air temperature.

Y2 Demand:

All compressors are off, supply air blower is set to High Cooling Speed, and economizer modulates (minimum to maximum open position) to maintain 55°F discharge air temperature.

NOTE - If economizer stays at maximum open for 3 minutes, 1st stage compressors (compressor 1 and 2) are energized while supply air blower stays on high cooling speed providing maximum cooling capacity.

¹ *Outdoor air suitability is determined by the energy state of outdoor ambient (enthalpy or sensible) and its ability to achieve the desired free cooling effects. Outdoor air suitability can also be determined by a third party controller and provided to the RTU via a network connection.*

Unit Does Not Feature An Economizer Or Outdoor Air Is Not Suitable**Y1 Demand:**

The first two compressors operate and the supply air blower is activated. The blower is set to the Low Cooling Speed.

Y2 Demand:

All compressors operate and supply air blower is activated. The blower is set to the High Cooling Speed.

Dehumidification Mode

If a unit with Humiditrol® Dehumidification Option receives a call for dehumidification, economizer free cooling is locked out.

Call For Dehumidification, No Y1, Y2 Demand:

Compressors 1 and 2 operate, supply air blower operates at low cooling speed, and both reheat valves are energized.

Y1 Demand With A Call For Dehumidification:

All compressors operate, supply air blower operates at high cooling speed and both reheat valves are energized.

Y2 Demand With A Call For Dehumidification:

All compressors operate, supply air blower operates at high cooling speed, and the reheat valves are de-energized.

HEATING MODE (2 Heat)**W1 Demand:**

The first two stages of mechanical heat are activated; the blower is set to Heating Speed.

W2 Demand:

The third and fourth stages of mechanical heat are activated; the blower is set to the Heating Speed.

**UNIT OPERATION IN ROOM SENSOR MODE OR DISCHARGE AIR TEMPERATURE CONTROL
(4 HEAT / 4 COOL)****SUPPLY AIR BLOWER SPEED**

Unit has the following supply air blower speed settings:

- Ventilation speed
- Cooling Speed 1 (low)
- Cooling Speed 2 (medium-low)
- Cooling Speed 3 (medium-high)
- Cooling Speed 4 (high)
- Heating Speed
- Smoke Speed (Used only in smoke removal option - not discussed)

COOLING MODE (4 Cool)

- Room sensors (when connected to S-Bus) or Discharge air temperature (DAT) can be used to control unit staging.
- DAT default setpoint = 55°F. Unit will stage compressors as required to maintain the setpoint when provided with Y1 thermostat demand.
- Room sensor occupied default setpoint = 75°F. Unit will stage compressors as required to maintain the setpoint.
- Increasing compressor stages provides more cooling capacity while decreasing compressor stages provides less cooling capacity.

¹ Unit Features An Economizer And Outdoor Air Is Suitable**Cooling Stage 1:**

All compressors are off, supply air blower is on Cooling Speed 1 to minimize blower power consumption, economizer modulates (minimum to maximum open position) to maintain setpoint.

Cooling Stage 2:

All compressors are off, supply air blower is on Cooling Speed 4 to provide higher cooling capacity, and economizer modulates to maintain setpoint. If economizer stays at maximum open for 3 minutes, compressor 1 is energized while supply air blower stays on Cooling Speed 4. After compressor 1 is energized, the economizer stays at maximum open.

Cooling Stage 3:

Compressor 1 and 2 are energized while supply air blower is on Cooling speed 4 to provide even higher cooling capacity.

Cooling Stage 4:

All compressors are energized while supply air blower is on Cooling speed 4 to provide maximum cooling capacity. 1 Outdoor air suitability is determined by the energy state of outdoor ambient (enthalpy or sensible) and its ability to achieve the desired free cooling effects. Outdoor air suitability can also be determined by a third party controller and provided to the RTU via a network connection.

Unit Does Not Feature An Economizer Or Outdoor Air Is Not Suitable**Cooling Stage 1:**

Compressor 1 operates and supply air blower operates at Cooling Speed 1.

Cooling Stage 2:

Compressors 1 and 2 operate and supply air blower operates at Cooling Speed 2.

Cooling Stage 3:

Compressors 1, 2, and 3 operate and supply air blower operates at Cooling Speed 3.

Cooling Stage 4:

All compressors operate and supply air blower operates at Cooling Speed 4.

**UNIT OPERATION IN ROOM SENSOR MODE OR DISCHARGE AIR TEMPERATURE CONTROL
(4 HEAT / 4 COOL) (CONTINUED)****Dehumidification Mode**

If a unit with Humiditrol® Dehumidification Option receives a call for dehumidification, economizer free cooling is locked out.

Call For Dehumidification, No Y1, Y2, Y3, Y4 Demand:

Compressors 1 and 2 operate, supply air blower operates at medium-low cooling speed, and both reheat valves are energized.

Y1 Demand With A Call For Dehumidification:

Compressors 1, 2, and 3 operate, supply air blower operates at high cooling speed and both reheat valves are energized.

Y2 Demand With A Call For Dehumidification:

All compressors operate, supply air blower operates at high cooling speed and both reheat valves are energized.

Y3 Demand With A Call For Dehumidification:

All compressors operate, supply air blower operates at high cooling speed, and the reheat valve of compressor 1 is energized while the reheat valve of compressor 2 is de-energized.

Y4 Demand With A Call For Dehumidification:

All compressors operate, supply air blower operates at high cooling speed, and the reheat valves are de-energized.

HEATING MODE (4 Heat)

- Room sensors (when connected to S-Bus) or Discharge air temperature (DAT) can be used to control up to four stages of electric heat.
- DAT default setpoint = 110°F. Unit will stage heating as required to maintain the setpoint when provided with W1 demand.
- Room sensor occupied setpoint default = 70°F. Unit will stage heating as required to maintain the setpoint.
- Increasing heat stages provides more heating capacity while decreasing heat stages provides less heating capacity.
- Blower set to Heating Speed for all stages.

UNITS IN ZONING APPLICATIONS OPERATING WITH DISCHARGE AIR CONTROL (4 HEAT / 4 COOL)**SUPPLY AIR BLOWER SPEED**

Unit has the following supply air blower speed settings:

- Ventilation Speed
- Cooling Speed - Fully modular based on supply duct static pressure
- Heating Speed
- Smoke Speed (Used only in smoke removal option - not discussed)

COOLING MODE (4 Cool)

- Discharge air temperature (DAT) can be used to control unit staging.
- DAT default setpoint = 55°F. Unit will stage compressors as required to maintain the setpoint when provided with Y1 thermostat demand.
- Increasing compressor stages provides more cooling capacity while decreasing compressor stages provides less cooling capacity.

¹ Unit Features An Economizer And Outdoor Air Is Suitable**Cooling Stage 1:**

All compressors are off, supply air blower operates to maintain duct static pressure, economizer modulates (minimum to maximum open position) to maintain 55°F supply air temperature (default unit controller setting).

Cooling Stage 2:

All compressors are off, supply air blower operates to maintain duct static pressure, and economizer modulates to maintain 55°F supply air temperature. If economizer stays at maximum open for 3 minutes, compressor 1 is energized while supply air blower operates to maintain duct static pressure. After compressor 1 is energized, the economizer stays at maximum open.

Cooling Stage 3:

Compressor 1 and 2 are energized while supply air blower operates to maintain duct static pressure.

Cooling Stage 4:

All compressors are energized while supply air blower operates to maintain duct static pressure.

¹ Outdoor air suitability is determined by the energy state of outdoor ambient (enthalpy or sensible) and its ability to achieve the desired free cooling effects. Outdoor air suitability can also be determined by a third party controller and provided to the RTU via a network connection.

Unit Does Not Feature An Economizer Or Outdoor Air Is Not Suitable**Cooling Stage 1:**

Compressor 1 operates and supply air blower operates to maintain duct static pressure.

Cooling Stage 2:

Compressors 1 and 2 operate and supply air blower operates to maintain duct static pressure.

Cooling Stage 3:

Compressors 1, 2, and 3 operate and supply air blower operates to maintain duct static pressure.

Cooling Stage 4:

All compressors operate and supply air blower operates to maintain duct static pressure.

UNIT IN ZONING APPLICATIONS OPERATING WITH DISCHARGE AIR CONTROL (4 HEAT / 4 COOL) (CONTINUED)**HEATING MODE (4 Heat)**

- Room sensors (when connected to S-Bus) or Discharge air temperature (DAT) can be used to control up to four stages of electric heat.
- DAT default setpoint = 110°F. Unit will stage heating as required to maintain the setpoint when provided with W1 demand.
- Room sensor occupied setpoint default = 70°F. Unit will stage heating as required to maintain the setpoint.
- Increasing heat stages provides more heating capacity while decreasing heat stages provides less heating capacity.
- Blower set to Heating Speed for all stages.

Modulating Outdoor Air Damper

The minimum damper position for “occupied low blower” and “occupied high blower” is adjusted during unit setup to provide minimum fresh air requirements per ASHRAE 62.1 at the corresponding supply air blower speeds.

- When supply air blower is off or the unit is in unoccupied mode, the outdoor air damper is closed.
- When unit is in occupied mode and supply air blower is operating at a speed below the “midpoint” blower speed, the outdoor air damper is at minimum “low blower” position.
- When unit is in occupied mode and supply air blower is operating at a speed equal to or above the “midpoint” blower speed, the outdoor air damper is at minimum “high blower” position.

NOTE - The “midpoint” blower speed is an average of the minimum and maximum blower speed ((minimum speed + maximum speed) divided by 2).

OPTIONS / ACCESSORIES

Item Description	Catalog Number	Unit Model No.			
		242	300	360	
COOLING SYSTEM					
Condensate Drain Trap	PVC	22H54	OX	OX	OX
	Copper	76W27	OX	OX	OX
Drain Pan Overflow Switch		21Z07	OX	OX	OX
Stainless Steel Condensate Drain Pan		83W42	OX	OX	OX
BLOWER - SUPPLY AIR					
Motors	Belt Drive (standard efficiency) - 5 hp	Factory	O	O	O
	Belt Drive (standard efficiency) - 7.5 hp	Factory	O	O	O
	Belt Drive (standard efficiency) - 10 hp	Factory	O	O	O
Supply VFD Blower Bypass (VAV/MSAV® Multi-Stage Air Volume units w/VFD only)		Factory	O	O	O
Drive Kits	Kit #1 740-895 rpm	Factory	O	O	O
See Blower Data Tables for usage and selection	Kit #2 870-1045 rpm	Factory	O	O	O
	Kit #3 715-880 rpm	Factory	O	O	O
	Kit #4 770-965 rpm	Factory	O	O	O
	Kit #5 660-810 rpm	Factory	O	O	O
	Kit #6 770-965 rpm	Factory	O	O	O
	Kit #7 570-720 rpm	Factory	O	O	O
	Kit #8 480-630 rpm	Factory	O	O	O
	Kit #9 410-535 rpm	Factory	O	O	O
	CABINET				
Combination Coil/Hail Guards		13T16	X	X	X
Corrosion Protection		Factory	O	O	O
Grille Guards		86K30	X	X	X
Horizontal Return Air Panel Kit		38K48	X	X	X
CONTROLS					
Blower Proving Switch		21Z10	OX	OX	OX
Commercial Controls	CPC Einstein Integration	Factory	O	O	O
	Prodigy® Control System - BACnet® Module	59W51	OX	OX	OX
	Prodigy® Control System - LonTalk® Module	54W27	OX	OX	OX
	Novar® LSE	Factory	O	O	O
Dirty Filter Switch		53W68	OX	OX	OX
Discharge Air Temperature Sensor		Factory	O	O	O
Fresh Air Tempering		21Z08	OX	OX	OX
General Purpose Control Kit		13J78	X	X	X
Smoke Detector - Supply or Return (Power board and one sensor)		22H56	OX	OX	OX
Smoke Detector - Supply and Return (Power board and two sensors)		22H57	OX	OX	OX
Supply Static Limit Switch		79M80	X	X	X
Supply Static Limit Switch - Mounting Kit		79M81	X	X	X

NOTE - Catalog numbers shown are for ordering field installed accessories.

OX - Configure To Order (Factory Installed) or Field Installed

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OPTIONS / ACCESSORIES

Item Description	Catalog Number	Unit Model No.			
		242	300	360	
INDOOR AIR QUALITY					
Air Filters					
Healthy Climate® High Efficiency Air Filters 20 x 20 x 2 - order 12 per unit	MERV 8	54W21	OX	OX	OX
	MERV 13	52W39	OX	OX	OX
Replaceable Media Filter with Metal Mesh Frame (includes Non-Pleated Filter Media) 20 x 20 x 2- order 12 per unit		44N60	X	X	X
Indoor Air Quality (CO₂) Sensors					
Sensor - Wall-mount, off-white plastic cover with LCD display		77N39	X	X	X
Sensor - Wall-mount, off-white plastic cover, no display		87N53	X	X	X
Sensor - Black plastic case with LCD display, rated for plenum mounting		87N52	X	X	X
Sensor - Wall-mount, black plastic case, no display, rated for plenum mounting		87N54	X	X	X
CO ₂ Sensor Duct Mounting Kit - for downflow applications		85L43	X	X	X
Aspiration Box - for duct mounting non-plenum rated CO ₂ sensors (87N53 or 77N39)		90N43	X	X	X
ELECTRICAL					
Voltage 60 hz	208/230V - 3 phase	Factory	O	O	O
	460V - 3 phase	Factory	O	O	O
	575V - 3 phase	Factory	O	O	O
HACR Circuit Breakers		Factory	O	O	O
Disconnect Switch - See Electrical Accessories Tables on page 42 for selection	80 amp	54W85	OX	OX	OX
	150 amp	54W86	OX	OX	OX
	250 amp	54W87	OX	OX	OX
GFI Service Outlets	15 amp non-powered, field-wired (208/230V, 460V)	74M70	OX	OX	OX
	15 amp factory-wired and powered (208/230V, 460V, 575V)	Factory	O	O	O
	20 amp non-powered, field-wired (575V only)	67E01	OX	OX	OX
Weatherproof Cover for GFI		10C89	X	X	X
Phase/Voltage Detection		Factory	O	O	O
ELECTRIC HEAT					
30 kW	208/230V-3ph	22H70	OX	OX	OX
	460V-3ph	22H71	OX	OX	OX
	575V-3ph	53W95	OX	OX	OX
45 kW	208/230V-3ph	22H74	OX	OX	OX
	460V-3ph	22H75	OX	OX	OX
	575V-3ph	54W03	OX	OX	OX
60 kW	208/230V-3ph	22H78	OX	OX	OX
	460V-3ph	22H79	OX	OX	OX
	575V-3ph	54W11	OX	OX	OX
90 kW	208/230V-3ph	22H80	OX	OX	OX
	460V-3ph	22H81	OX	OX	OX
	575V-3ph	54W15	OX	OX	OX
120 kW	208/230V-3ph	73W98	OX	OX	OX
	460V-3ph	73W99	OX	OX	OX
	575V-3ph	74W00	OX	OX	OX
SCR (Silicon Controlled Rectifier) Electric Heat Control NOTE - The SCR option is not available with 60 kW, 90 kW (208/230V) and 120 kW (208/230V, 460V, 575V) electric heat models.		Factory	O	O	O
Thermostat (required)		Y9682	X	X	X
Duct Sensor (required)		Y9683	X	X	X
¹ HUMIDITROL® CONDENSER REHEAT OPTION					
Humiditrol® Dehumidification Option		Factory		O	O
Humidity Sensor Kit, Remote mounted (required)		17M50		X	X

¹ Available for 300H and 360H models only with MSAV option and without VFD Bypass Option.

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OPTIONS / ACCESSORIES

Item Description	Catalog Number	Unit Model No.			
		242	300	360	
ECONOMIZER					
High Performance Economizer (Approved for California Title 24 Building Standards / AMCA Class 1A Certified)					
High Performance Economizer Downflow or Horizontal Applications - Includes Outdoor Air Hood. Order Downflow or Horizontal Barometric Relief Dampers separately.	18X87	OX	OX	OX	
Economizer Controls					
Differential Enthalpy (Not for Title 24)	Order 2 21Z09	OX	OX	OX	
Sensible Control	Sensor is Furnished Factory	O	O	O	
Single Enthalpy (Not for Title 24)	21Z09	OX	OX	OX	
Global, Enthalpy	Sensor Field Provided Factory	O	O	O	
Building Pressure Control	13J77	X	X	X	
Differential Sensible	Sensor is Furnished Factory	O	O	O	
Outdoor Air CFM Control	13J76	OX	OX	OX	
Barometric Relief Dampers With Exhaust Hood					
Downflow Barometric Relief Dampers	76W17	OX	OX	OX	
Horizontal Barometric Relief Dampers	33K78	OX	OX	OX	
OUTDOOR AIR					
Outdoor Air Dampers With Outdoor Air Hood					
Motorized	18X89	OX	OX	OX	
Manual	18X88	OX	OX	OX	
POWER EXHAUST					
Standard Static	208/230V	74W21	OX	OX	OX
	460V	74W22	OX	OX	OX
	575V	74W23	OX	OX	OX
High Static - 50%	208/230V - Drive Kit #1 (405-533 rpm)	83M83	X	X	X
	208/230V - Drive Kit #2 (531-731 rpm)	84M34	X	X	X
	208/230V - Drive Kit #3 (731-932 rpm)	84M35	X	X	X
	460V - Drive Kit #1 (405-533 rpm)	83M84	X	X	X
	460V - Drive Kit #2 (531-731 rpm)	84M36	X	X	X
	460V - Drive Kit #3 (731-932 rpm)	84M37	X	X	X
	575V - Drive Kit #1 (405-533 rpm)	83M85	X	X	X
	575V - Drive Kit #2 (531-731 rpm)	84M38	X	X	X
	575V - Drive Kit #3 (731-932 rpm)	84M39	X	X	X
High Static - 100%	208/230V - Drive Kit #1 (406-533 rpm)	83M86	X	X	X
	208/230V - Drive Kit #2 (531-731 rpm)	84M40	X	X	X
	208/230V - Drive Kit #3 (731-932 rpm)	84M41	X	X	X
	460V - Drive Kit #1 (406-533 rpm)	83M87	X	X	X
	460V - Drive Kit #2 (531-731 rpm)	84M42	X	X	X
	460V - Drive Kit #3 (731-932 rpm)	84M43	X	X	X
	575V - Drive Kit #1 (406-533 rpm)	83M88	X	X	X
	575V - Drive Kit #2 (531-731 rpm)	84M44	X	X	X
	575V - Drive Kit #3 (731-932 rpm)	84M45	X	X	X
100% with VFD	208/230V	83M89	X	X	X
	460V	83M90	X	X	X
	575V	83M91	X	X	X
100% with VFD and Bypass	208/230V	83M92	X	X	X
	460V	83M93	X	X	X
	575V	83M94	X	X	X
Power Exhaust Control					
¹ Pressure Switch	79M79	X	X	X	

¹ Order one per unit with Standard or High Static Power Exhaust without VFD. Order two per unit with standard static power exhaust for MSAV® or VAV models.

NOTE - Catalog numbers shown are for ordering field installed accessories.

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OPTIONS / ACCESSORIES

Item Description	Catalog Number	Unit Model No.			
		242	300	360	
ROOF CURBS					
Hybrid Roof Curbs, Downflow					
14 in. height	11F62	X	X	X	
18 in. height	11F63	X	X	X	
24 in. height	11F64	X	X	X	
Standard Roof Curbs, Horizontal - Requires Horizontal Return Air Panel Kit					
30 in. height - slab applications	11T90	X	X	X	
41 in. height - rooftop applications	11T97	X	X	X	
Horizontal Return Air Panel Kit					
Required for Horizontal Applications with Roof Curb	38K48	X	X	X	
Insulation Kit For Standard Horizontal Curbs					
For 30 in. Curb	73K33	X	X	X	
For 41 in. Curb	73K35	X	X	X	
CEILING DIFFUSERS					
Step-Down - Order one	LARTD30/36S	45K74	X	X	X
Flush - Order one	LAFD30/36S	45K75	X	X	X
Transitions (Supply and Return) - Order one	LASRT30/36	33K80	X	X	X

NOTE - Catalog numbers shown are for ordering field installed accessories.

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X = Field Installed

SPECIFICATIONS

General Data		Nominal Tonnage	20 Ton	25 Ton	25 Ton
		Model Number	LCH242H4V	LCH300H4V	LCH300H4M
		Efficiency Type	High	High	High
		Blower Type	VAV Variable Air Volume	VAV Variable Air Volume	MSAV® Multi-Stage Air Volume
Cooling Performance	Gross Cooling Capacity - Btuh		244,000	310,000	310,000
	Net Cooling Capacity - Btuh		¹ 238,000	² 300,000	² 300,000
	AHRI Rated Air Flow - cfm		6800	8100	8100
	Total Unit Power - kW		19	25.8	25.8
	EER (Btuh/Watt)		¹ 12.5	² 11.6	² 11.6
	IEER (Btuh/Watt)		¹ 15.5	² 14.3	² 14.4
Refrigerant Charge	Refrigerant Type		R-410A	R-410A	R-410A
	Circuit 1		8 lbs. 0 oz.	8 lbs. 0 oz.	8 lbs. 0 oz.
	Circuit 2		8 lbs. 0 oz.	8 lbs. 0 oz.	8 lbs. 0 oz.
	Circuit 3		8 lbs. 8 oz.	8 lbs. 0 oz.	8 lbs. 0 oz.
	Circuit 4		8 lbs. 8 oz.	8 lbs. 8 oz.	8 lbs. 8 oz.
Electric Heat Available - See page 36			30-45-60-90-120 kW		
Compressor Type (number)			Scroll (4)	Scroll (4)	Scroll (4)
Outdoor Coils	Net face area (total) - sq. ft.		68.3	68.3	68.3
	Number of rows		1	1	1
	Fins per inch		23	23	23
Outdoor Coil Fans	Motor - (No.) horsepower		(6) 1/3	(6) 1/3	(6) 1/3
	Motor rpm		1075	1075	1075
	Total Motor watts		2500	2500	2500
	Diameter - (No.) in.		(6) 24	(6) 24	(6) 24
	Number of blades		3	3	3
	Total Air volume - cfm		21,500	21,500	21,500
Indoor Coils	Net face area (total) - sq. ft.		31.40	31.40	31.40
	Tube diameter - in.		3/8	3/8	3/8
	Number of rows		4	4	4
	Fins per inch		14	14	14
	Drain connection - No. and size		(1) 1 in. NPT	(1) 1 in. NPT	(1) 1 in. NPT
Expansion device type			Balance port TXV, removable head		
³ Indoor Blower and Kit Selection	Nominal motor output		5 hp, 7.5 hp, 10 hp		
	Maximum usable motor output (US Only)		5.75 hp, 8.63 hp, 11.5 hp		
	Motor - Kit kit number		5 hp Kit 5 660-810 rpm Kit 6 770-965 rpm Kit 7 570-720 rpm Kit 8 480-630 rpm Kit 9 410-535 rpm 7.5 hp Kit 3 715-880 rpm Kit 4 770-965 rpm 10 hp Kit 1 740-895 rpm Kit 2 870-1045 rpm		
	Blower wheel nom. D x W - in.		(2) 18 x 15		
Filters	Type of filter		Fiberglass, disposable		
	Number and size - in.		(12) 20 x 20 x 2		
Electrical characteristics			208/230V, 460V or 575V - 60 hertz - 3 phase		

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

¹ AHRI Certified to AHRI Standard 340/360; 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator air; minimum external duct static pressure.

² Tested at conditions included in with AHRI Standard 340/360.

³ Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

SPECIFICATIONS

General Data		Nominal Tonnage	30 Ton	30 Ton
		Model Number	LCH360H4V	LCH360H4M
		Efficiency Type	High	High
		Blower Type	VAV Variable Air Volume	MSAV® Multi-Stage Air Volume
Cooling Performance	Gross Cooling Capacity - Btuh		370,000	370,000
	¹ Net Cooling Capacity - Btuh		350,000	350,000
	AHRI Rated Air Flow - cfm		8600	8600
	Total Unit Power - kW		32.4	32.4
	¹ EER (Btuh/Watt)		10.8	10.8
	¹ IEER (Btuh/Watt)		13.5	14.0
Refrigerant Charge	Refrigerant Type		R-410A	R-410A
	Circuit 1		8 lbs. 0 oz.	8 lbs. 0 oz.
	Circuit 2		8 lbs. 0 oz.	8 lbs. 0 oz.
	Circuit 3		8 lbs. 0 oz.	8 lbs. 0 oz.
	Circuit 4		8 lbs. 0 oz.	8 lbs. 0 oz.
Electric Heat Available - See page 36			30-45-60-90-120 kW	
Compressor Type (number)			Scroll (4)	Scroll (4)
Outdoor Coils	Net face area (total) - sq. ft.		68.3	68.3
	Number of rows		1	1
	Fins per inch		23	23
Outdoor Coil Fans	Motor - (No.) horsepower		(6) 1/3	(6) 1/3
	Motor rpm		1075	1075
	Total Motor watts		2500	2500
	Diameter - (No.) in.		(6) 24	(6) 24
	Number of blades		3	3
	Total Air volume - cfm		21,500	21,500
Indoor Coils	Net face area (total) - sq. ft.		31.40	31.40
	Tube diameter - in.		3/8	3/8
	Number of rows		4	4
	Fins per inch		14	14
	Drain connection - No. and size		(1) 1 in. NPT	(1) 1 in. NPT
	Expansion device type		Balance port TXV, removable head	
³ Indoor Blower and Kit Selection	Nominal motor output		5 hp, 7.5 hp, 10 hp	
	Maximum usable motor output (US Only)		5.75 hp, 8.63 hp, 11.5 hp	
	Motor - Kit kit number		5 hp Kit 5 660-810 rpm Kit 6 770-965 rpm Kit 7 570-720 rpm Kit 8 480-630 rpm Kit 9 410-535 rpm 7.5 hp Kit 3 715-880 rpm Kit 4 770-965 rpm 10 hp Kit 1 740-895 rpm Kit 2 870-1045 rpm	
	Blower wheel nom. D x W - in.		(2) 18 x 15	
Filters	Type of filter		Fiberglass, disposable	
	Number and size - in.		(12) 20 x 20 x 2	
Electrical characteristics			208/230V, 460V or 575V - 60 hertz - 3 phase	

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

¹ AHRI Certified to AHRI Standard 340/360; 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator air; minimum external duct static pressure.

³ Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

BLOWER DATA

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL & AIR FILTERS IN PLACE FOR ALL UNITS ADD:

- 1 - Wet indoor coil air resistance of selected unit.
- 2 - Any factory installed options air resistance (electric heat, economizer, etc.)
- 3 - Any field installed accessories air resistance (electric heat, duct resistance, diffuser, etc.)

Then determine from blower table blower motor output and drive required.

See page 33 for wet coil and option/accessory air resistance data.

See page 33 for factory installed drive kit specifications.

MINIMUM AIR VOLUME REQUIRED FOR USE WITH OPTIONAL ELECTRIC HEAT

All units require 10,500 cfm minimum air with electric heat.

Air Volume cfm	TOTAL STATIC PRESSURE - In. w.g.																									
	0.20		0.40		0.60		0.80		1.00		1.20		1.40		1.60		1.80		2.00		2.20		2.40		2.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
4000	372	0.26	433	0.65	497	0.99	565	1.27	630	1.54	687	1.79	738	2.04	784	2.30	824	2.56	861	2.82	897	3.10	932	3.40	968	3.68
4500	382	0.41	441	0.79	506	1.12	574	1.41	638	1.69	694	1.95	744	2.22	790	2.50	831	2.77	868	3.05	903	3.35	938	3.66	974	4.01
5000	392	0.56	451	0.93	516	1.25	584	1.55	646	1.85	702	2.12	751	2.41	796	2.70	837	3.00	874	3.30	909	3.61	944	3.93	980	4.30
5500	402	0.73	462	1.08	527	1.40	594	1.72	655	2.02	710	2.31	758	2.61	802	2.92	843	3.24	880	3.56	916	3.88	951	4.22	987	4.60
6000	414	0.89	473	1.24	539	1.56	605	1.90	665	2.21	718	2.51	766	2.83	809	3.16	850	3.51	887	3.84	922	4.18	957	4.52	994	4.91
6500	426	1.07	486	1.41	551	1.74	616	2.10	675	2.42	727	2.73	774	3.07	817	3.43	857	3.80	894	4.15	929	4.49	964	4.85	1001	5.24
7000	439	1.26	499	1.60	565	1.93	628	2.31	685	2.64	737	2.97	782	3.34	825	3.72	864	4.11	901	4.48	937	4.83	971	5.19	1008	5.59
7500	453	1.46	513	1.79	579	2.14	641	2.55	696	2.88	747	3.24	792	3.63	833	4.04	872	4.45	909	4.83	945	5.20	979	5.56	1016	5.97
8000	467	1.66	528	2.00	593	2.38	653	2.81	708	3.15	757	3.53	801	3.95	843	4.39	881	4.82	918	5.22	953	5.59	988	5.96	1025	6.37
8500	483	1.88	544	2.22	608	2.65	667	3.10	720	3.44	768	3.85	812	4.30	852	4.78	890	5.22	927	5.63	962	6.01	997	6.39	1034	6.81
9000	499	2.11	561	2.47	624	2.95	681	3.41	733	3.76	780	4.20	823	4.69	862	5.19	900	5.65	936	6.07	972	6.46	1007	6.85	1044	7.28
9500	516	2.36	578	2.75	640	3.26	696	3.73	746	4.10	792	4.58	834	5.11	873	5.64	910	6.12	946	6.54	982	6.93	1018	7.34	1055	7.78
10,000	534	2.64	596	3.06	657	3.60	711	4.07	760	4.48	805	5.00	845	5.57	884	6.12	921	6.61	957	7.03	992	7.43	1028	7.86	1066	8.32
10,500	553	2.93	615	3.39	674	3.95	727	4.44	775	4.90	817	5.46	857	6.06	895	6.62	932	7.12	967	7.55	1003	7.96	1039	8.40	1077	8.89
11,000	572	3.24	634	3.74	692	4.31	744	4.83	789	5.35	830	5.95	869	6.58	907	7.16	943	7.65	978	8.09	1013	8.51	1050	8.98	1089	9.49
11,500	592	3.58	653	4.12	711	4.70	760	5.27	803	5.85	843	6.49	881	7.13	918	7.71	954	8.21	989	8.65	1025	9.10	1062	9.59	1101	10.12
12,000	613	3.95	674	4.53	729	5.14	776	5.75	818	6.39	857	7.06	894	7.71	930	8.30	965	8.80	1000	9.25	1036	9.71	1073	10.22	1111	11.11
12,500	635	4.37	695	4.98	748	5.62	792	6.29	832	6.98	870	7.67	906	8.33	941	8.91	976	9.42	1011	9.87	1048	10.35	1085	10.73	1122	11.52
13,000	657	4.83	715	5.50	766	6.18	808	6.89	847	7.61	883	8.32	918	8.98	953	9.56	988	10.06	1023	10.43	1060	10.91	1097	11.37	1161	12.31
13,500	680	5.35	736	6.06	784	6.78	824	7.53	861	8.29	896	9.00	930	9.66	965	10.24	1000	10.83	1035	11.11	1070	11.69	1105	12.26	1181	13.41
14,000	704	5.92	757	6.67	801	7.44	839	8.23	875	9.00	909	9.72	943	10.38	978	10.96	1013	11.61	1047	12.00	1082	12.65	1117	13.31	1201	14.81
14,500	727	6.55	777	7.34	818	8.16	854	8.97	889	9.75	922	10.48	956	11.14	991	11.76	1026	12.46	1061	12.83	1096	13.41	1131	14.26	1221	15.81
15,000	750	7.23	797	8.07	834	8.92	868	9.75	902	10.54	935	11.31	969	12.11	1004	12.96	1039	13.31	1074	14.11	1109	14.96	1144	15.81	1241	17.81

BLOWER DATA

DRIVE KIT SPECIFICATIONS

Motor Efficiency	Nominal hp	Maximum hp	Drive Kit Number	RPM Range
Standard	5	5.75	5	660 - 810
Standard	5	5.75	6	770 - 965
Standard	5	5.75	7	570 - 720
Standard	5	5.75	8	480 - 630
Standard	5	5.75	9	410 - 535
Standard	7.5	8.63	3	715 - 880
Standard	7.5	8.63	4	770 - 965
Standard	10	11.50	1	740 - 895
Standard	10	11.50	2	870 - 1045

NOTES

Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

For VFD applications, nominal motor output is also maximum usable motor output.

FACTORY INSTALLED OPTIONS/FIELD INSTALLED ACCESSORY AIR RESISTANCE

Air Volume cfm	Wet Indoor Coil	Humiditrol® Condenser Reheat Coil	Electric Heat	Economizer	Filters		Horizontal Roof Curb
					MERV 8	MERV 13	
	in. w.g.	in. w.g.	in. w.g.	in. w.g.	in. w.g.	in. w.g.	in. w.g.
4000	0.04	0.04	0.01	0.00	0.00	0.00	0.04
4500	0.04	0.04	0.01	0.00	0.00	0.00	0.05
5000	0.05	0.04	0.01	0.00	0.00	0.00	0.06
5500	0.06	0.06	0.02	0.01	0.00	0.01	0.07
6000	0.07	0.06	0.02	0.01	0.00	0.02	0.08
6500	0.08	0.08	0.02	0.01	0.01	0.02	0.09
7000	0.09	0.08	0.03	0.02	0.01	0.03	0.10
7500	0.10	0.10	0.03	0.02	0.01	0.04	0.11
8000	0.11	0.10	0.03	0.02	0.01	0.04	0.13
8500	0.12	0.10	0.04	0.03	0.01	0.04	0.15
9000	0.13	0.12	0.04	0.04	0.01	0.04	0.17
9500	0.14	0.14	0.05	0.04	0.02	0.06	0.19
10,000	0.15	0.16	0.05	0.05	0.02	0.06	0.21
10,500	0.16	0.17	0.06	0.06	0.02	0.06	0.24
11,000	0.18	0.18	0.06	0.07	0.02	0.07	0.27
11,500	0.19	0.19	0.07	0.08	0.02	0.08	0.30
12,000	0.20	0.20	0.07	0.10	0.02	0.08	0.33
12,500	0.21	0.22	0.08	0.11	0.03	0.10	0.37
13,000	0.23	0.23	0.08	0.13	0.03	0.10	0.40
13,500	0.24	0.25	0.09	0.14	0.03	0.11	0.44
14,000	0.26	0.26	0.10	0.16	0.03	0.12	0.49
14,500	0.27	0.27	0.10	0.18	0.04	0.13	0.53
15,000	0.29	0.29	0.11	0.21	0.04	0.13	0.58

BLOWER DATA

POWER EXHAUST PERFORMANCE - STANDARD STATIC

Return Duct Negative Static Pressure	Air Volume Exhausted
in. w.g.	cfm
0.00	12,800
0.05	12,200
0.10	11,500
0.15	10,800
0.20	9900
0.25	9000
0.30	7900
0.35	6750
0.40	5450
0.45	4150
0.50	2900

POWER EXHAUST - 50% HIGH STATIC OPERATION

Air Volume cfm	RETURN DUCT NEGATIVE STATIC PRESSURE - In. w.g.																					
	0		0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.90		1.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
4000	---	---	---	---	430	0.40	475	0.45	520	0.50	570	0.55	615	0.65	665	0.70	710	0.75	755	0.85	---	---
4500	---	---	415	0.45	460	0.55	500	0.60	545	0.65	585	0.70	625	0.80	670	0.85	710	0.95	750	1.00	795	1.10
5000	415	0.55	455	0.65	490	0.70	530	0.75	570	0.85	605	0.90	645	1.00	680	1.05	720	1.15	755	1.20	795	1.30
5500	460	0.75	495	0.85	525	0.90	560	0.95	595	1.05	630	1.10	665	1.20	700	1.30	735	1.35	765	1.45	800	1.55
6000	500	1.00	530	1.05	565	1.15	595	1.20	625	1.30	660	1.40	690	1.45	720	1.55	750	1.65	785	1.70	815	1.80
6500	540	1.25	570	1.30	600	1.40	630	1.50	660	1.60	685	1.65	715	1.75	745	1.85	775	1.95	805	2.05	830	2.10
7000	585	1.55	610	1.65	635	1.70	665	1.85	690	1.90	720	2.00	745	2.10	770	2.20	800	2.30	825	2.40	855	2.50
7500	625	1.90	650	2.00	675	2.10	700	2.20	725	2.30	750	2.40	775	2.50	800	2.60	825	2.70	850	2.80	875	2.90
8000	665	2.30	690	2.40	715	2.55	735	2.60	760	2.70	785	2.85	810	2.95	830	3.05	855	3.15	880	3.25	905	3.40
8500	710	2.80	730	2.90	755	3.00	775	3.10	795	3.20	820	3.35	840	3.45	865	3.55	885	3.65	910	3.80	930	3.90

POWER EXHAUST - 100% HIGH STATIC OPERATION

Air Volume cfm	RETURN DUCT NEGATIVE STATIC PRESSURE - In. w.g.																					
	0		0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.90		1.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
8500	475	1.30	500	1.30	525	1.40	550	1.50	585	1.60	625	1.75	670	1.90	710	2.10	745	2.30	780	2.50	815	2.70
9000	520	1.55	535	1.60	550	1.65	570	1.70	605	1.85	640	1.95	685	2.15	720	2.35	760	2.55	790	2.75	825	3.00
9500	550	1.80	560	1.85	575	1.90	600	2.00	620	2.10	655	2.20	695	2.40	735	2.60	770	2.80	800	3.00	835	3.25
10,000	575	2.10	590	2.15	605	2.20	620	2.30	645	2.40	675	2.50	710	2.65	745	2.85	780	3.05	815	3.30	845	3.50
10,500	605	2.45	615	2.45	625	2.50	645	2.60	670	2.75	690	2.80	725	3.00	755	3.15	790	3.35	825	3.60	855	3.80
11,000	630	2.80	645	2.85	660	2.95	675	3.00	685	3.05	715	3.20	740	3.30	770	3.50	805	3.70	835	3.90	870	4.20
11,500	665	3.25	675	3.30	680	3.30	695	3.40	715	3.50	735	3.60	755	3.70	785	3.85	815	4.05	850	4.30	880	4.50
12,000	685	3.60	700	3.70	710	3.75	725	3.85	740	3.95	755	4.00	780	4.15	805	4.30	830	4.45	860	4.65	890	4.90
12,500	720	4.10	730	4.20	740	4.25	750	4.30	765	4.40	780	4.50	800	4.60	820	4.75	845	4.90	875	5.10	905	5.35
13,000	745	4.60	750	4.65	765	4.75	780	4.85	790	4.90	805	5.00	820	5.10	840	5.25	865	5.40	890	5.60	915	5.80
13,500	775	5.15	785	5.25	795	5.35	805	5.40	815	5.50	830	5.60	845	5.70	865	5.80	880	5.95	905	6.10	930	6.30
14,000	805	5.80	810	5.80	820	5.90	830	6.00	845	6.10	855	6.20	870	6.30	885	6.40	905	6.55	925	6.70	---	---

HIGH STATIC POWER EXHAUST WITH CONSTANT AIR VOLUME - DRIVE KIT SPECIFICATIONS

Power Exhaust Model No.	Motor HP	Drive Kit Number	RPM Range
LAPEB30/36A (50%)	(2) 2 hp	1	406 - 533
LAPEB30/36B (50%)	(2) 2 hp	2	531 - 731
LAPEB30/36C (50%)	(2) 2 hp	3	731 - 932
LAPEB30/36D (100%)	(3) 2 hp	1	406 - 533
LAPEB30/36E (100%)	(3) 2 hp	2	531 - 731
LAPEB30/36F (100%)	(3) 2 hp	3	731 - 932

NOTE - Using total air volume and system static pressure requirements, determine from blower performance tables rpm and motor output required.

BLOWER DATA

CEILING DIFFUSER AIR RESISTANCE - in. w.g.

Air Volume cfm	Step-Down Diffuser			Flush Diffuser
	LARTD30/36S			LAFD30/36S
	2 Ends Open	1 Side/2 Ends Open	All Ends & Sides Open	
7500	0.37	0.31	0.25	0.29
8000	0.42	0.36	0.29	0.34
8500	0.48	0.41	0.34	0.39
9000	0.55	0.47	0.39	0.44
9500	0.62	0.53	0.45	0.51
10,000	0.70	0.60	0.51	0.57
10,500	0.78	0.68	0.58	0.65
11,000	0.87	0.76	0.65	0.72
11,500	0.97	0.85	0.73	0.81
12,000	1.08	0.94	0.82	0.9
12,500	1.19	1.04	0.91	0.99
13,000	1.30	1.15	1.00	1.10
13,500	1.43	1.26	1.10	1.20
14,000	1.56	1.38	1.20	1.31
14,500	1.69	1.50	1.31	1.43
15,000	1.84	1.63	1.43	1.56

CEILING DIFFUSER AIR THROW DATA - ft.

Air Volume cfm	¹ Effective Throw Range - ft.	
	Step-Down	Flush
9000	40 - 47	29 - 35
9500	43 - 50	33 - 41
10,000	46 - 54	37 - 46
10,500	50 - 58	42 - 51
11,000	53 - 61	46 - 56
11,500	55 - 64	50 - 61
12,000	58 - 67	54 - 66
12,500	61 - 71	58 - 71
13,000	64 - 74	62 - 75
13,500	67 - 77	66 - 79

¹ Throw is the horizontal or vertical distance an airstream travels on leaving the outlet or diffuser before the maximum velocity is reduced to 50 ft. per minute. Four sides open.

ELECTRICAL DATA

HIGH EFFICIENCY - VARIABLE AIR VOLUME - 20 TON

Model No.		LCH242H4V								
		208/230V - 3 Ph			460V - 3 Ph			575V - 3 Ph		
¹ Voltage - 60hz										
Compressor 1	Rated Load Amps	13.5			8			5		
	Locked Rotor Amps	109			59			40		
Compressor 2	Rated Load Amps	13.5			8			5		
	Locked Rotor Amps	109			59			40		
Compressor 3	Rated Load Amps	13.5			8			5		
	Locked Rotor Amps	109			59			40		
Compressor 4	Rated Load Amps	13.5			8			5		
	Locked Rotor Amps	109			59			40		
Outdoor Fan Motors (6)	Full Load Amps	2.4			1.3			1		
	(total)	(14.4)			(7.8)			(6)		
Standard Power Exhaust (3) 0.33 HP	Full Load Amps	2.4			1.3			1		
	(total)	(7.2)			(3.9)			(3)		
50% High Static Power Exhaust (2) 2 HP	Full Load Amps	7.5			3.4			2.7		
	(total)	(15)			(6.8)			(5.4)		
100% High Static Power Exhaust (3) 2 HP	Full Load Amps	7.5			3.4			2.7		
	(total)	(22.5)			(10.2)			(8.1)		
Service Outlet 115V GFI (amps)		15			15			20		
Indoor Blower Motor	Horsepower	5	7.5	10	5	7.5	10	5	7.5	10
	Full Load Amps	16.7	24.2	30.8	7.6	11	14	6.1	9	11
² Maximum Overcurrent Protection	Unit Only	100	110	125	50	60	70	35	45	50
	With (3) 0.33 HP Standard Power Exhaust	110	125	125	60	60	70	40	45	50
	With 50% High Static Power Exhaust (2) 2 HP	110	125	150	60	70	70	45	50	50
	With 100% High Static Power Exhaust (3) 2 HP	125	125	150	60	70	80	45	50	50
³ Minimum Circuit Ampacity	Unit Only	90	99	107	50	54	58	34	38	40
	With (3) 0.33 HP Standard Power Exhaust	97	106	115	54	58	62	37	41	43
	With 50% High Static Power Exhaust (2) 2 HP	105	114	122	57	61	65	40	43	46
	With 100% High Static Power Exhaust (3) 2 HP	112	122	130	60	64	68	42	46	48

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.

¹ Extremes of operating range are plus and minus 10% of line voltage.

² HACR type breaker or fuse.

³ Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRIC HEAT DATA

HIGH EFFICIENCY - VARIABLE AIR VOLUME - 20 TON

Model No.			LCH242H4V											
¹ Voltage - 60hz - 3 phase			208/230V - 3 Ph						460V - 3 Ph			575V - 3 Ph		
Indoor Blower Motor	Horsepower		5		7.5		10		5	7.5	10	5	7.5	10
	Electric Heat Voltage		208V	240V	208V	240V	208V	240V	480V	480V	480V	600V	600V	600V
² Maximum Overcurrent Protection	Unit+ Electric Heat	30 kW	⁴ 100	125	⁴ 110	125	⁴ 125	150	60	60	70	45	50	50
		45 kW	⁴ 150	175	⁴ 150	175	175	175	80	90	90	70	70	70
		60 kW	⁴ 150	175	175	175	⁴ 175	200	90	90	90	70	70	80
		90 kW	⁴ 225	250	⁴ 225	250	⁴ 250	⁴ 300	125	125	150	100	100	110
		120 kW	⁴ 300	⁴ 350	⁴ 300	⁴ 350	⁴ 300	⁴ 350	175	175	175	125	150	150
	Electric Heat and Standard Power Exhaust (3) 0.33 HP	30 kW	⁴ 110	125	⁴ 125	150	150	150	60	70	70	50	60	60
		45 kW	⁴ 150	175	175	175	⁴ 175	200	90	90	100	70	70	80
		60 kW	175	175	⁴ 175	200	⁴ 175	200	90	100	100	70	80	80
		90 kW	⁴ 225	250	⁴ 250	⁴ 300	⁴ 250	⁴ 300	125	150	150	100	110	110
		120 kW	⁴ 300	⁴ 350	⁴ 300	⁴ 350	⁴ 300	⁴ 350	175	175	175	150	150	150
	Unit+ Electric Heat and 50% High Static Power Exhaust (2) 2 HP	30 kW	⁴ 125	150	150	150	150	150	70	70	80	60	60	60
		45 kW	175	175	⁴ 175	200	⁴ 175	200	90	90	100	70	80	80
		60 kW	⁴ 175	200	⁴ 175	200	⁴ 200	225	100	100	100	80	80	80
		90 kW	⁴ 250	⁴ 300	⁴ 250	⁴ 300	⁴ 250	⁴ 300	150	150	150	110	110	110
		120 kW	⁴ 300	⁴ 350	⁴ 300	⁴ 350	350	⁴ 350	175	175	175	150	150	150
	Electric Heat and 100% High Static Power Exhaust (3) 2 HP	30 kW	150	150	150	150	⁴ 150	175	70	80	80	60	60	60
		45 kW	⁴ 175	200	200	200	⁴ 200	225	90	100	100	80	80	80
		60 kW	⁴ 175	200	⁴ 200	225	⁴ 200	225	100	100	110	80	80	90
		90 kW	⁴ 250	⁴ 300	⁴ 250	⁴ 300	300	⁴ 300	150	150	150	110	110	125
		120 kW	⁴ 300	⁴ 350	350	⁴ 350	⁴ 350	⁴ 400	175	175	175	150	150	150
³ Minimum Circuit Ampacity	Unit+ Electric Heat	30 kW	100	112	109	121	117	129	55	59	63	44	48	50
		45 kW	139	157	148	166	156	174	78	82	86	62	66	68
		60 kW	146	166	156	175	164	183	82	86	90	66	69	72
		90 kW	209	238	218	247	227	256	118	123	126	95	98	101
		120 kW	272	310	281	319	289	328	154	159	162	124	127	130
	Electric Heat and Standard Power Exhaust (3) 0.33 HP	30 kW	109	121	118	130	126	138	60	64	68	48	52	54
		45 kW	148	166	157	175	165	183	83	87	91	66	70	72
		60 kW	155	175	165	184	173	192	87	91	95	70	73	76
		90 kW	218	247	227	256	236	265	123	127	131	98	102	105
		120 kW	281	319	290	328	298	337	159	163	167	127	131	133
	Unit+ Electric Heat and 50% High Static Power Exhaust (2) 2 HP	30 kW	118	130	128	140	136	148	64	68	72	51	55	57
		45 kW	157	175	167	185	175	193	86	90	94	69	73	75
		60 kW	165	184	175	194	183	202	91	95	99	73	76	79
		90 kW	228	257	237	266	245	274	127	131	135	101	105	108
		120 kW	290	329	300	338	308	346	163	167	171	130	134	136
	Unit+ Electric Heat and 100% High Static Power Exhaust (3) 2 HP	30 kW	128	140	137	149	145	157	68	72	76	54	58	60
		45 kW	167	185	176	194	184	202	90	95	98	72	76	79
		60 kW	175	194	184	203	192	211	95	99	103	76	80	82
		90 kW	237	266	247	275	255	284	131	135	139	105	108	111
		120 kW	300	338	309	348	317	356	167	171	175	134	137	140

¹ Extremes of operating range are plus and minus 10% of line voltage.

² HACR type breaker or fuse.

³ Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

⁴ Factory installed circuit breaker not available.

ELECTRICAL DATA HIGH EFFICIENCY - VARIABLE/MULTI-STAGE AIR VOLUME - 25 TON

Model No.		LCH300H4V, LCH300H4M								
¹ Voltage - 60hz		208/230V - 3 Ph			460V - 3 Ph			575V - 3 Ph		
Compressor 1	Rated Load Amps	22.4			10.6			7.7		
	Locked Rotor Amps	149			75			54		
Compressor 2	Rated Load Amps	22.4			10.6			7.7		
	Locked Rotor Amps	149			75			54		
Compressor 3	Rated Load Amps	22.4			10.6			7.7		
	Locked Rotor Amps	149			75			54		
Compressor 4	Rated Load Amps	22.4			10.6			7.7		
	Locked Rotor Amps	149			75			54		
Outdoor Fan Motors (6)	Full Load Amps	2.4			1.3			1		
	(total)	(14.4)			(7.8)			(6)		
Standard Power Exhaust (3) 0.33 HP	Full Load Amps	2.4			1.3			1		
	(total)	(7.2)			(3.9)			(3)		
50% High Static Power Exhaust (2) 2 HP	Full Load Amps	7.5			3.4			2.7		
	(total)	(15)			(6.8)			(5.4)		
100% High Static Power Exhaust (3) 2 HP	Full Load Amps	7.5			3.4			2.7		
	(total)	(22.5)			(10.2)			(8.1)		
Service Outlet 115V GFI (amps)		15			15			20		
Indoor Blower Motor	Horsepower	5	7.5	10	5	7.5	10	5	7.5	10
	Full Load Amps	16.7	24.2	30.8	7.6	11	14	6.1	9	11
² Maximum Overcurrent Protection	Unit Only	150	150	150	70	70	80	50	50	60
	With (3) 0.33 HP Standard Power Exhaust	150	150	175	70	70	80	50	60	60
	With 50% High Static Power Exhaust (2) 2 HP	150	150	175	70	80	80	60	60	60
	With 100% High Static Power Exhaust (3) 2 HP	150	175	175	80	80	90	60	60	60
³ Minimum Circuit Ampacity	Unit Only	127	135	143	61	64	68	45	49	51
	With (3) 0.33 HP Standard Power Exhaust	134	142	150	65	68	72	48	52	54
	With 50% High Static Power Exhaust (2) 2 HP	142	150	158	68	71	75	51	54	56
	With 100% High Static Power Exhaust (3) 2 HP	149	157	165	71	75	78	53	57	59

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.

¹ Extremes of operating range are plus and minus 10% of line voltage.

² HACR type breaker or fuse.

³ Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRIC HEAT DATA HIGH EFFICIENCY - VARIABLE/MULTI-STAGE AIR VOLUME - 25 TON

Model No.			LCH300H4V, LCH300H4M											
¹ Voltage - 60hz - 3 phase			208/230V - 3 Ph						460V - 3 Ph			575V - 3 Ph		
Indoor Blower Motor	Horsepower		5		7.5		10		5	7.5	10	5	7.5	10
	Electric Heat Voltage		208V	240V	208V	240V	208V	240V	480V	480V	480V	600V	600V	600V
² Maximum Overcurrent Protection	Unit+	30 kW	150	150	150	150	150	150	70	70	80	50	50	60
	Electric Heat	45 kW	⁴ 150	175	⁴ 150	175	175	175	80	90	90	70	70	70
		60 kW	⁴ 150	175	175	175	⁴ 175	200	90	90	90	70	70	80
		90 kW	⁴ 225	250	⁴ 225	250	⁴ 250	⁴ 300	125	125	150	100	100	110
		120 kW	⁴ 300	⁴ 350	⁴ 300	⁴ 350	⁴ 300	⁴ 350	175	175	175	125	150	150
	Unit+	30 kW	150	150	150	150	175	175	70	70	80	50	60	60
	Electric Heat and Standard Power Exhaust (3) 0.33 HP	45 kW	⁴ 150	175	175	175	⁴ 175	200	90	90	100	70	70	80
		60 kW	175	175	⁴ 175	200	⁴ 175	200	90	100	100	70	80	80
		90 kW	⁴ 225	250	⁴ 250	⁴ 300	⁴ 250	⁴ 300	125	150	150	100	110	110
		120 kW	⁴ 300	⁴ 350	⁴ 300	⁴ 350	⁴ 300	⁴ 350	175	175	175	150	150	150
	Unit+	30 kW	150	150	150	150	175	175	70	80	80	60	60	60
	Electric Heat and 50% High Static Power Exhaust (2) 2 HP	45 kW	175	175	⁴ 175	200	⁴ 175	200	90	90	100	70	80	80
		60 kW	⁴ 175	200	⁴ 175	200	⁴ 200	225	100	100	100	80	80	80
		90 kW	⁴ 250	⁴ 300	⁴ 250	⁴ 300	⁴ 250	⁴ 300	150	150	150	110	110	110
		120 kW	⁴ 300	⁴ 350	⁴ 300	⁴ 350	350	⁴ 350	175	175	175	150	150	150
Unit+	30 kW	150	150	175	175	175	175	80	80	90	60	60	60	
Electric Heat and 100% High Static Power Exhaust (3) 2 HP	45 kW	⁴ 175	200	200	200	⁴ 200	225	90	100	100	80	80	80	
	60 kW	⁴ 175	200	⁴ 200	225	⁴ 200	225	100	100	110	80	80	90	
	90 kW	⁴ 250	⁴ 300	⁴ 250	⁴ 300	300	⁴ 300	150	150	150	110	110	125	
	120 kW	⁴ 300	⁴ 350	350	⁴ 350	⁴ 350	⁴ 400	175	175	175	150	150	150	
³ Minimum Circuit Ampacity	Unit+	30 kW	127	127	135	135	143	143	61	64	68	45	49	51
	Electric Heat	45 kW	139	157	148	166	156	174	78	82	86	62	66	68
		60 kW	146	166	156	175	164	183	82	86	90	66	69	72
		90 kW	209	238	218	247	227	256	118	123	126	95	98	101
		120 kW	272	310	281	319	289	328	154	159	162	124	127	130
	Unit+	30 kW	134	134	142	142	150	150	65	68	72	48	52	54
	Electric Heat and Standard Power Exhaust (3) 0.33 HP	45 kW	148	166	157	175	165	183	83	87	91	66	70	72
		60 kW	155	175	165	184	173	192	87	91	95	70	73	76
		90 kW	218	247	227	256	236	265	123	127	131	98	102	105
		120 kW	281	319	290	328	298	337	159	163	167	127	131	133
	Unit+	30 kW	142	142	150	150	158	158	68	71	75	51	55	57
	Electric Heat and 50% High Static Power Exhaust (2) 2 HP	45 kW	157	175	167	185	175	193	86	90	94	69	73	75
		60 kW	165	184	175	194	183	202	91	95	99	73	76	79
		90 kW	228	257	237	266	245	274	127	131	135	101	105	108
		120 kW	290	329	300	338	308	346	163	167	171	130	134	136
Unit+	30 kW	149	149	157	157	165	165	71	75	78	54	58	60	
Electric Heat and 100% High Static Power Exhaust (3) 2 HP	45 kW	167	185	176	194	184	202	90	95	98	72	76	79	
	60 kW	175	194	184	203	192	211	95	99	103	76	80	82	
	90 kW	237	266	247	275	255	284	131	135	139	105	108	111	
	120 kW	300	338	309	348	317	356	167	171	175	134	137	140	

¹ Extremes of operating range are plus and minus 10% of line voltage.

² HACR type breaker or fuse.

³ Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

⁴ Factory installed circuit breaker not available.

ELECTRICAL DATA HIGH EFFICIENCY - VARIABLE/MULTI-STAGE AIR VOLUME - 30 TON

Model No.		LCH360H4V, LCH360H4M								
¹ Voltage - 60hz		208/230V - 3 Ph			460V - 3 Ph			575V - 3 Ph		
Compressor 1	Rated Load Amps	25			12.2			9		
	Locked Rotor Amps	164			100			78		
Compressor 2	Rated Load Amps	25			12.2			9		
	Locked Rotor Amps	164			100			78		
Compressor 3	Rated Load Amps	25			12.2			9		
	Locked Rotor Amps	164			100			78		
Compressor 4	Rated Load Amps	25			12.2			9		
	Locked Rotor Amps	164			100			78		
Outdoor Fan Motors (6)	Full Load Amps	2.4			1.3			1		
	(total)	(14.4)			(7.8)			(6)		
Standard Power Exhaust (3) 0.33 HP	Full Load Amps	2.4			1.3			1		
	(total)	(7.2)			(3.9)			(3)		
50% High Static Power Exhaust (2) 2 HP		7.5			3.4			2.7		
		(15)			(6.8)			(5.4)		
100% High Static Power Exhaust (3) 2 HP		7.5			3.4			2.7		
		(22.5)			(10.2)			(8.1)		
Service Outlet 115V GFI (amps)		15			15			20		
Indoor Blower Motor	Horsepower	5	7.5	10	5	7.5	10	5	7.5	10
	Full Load Amps	16.7	24.2	30.8	7.6	11	14	6.1	9	11
² Maximum Overcurrent Protection	Unit Only	150	150	175	70	80	80	60	60	60
	With (3) 0.33 HP Standard Power Exhaust	150	175	175	80	80	90	60	60	60
	With 50% High Static Power Exhaust (2) 2 HP	175	175	175	80	80	90	60	60	70
	With 100% High Static Power Exhaust (3) 2 HP	175	175	200	80	90	90	60	70	70
³ Minimum Circuit Ampacity	Unit Only	138	145	153	68	71	75	51	54	56
	With (3) 0.33 HP Standard Power Exhaust	145	153	161	72	75	78	54	57	59
	With 50% High Static Power Exhaust (2) 2 HP	153	160	168	75	78	81	56	59	62
	With 100% High Static Power Exhaust (3) 2 HP	160	168	176	78	81	85	59	62	64

NOTE - All units have a minimum Short Circuit Current Rating (SCCR) of 5000 amps.

¹ Extremes of operating range are plus and minus 10% of line voltage.

² HACR type breaker or fuse.

³ Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRIC HEAT DATA HIGH EFFICIENCY - VARIABLE/MULTI-STAGE AIR VOLUME - 30 TON

Model No.			LCH360H4V, LCH360H4M											
¹ Voltage - 60hz - 3 phase			208/230V - 3 Ph						460V - 3 Ph			575V - 3 Ph		
Indoor Blower Motor	Horsepower		5		7.5		10		5	7.5	10	5	7.5	10
	Electric Heat Voltage		208V	240V	208V	240V	208V	240V	480V	480V	480V	600V	600V	600V
² Maximum Overcurrent Protection	Unit+	30 kW	150	150	150	150	175	175	70	80	80	60	60	60
	Electric Heat	45 kW	⁴ 150	175	⁴ 150	175	175	175	80	90	90	70	70	70
		60 kW	⁴ 150	175	175	175	⁴ 175	200	90	90	90	70	70	80
		90 kW	⁴ 225	250	⁴ 225	250	⁴ 250	⁴ 300	125	125	150	100	100	110
		120 kW	⁴ 300	⁴ 350	⁴ 300	⁴ 350	⁴ 300	⁴ 350	175	175	175	125	150	150
	Unit+	30 kW	150	150	175	175	175	175	80	80	90	60	60	60
	Electric Heat and Standard Power Exhaust (3) 0.33 HP	45 kW	⁴ 150	175	175	175	⁴ 175	200	90	90	100	70	70	80
		60 kW	175	175	⁴ 175	200	⁴ 175	200	90	100	100	70	80	80
		90 kW	⁴ 225	250	⁴ 250	⁴ 300	⁴ 250	⁴ 300	125	150	150	100	110	110
		120 kW	⁴ 300	⁴ 350	⁴ 300	⁴ 350	⁴ 300	⁴ 350	175	175	175	150	150	150
	Unit+	30 kW	175	175	175	175	175	175	80	80	90	60	60	70
	Electric Heat and 50% High Static Power Exhaust (2) 2 HP	45 kW	175	175	⁴ 175	200	⁴ 175	200	90	90	100	70	80	80
		60 kW	⁴ 175	200	⁴ 175	200	⁴ 200	225	100	100	100	80	80	80
		90 kW	⁴ 250	⁴ 300	⁴ 250	⁴ 300	⁴ 250	⁴ 300	150	150	150	110	110	110
		120 kW	⁴ 300	⁴ 350	⁴ 300	⁴ 350	350	⁴ 350	175	175	175	150	150	150
Unit+	30 kW	175	175	175	175	200	200	80	90	90	60	70	70	
Electric Heat and 100% High Static Power Exhaust (3) 2 HP	45 kW	⁴ 175	200	200	200	⁴ 200	225	90	100	100	80	80	80	
	60 kW	⁴ 175	200	⁴ 200	225	⁴ 200	225	100	100	110	80	80	90	
	90 kW	⁴ 250	⁴ 300	⁴ 250	⁴ 300	300	⁴ 300	150	150	150	110	110	125	
	120 kW	⁴ 300	⁴ 350	350	⁴ 350	⁴ 350	⁴ 400	175	175	175	150	150	150	
³ Minimum Circuit Ampacity	Unit+	30 kW	138	138	145	145	153	153	68	71	75	51	54	56
	Electric Heat	45 kW	139	157	148	166	156	174	78	82	86	62	66	68
		60 kW	146	166	156	175	164	183	82	86	90	66	69	72
		90 kW	209	238	218	247	227	256	118	123	126	95	98	101
		120 kW	272	310	281	319	289	328	154	159	162	124	127	130
	Unit+	30 kW	145	145	153	153	161	161	72	75	78	54	57	59
	Electric Heat and Standard Power Exhaust (3) 0.33 HP	45 kW	148	166	157	175	165	183	83	87	91	66	70	72
		60 kW	155	175	165	184	173	192	87	91	95	70	73	76
		90 kW	218	247	227	256	236	265	123	127	131	98	102	105
		120 kW	281	319	290	328	298	337	159	163	167	127	131	133
	Unit+	30 kW	153	153	160	160	168	168	75	78	81	56	59	62
	Electric Heat and 50% High Static Power Exhaust (2) 2 HP	45 kW	157	175	167	185	175	193	86	90	94	69	73	75
		60 kW	165	184	175	194	183	202	91	95	99	73	76	79
		90 kW	228	257	237	266	245	274	127	131	135	101	105	108
		120 kW	290	329	300	338	308	346	163	167	171	130	134	136
Unit+	30 kW	160	160	168	168	176	176	78	81	85	59	62	64	
Electric Heat and 100% High Static Power Exhaust (3) 2 HP	45 kW	167	185	176	194	184	202	90	95	98	72	76	79	
	60 kW	175	194	184	203	192	211	95	99	103	76	80	82	
	90 kW	237	266	247	275	255	284	131	135	139	105	108	111	
	120 kW	300	338	309	348	317	356	167	171	175	134	137	140	

¹ Extremes of operating range are plus and minus 10% of line voltage.

² HACR type breaker or fuse.

³ Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

⁴ Factory installed circuit breaker not available.

ELECTRIC HEAT CAPACITIES

Volts Input	30 kW			45 kW			60 kW			90 kW			120 kW		
	kW Input	Btuh Output	No. of Stages	kW Input	Btuh Output	No. of Stages	kW Input	Btuh Output	No. of Stages	kW Input	Btuh Output	No. of Stages	kW Input	Btuh Output	No. of Stages
208	22.5	76,800	1	33.8	115,300	2	45.0	153,600	2	67.6	230,700	2	90.2	307,800	2
220	25.2	86,000	1	37.8	129,000	2	50.4	172,000	2	75.6	258,000	2	100.8	344,000	2
230	27.5	93,900	1	41.3	141,000	2	55.1	188,000	2	82.7	282,200	2	110.2	376,100	2
240	30.0	102,400	1	45.0	153,600	2	60.0	204,800	2	90.0	307,100	2	120.0	409,500	2
440	25.2	86,000	1	37.8	129,000	2	50.4	172,000	2	75.6	258,000	2	100.8	344,000	2
460	27.5	93,900	1	41.3	141,000	2	55.1	188,000	2	82.7	282,200	2	110.2	376,100	2
480	30.0	102,400	1	45.0	153,600	2	60.0	204,800	2	90.0	307,100	2	120.0	409,500	2
550	25.2	86,000	1	37.8	129,000	2	50.4	172,000	2	75.6	258,000	2	100.8	344,000	2
575	27.5	93,900	1	41.3	141,000	2	55.1	188,000	2	82.7	282,200	2	110.2	376,100	2
600	30.0	102,400	1	45.0	153,600	2	60.0	204,800	2	90.0	307,100	2	120.0	409,500	2

ELECTRICAL ACCESSORIES

HIGH EFFICIENCY - 20 TON

Model No.		LCH242H4									
Voltage - 60hz - 3 phase		208/230V			460V			575V			
Indoor Blower Motor Horsepower		5	7.5	10	5	7.5	10	5	7.5	10	
Disconnect	Unit Only	54W86	54W86	54W86	54W85	54W85	54W85	54W85	54W85	54W85	
	Unit+ Electric Heat and Standard Power Exhaust (3) 0.33 HP	0 kW	54W86	54W86	54W86	54W85	54W85	54W85	54W85	54W85	54W85
	30 kW	54W86	54W86	54W86	54W85	54W85	54W85	54W85	54W85	54W85	54W85
	45 kW	54W87	54W87	54W87	54W85	54W85	54W86	54W85	54W85	54W85	54W85
	60 kW	54W87	54W87	54W87	54W86	54W86	54W86	54W85	54W86	54W86	54W86
	90 kW	N/A	N/A	N/A	54W86	54W86	54W86	54W86	54W86	54W86	54W86
	120 kW	N/A	N/A	N/A	54W87	54W87	54W87	54W86	54W86	54W86	54W86
	Unit+ Electric Heat and 50% High Static Power Exhaust (2) 2 HP	0 kW	54W86	54W86	54W87	54W85	54W85	54W85	54W85	54W85	54W85
	30 kW	54W86	54W86	54W87	54W85	54W85	54W85	54W85	54W85	54W85	54W85
	45 kW	54W87	54W87	54W87	54W85	54W86	54W86	54W85	54W85	54W85	54W85
	60 kW	54W87	54W87	54W87	54W86	54W86	54W86	54W85	54W86	54W86	54W86
	90 kW	N/A	N/A	N/A	54W86	54W86	54W86	54W86	54W86	54W86	54W86
	120 kW	N/A	N/A	N/A	54W87	54W87	54W87	54W86	54W86	54W86	54W87
	Unit+ Electric Heat and 100% High Static Power Exhaust (3) 2 HP	0 kW	54W86	54W87	54W87	54W85	54W85	54W85	54W85	54W85	54W85
	30 kW	54W86	54W87	54W87	54W85	54W85	54W85	54W85	54W85	54W85	54W85
	45 kW	54W87	54W87	54W87	54W86	54W86	54W86	54W85	54W85	54W85	54W85
	60 kW	54W87	54W87	54W87	54W86	54W86	54W86	54W86	54W86	54W86	54W86
	90 kW	N/A	N/A	N/A	54W86	54W86	54W87	54W86	54W86	54W86	54W86
120 kW	N/A	N/A	N/A	54W87	54W87	54W87	54W86	54W87	54W87	54W87	

ELECTRICAL ACCESSORIES

HIGH EFFICIENCY - 25 TON

Model No.		LCH300H4									
Voltage - 60hz - 3 phase		208/230V			460V			575V			
Indoor Blower Motor	Horsepower	5	7.5	10	5	7.5	10	5	7.5	10	
Disconnect	Unit Only	54W86	54W87	54W87	54W85	54W85	54W85	54W85	54W85	54W85	
	Unit+ 0 kW	54W86	54W87	54W87	54W85	54W85	54W85	54W85	54W85	54W85	
	Electric Heat and Standard Power Exhaust (3) 0.33 HP	30 kW	54W86	54W87	54W87	54W85	54W85	54W85	54W85	54W85	54W85
		45 kW	54W87	54W87	54W87	54W85	54W85	54W86	54W85	54W85	54W85
		60 kW	54W87	54W87	54W87	54W86	54W86	54W86	54W85	54W86	54W86
		90 kW	N/A	N/A	N/A	54W86	54W86	54W86	54W86	54W86	54W86
		120 kW	N/A	N/A	N/A	54W87	54W87	54W87	54W86	54W86	54W86
	Unit+ 0 kW	54W87	54W87	54W87	54W85	54W85	54W86	54W85	54W85	54W85	
	Electric Heat and 50% High Static Power Exhaust (2) 2 HP	30 kW	54W87	54W87	54W87	54W85	54W85	54W86	54W85	54W85	54W85
		45 kW	54W87	54W87	54W87	54W85	54W86	54W86	54W85	54W85	54W85
		60 kW	54W87	54W87	54W87	54W86	54W86	54W86	54W85	54W86	54W86
		90 kW	N/A	N/A	N/A	54W86	54W86	54W86	54W86	54W86	54W86
		120 kW	N/A	N/A	N/A	54W87	54W87	54W87	54W86	54W86	54W87
	Unit+ 0 kW	54W87	54W87	54W87	54W85	54W86	54W86	54W85	54W85	54W85	
	Electric Heat and 100% High Static Power Exhaust (3) 2 HP	30 kW	54W87	54W87	54W87	54W85	54W86	54W86	54W85	54W85	54W85
		45 kW	54W87	54W87	54W87	54W86	54W86	54W86	54W85	54W85	54W85
		60 kW	54W87	54W87	54W87	54W86	54W86	54W86	54W86	54W86	54W86
		90 kW	N/A	N/A	N/A	54W86	54W86	54W87	54W86	54W86	54W86
		120 kW	N/A	N/A	N/A	54W87	54W87	54W87	54W86	54W87	54W87

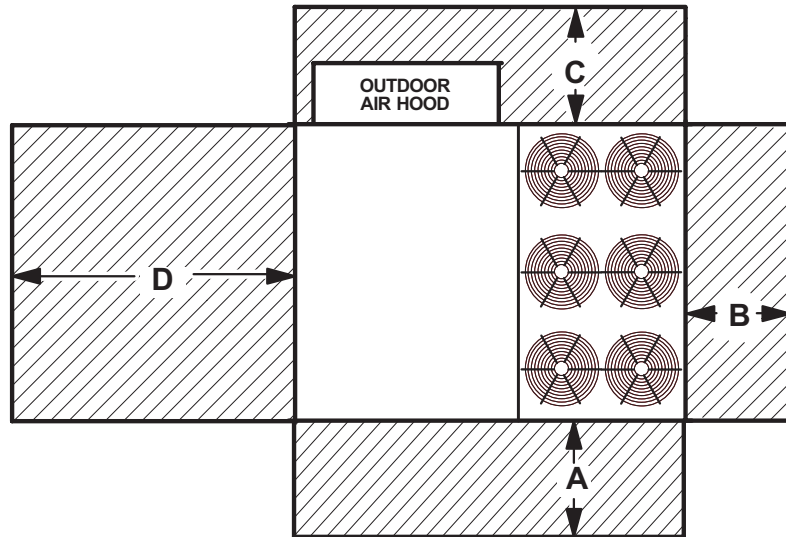
ELECTRICAL ACCESSORIES

HIGH EFFICIENCY - 30 TON

Model No.		LCH360H4									
Voltage - 60hz - 3 phase		208/230V			460V			575V			
Indoor Blower Motor	Horsepower	5	7.5	10	5	7.5	10	5	7.5	10	
Disconnect	Unit Only	54W87	54W87	54W87	54W85	54W86	54W86	54W85	54W85	54W85	
	Unit+ 0 kW	54W87	54W87	54W87	54W85	54W86	54W86	54W85	54W85	54W85	
	Electric Heat and Standard Power Exhaust (3) 0.33 HP	30 kW	54W87	54W87	54W87	54W85	54W86	54W86	54W85	54W85	54W85
		45 kW	54W87	54W87	54W87	54W85	54W86	54W86	54W85	54W85	54W85
		60 kW	54W87	54W87	54W87	54W86	54W86	54W86	54W85	54W86	54W86
		90 kW	N/A	N/A	N/A	54W86	54W86	54W86	54W86	54W86	54W86
		120 kW	N/A	N/A	N/A	54W87	54W87	54W87	54W86	54W86	54W86
	Unit+ 0 kW	54W87	54W87	54W87	54W86	54W86	54W86	54W85	54W85	54W85	
	Electric Heat and 50% High Static Power Exhaust (2) 2 HP	30 kW	54W87	54W87	54W87	54W86	54W86	54W86	54W85	54W85	54W85
		45 kW	54W87	54W87	54W87	54W86	54W86	54W86	54W85	54W85	54W85
		60 kW	54W87	54W87	54W87	54W86	54W86	54W86	54W85	54W86	54W86
		90 kW	N/A	N/A	N/A	54W86	54W86	54W86	54W86	54W86	54W86
		120 kW	N/A	N/A	N/A	54W87	54W87	54W87	54W86	54W86	54W87
	Unit+ 0 kW	54W87	54W87	54W87	54W86	54W86	54W86	54W85	54W85	54W85	
	Electric Heat and 100% High Static Power Exhaust (3) 2 HP	30 kW	54W87	54W87	54W87	54W86	54W86	54W86	54W85	54W85	54W85
		45 kW	54W87	54W87	54W87	54W86	54W86	54W86	54W85	54W85	54W85
		60 kW	54W87	54W87	54W87	54W86	54W86	54W86	54W86	54W86	54W86
		90 kW	N/A	N/A	N/A	54W86	54W86	54W87	54W86	54W86	54W86
		120 kW	N/A	N/A	N/A	54W87	54W87	54W87	54W86	54W87	54W87

UNIT CLEARANCES

Unit With Economizer



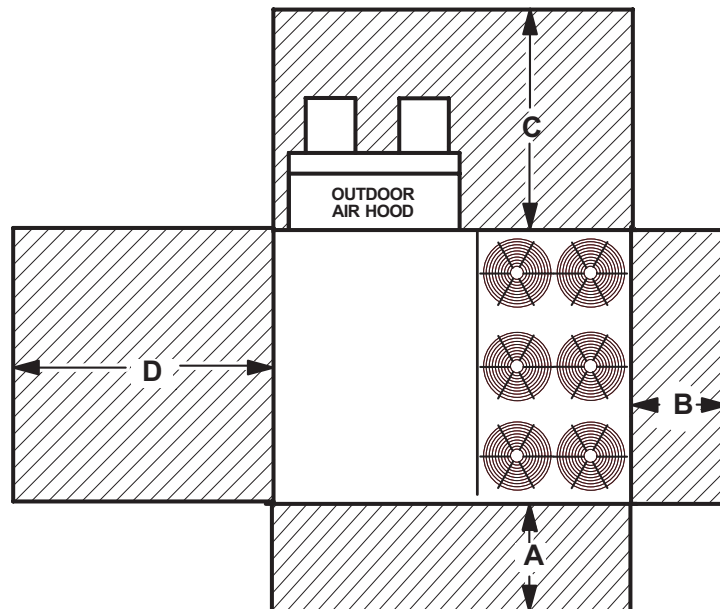
¹ Unit Clearance	A		B		C		D		Top Clearance
	in.	mm	in.	mm	in.	mm	in.	mm	
Service Clearance	60	1524	36	914	36	914	66	1676	Unobstructed
Minimum Operation Clearance	45	1143	36	914	36	914	41	1041	

NOTE - Entire perimeter of unit base requires support when elevated above the mounting surface.

¹ **Service Clearance** - Required for removal of serviceable parts.

Minimum Operation Clearance - Required clearance for proper unit operation.

Unit With High Static Power Exhaust Fans



¹ Unit Clearance	A		B		C		D		Top Clearance
	in.	mm	in.	mm	in.	mm	in.	mm	
Service Clearance	60	1524	36	914	80	2032	66	1676	Unobstructed
Minimum Operation Clearance	45	1143	36	914	80	2032	41	1041	

NOTE - Entire perimeter of unit base requires support when elevated above the mounting surface.

¹ **Service Clearance** - Required for removal of serviceable parts.

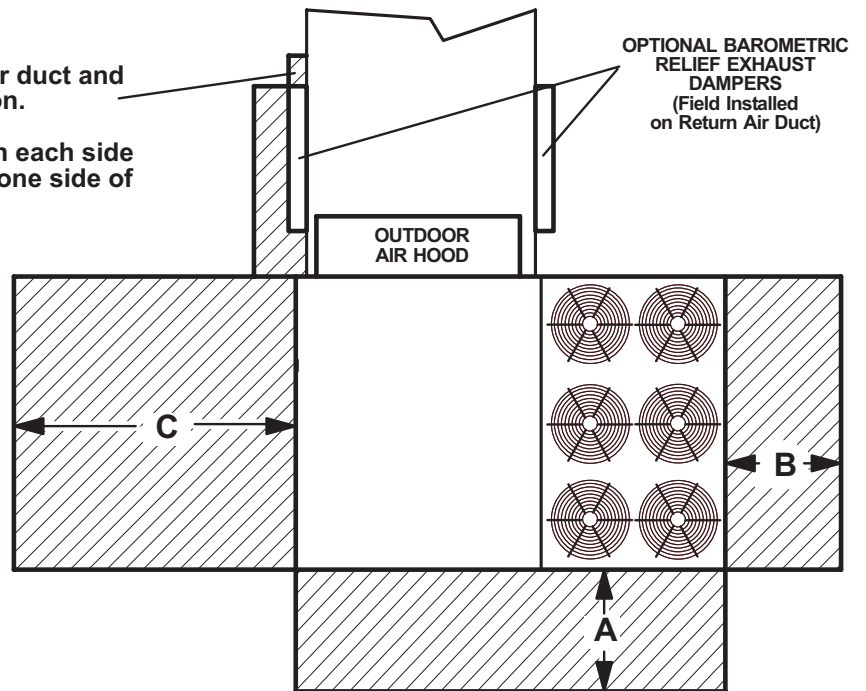
Minimum Operation Clearance - Required clearance for proper unit operation.

UNIT CLEARANCES

Unit With Horizontal Barometric Relief Dampers

NOTE Allow adequate clearance for duct and barometric relief damper installation.

NOTE Dampers may be installed on each side of return air duct or end to end on one side of return air duct.



¹ Unit Clearance	A		B		C		Top Clearance
	in.	mm	in.	mm	in.	mm	
Service Clearance	60	1524	36	914	66	1676	Unobstructed
Minimum Operation Clearance	45	1143	36	914	41	1041	

NOTE - Entire perimeter of unit base requires support when elevated above the mounting surface.

¹ **Service Clearance** - Required for removal of serviceable parts.

Minimum Operation Clearance - Required clearance for proper unit operation.

OUTDOOR SOUND DATA

Unit Model Number	Octave Band Sound Power Levels dBA, re 10 ⁻¹² Watts - Center Frequency - Hz							1 Sound Rating Number (dBA)
	125	250	500	1000	2000	4000	8000	
242, 300, 360	84	85	90	90	85	80	72	95

Note - The octave band sound power data does not include tonal corrections.

¹ Tested according to AHRI Standard 370-2001 test conditions (includes pure tone penalty).

Sound Rating Number is the overall A-Weighted Sound Power Level, (LWA), dB (100 Hz to 10,000 Hz).

WEIGHT DATA

Model Number	Net		Shipping	
	lbs.	kg	lbs.	kg
242 Base Unit	2997	1359	3207	1455
242 Max. Unit	3409	1546	3619	1642
300 Base Unit	2997	1359	3207	1455
300 Max. Unit	3509	1592	3719	1687
360 Base Unit	2997	1359	3207	1455
360 Max. Unit	3509	1592	3719	1687

OPTIONS / ACCESSORIES

Description	Shipping Weight		
	lbs.	kg	
CEILING DIFFUSERS			
Step-Down	LARTD30/36S	625	283
Flush	LAFD30/36S	625	283
Transitions	LASRT30/36	85	39
ECONOMIZER / OUTDOOR AIR / EXHAUST			
Economizer		138	63
Barometric Relief			
Downflow Barometric Relief Dampers		45	20
Horizontal Barometric Relief Dampers		20	9
Outdoor Air Dampers			
Damper Section (downflow)	Motorized	72	33
Damper Section (downflow)	Manual	68	31
Outdoor Air Hood (downflow)		76	34
Power Exhaust			
	Standard Static	99	45
	50% High Static	460	209
	100% High Static with or without VFD	525	238
ELECTRIC HEAT			
30 KW		59	27
45 KW		76	34
60 KW		76	34
90 KW		84	38
120 KW		98	44
HUMIDITROL® DEHUMIDIFICATION SYSTEM			
Humiditrol® Dehumidification Option (Net Weight)		100	45
ROOF CURBS			
Hybrid Roof Curbs, Downflow			
14 in. height		115	52
18 in. height		140	64
24 in. height		170	77
Standard Curbs, Horizontal			
30 in. height		445	202
41 in. height		725	329

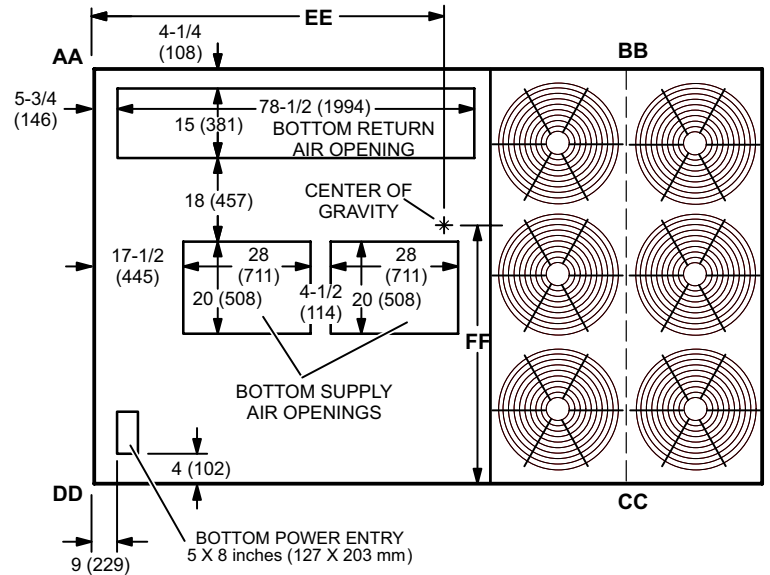
DIMENSIONS - UNIT

CORNER WEIGHTS

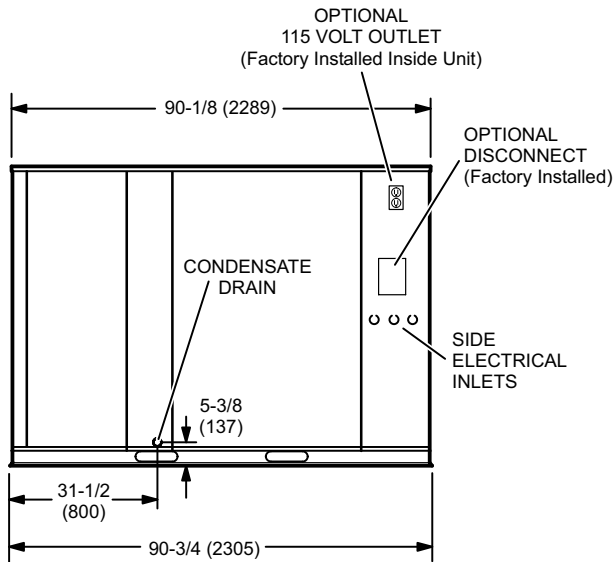
Model No.	CORNER WEIGHTS								CENTER OF GRAVITY			
	AA		BB		CC		DD		EE		FF	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	in.	mm	in.	mm
LCH242 Base Unit	610	277	612	278	880	399	895	406	60	1524	37	940
LCH242 Max. Unit	693	315	696	316	1001	454	1018	462	60	1524	37	940
LCH300 Base Unit	610	277	612	278	880	399	895	406	60	1524	37	940
LCH300 Max. Unit	693	315	696	316	1001	454	1018	462	60	1524	37	940
LCH360 Base Unit	610	277	612	278	880	399	895	406	60	1524	37	940
LCH360 Max. Unit	693	315	696	316	1001	454	1018	462	60	1524	37	940

Base Unit - The unit with NO INTERNAL OPTIONS.

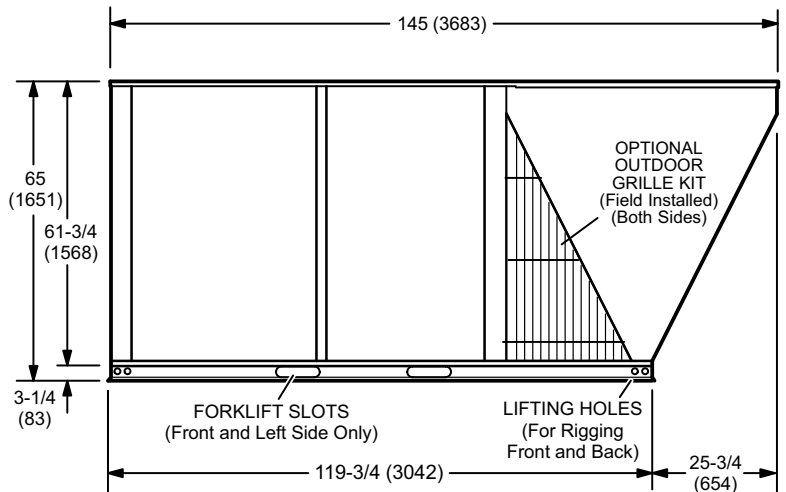
Max. Unit - The unit with ALL INTERNAL OPTIONS Installed. (Economizer, Standard Static Power Exhaust, Controls, etc.). Does not include accessories external to unit or high static power exhaust.



TOP VIEW

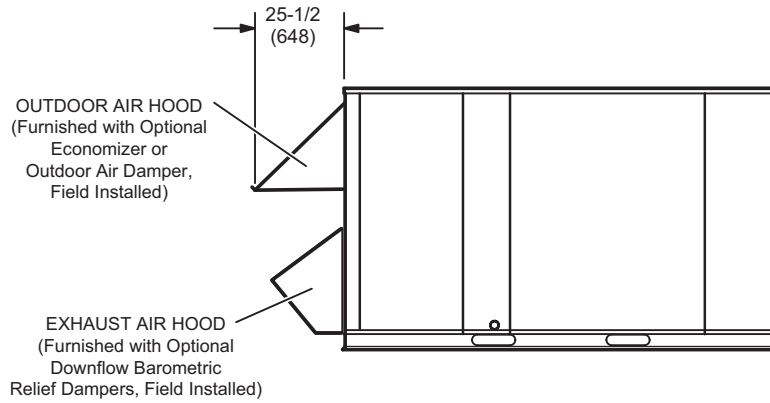


END VIEW

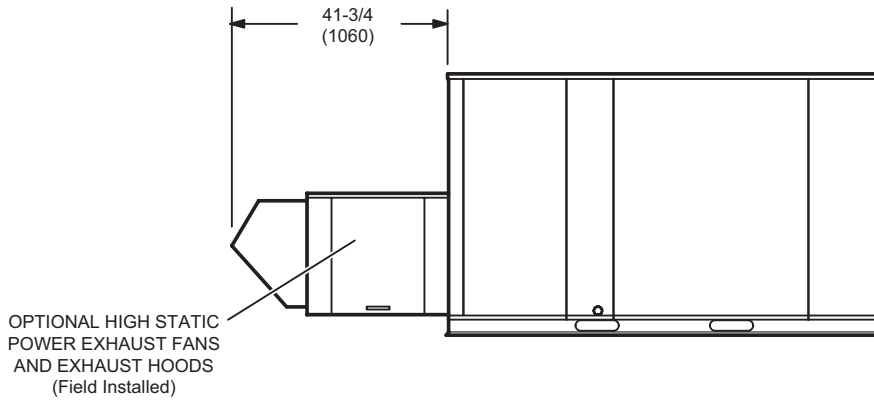


SIDE VIEW

OUTDOOR AIR HOOD DETAIL

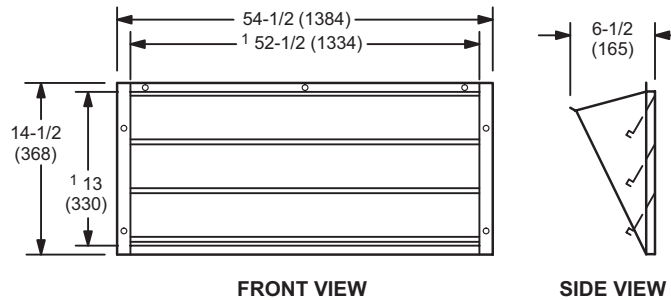


OPTIONAL HIGH STATIC POWER EXHAUST FANS DETAIL



OPTIONAL HORIZONTAL BAROMETRIC RELIEF DAMPERS WITH HOOD

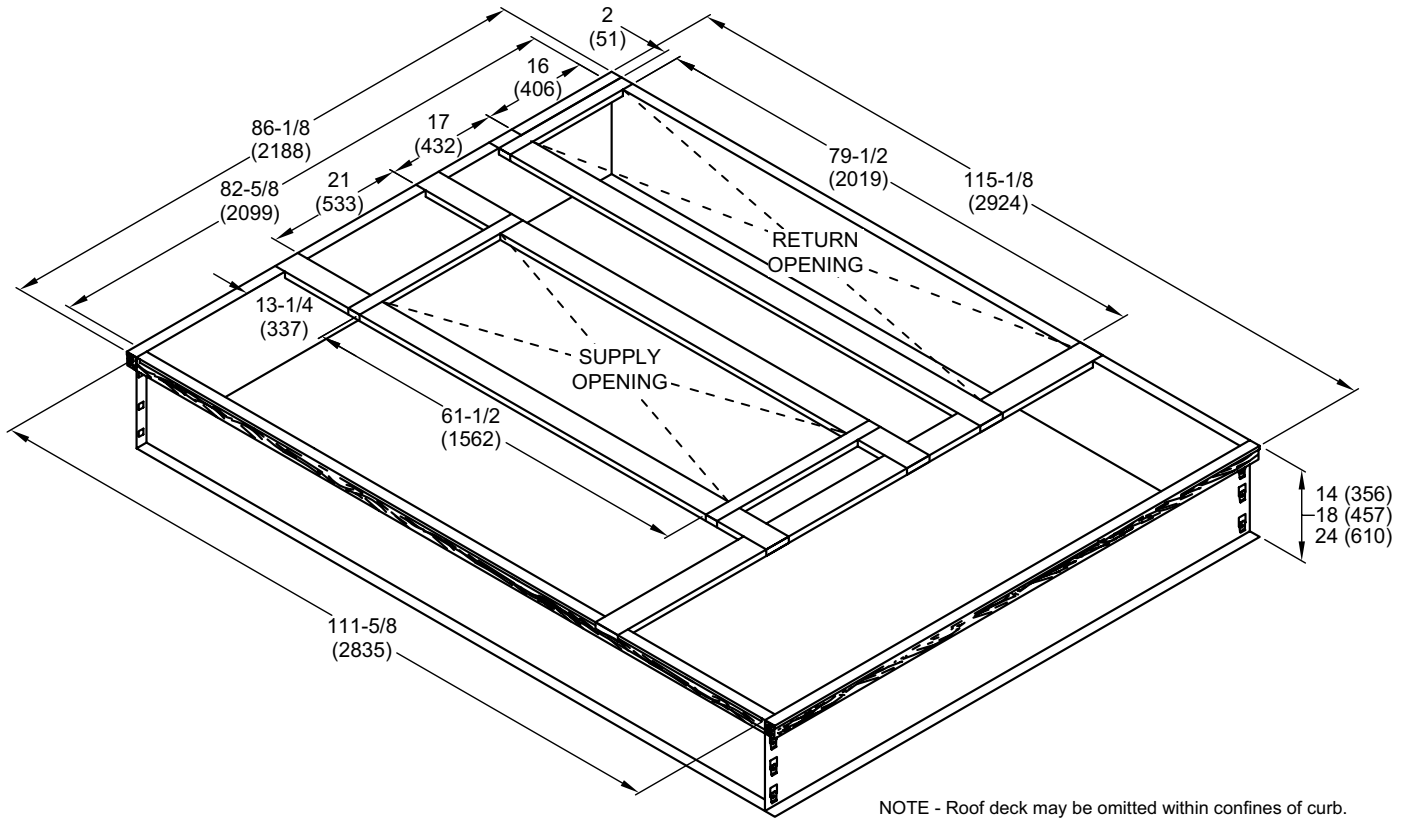
(Field installed in horizontal return air duct adjacent to unit)



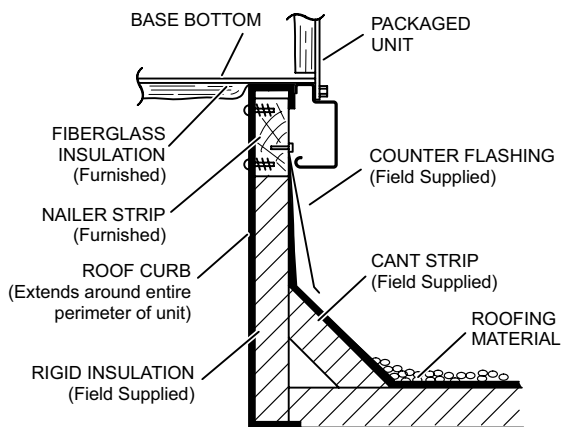
NOTE - Two furnished per order no.
 1 NOTE - Opening size required in return air duct.

DIMENSIONS - ACCESSORIES

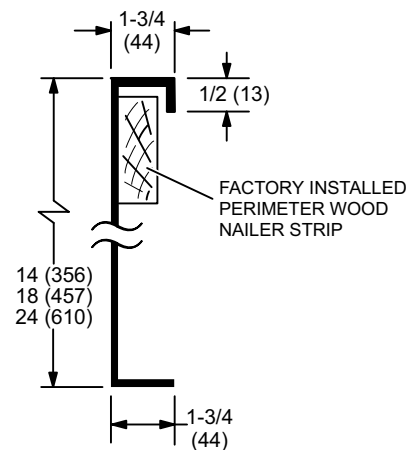
HYBRID ROOF CURBS - DOUBLE DUCT OPENING



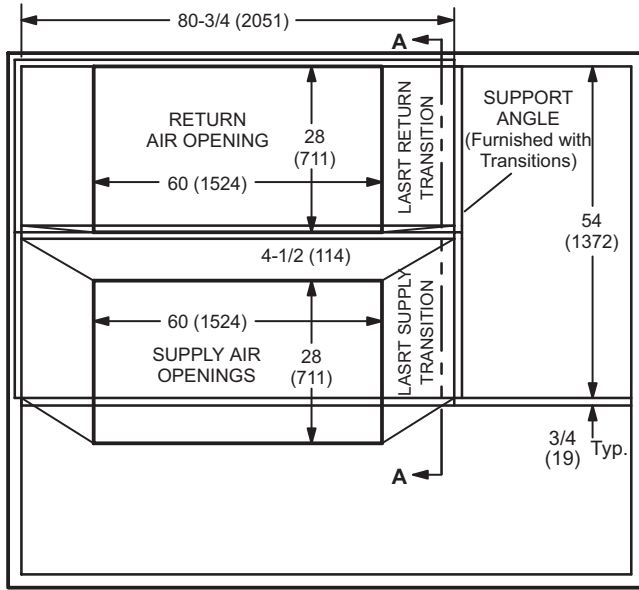
TYPICAL FLASHING DETAIL FOR ROOF CURB



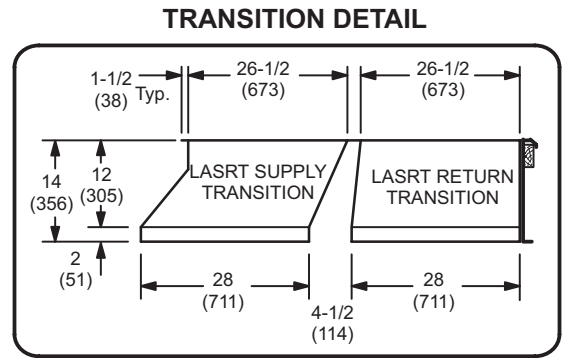
DETAIL ROOF CURB



ROOF CURBS WITH SUPPLY & RETURN AIR TRANSITIONS FOR CEILING DIFFUSERS



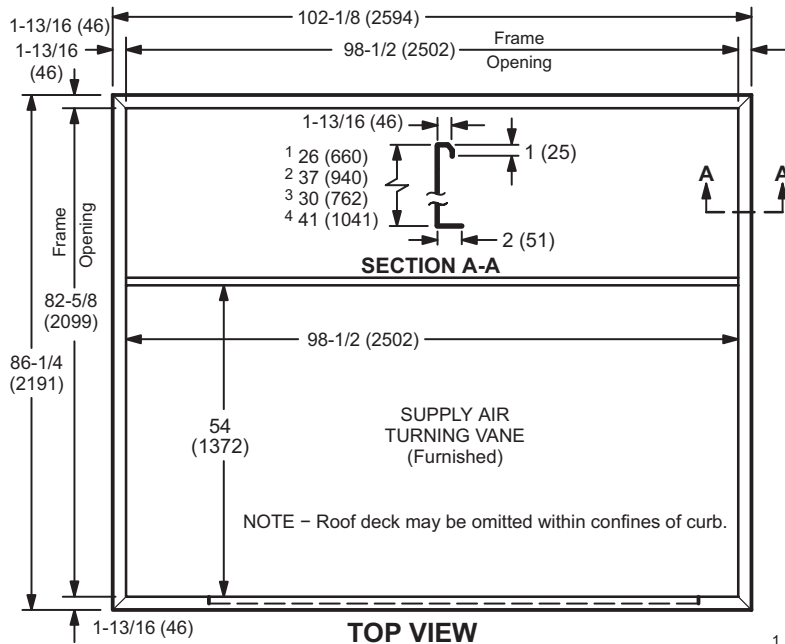
TOP VIEW



SECTION B-B

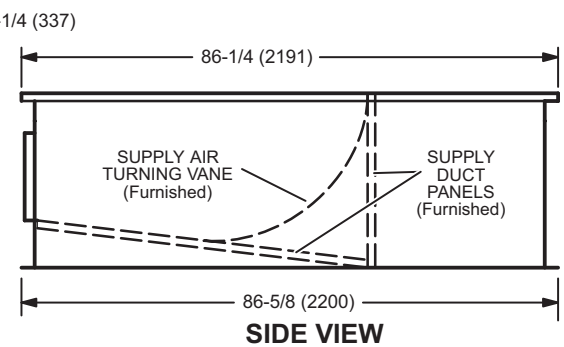
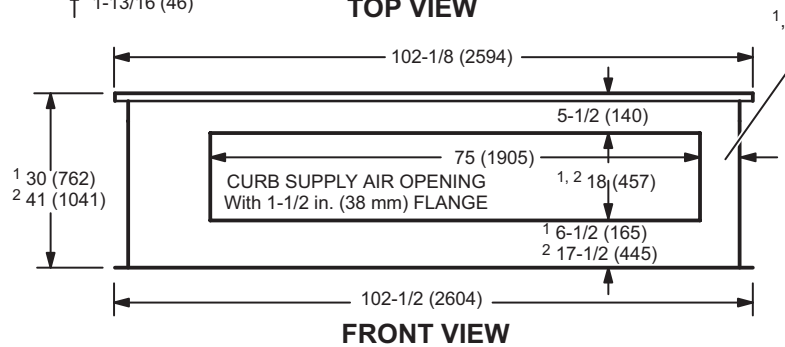
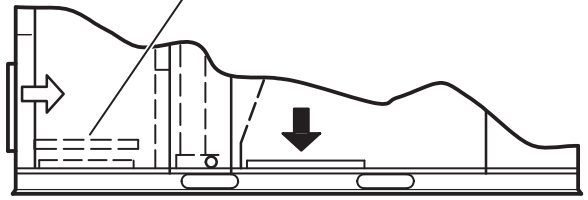
DIMENSIONS - ACCESSORIES

HORIZONTAL ROOF CURBS – Requires Optional Horizontal Return Air Panel Kit



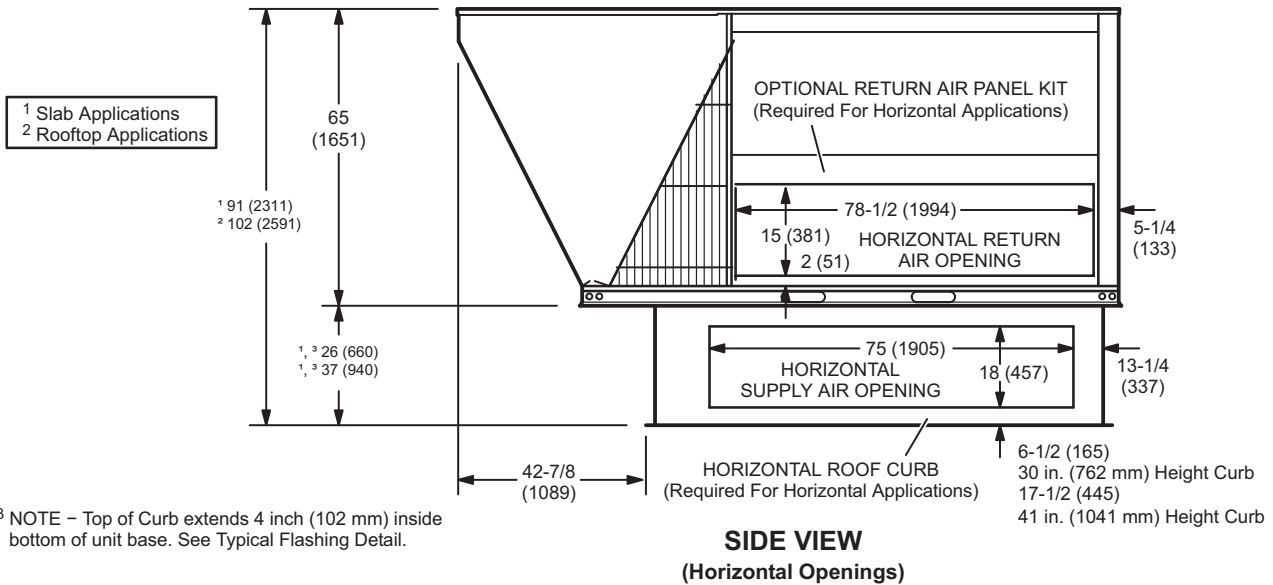
NOTE - 30 in. (762 mm) height Curb is designed for horizontal discharge when unit is mounted on a slab.
41 in. (1041 mm) height Curb is designed for horizontal discharge when unit is mounted on a rooftop.

PANEL TO COVER RETURN AIR OPENING IN BOTTOM OF UNIT (Furnished With Optional Horizontal Return Air Panel Kit)



1 Slab Applications 2 Rooftop Applications

HORIZONTAL SUPPLY AND RETURN AIR OPENINGS ROOFTOP UNIT WITH HORIZONTAL ROOF CURB

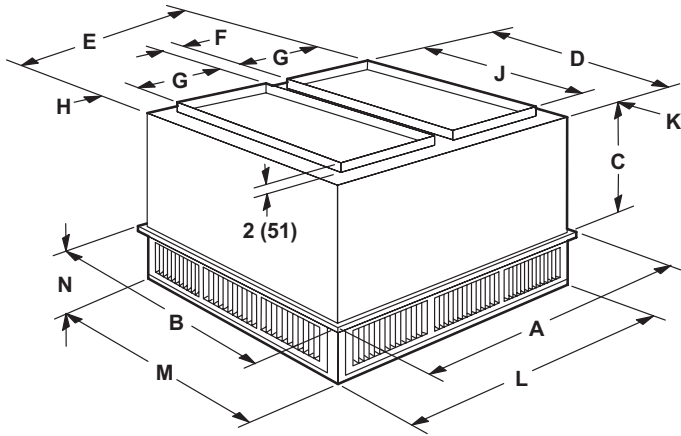


3 NOTE – Top of Curb extends 4 inch (102 mm) inside bottom of unit base. See Typical Flashing Detail.

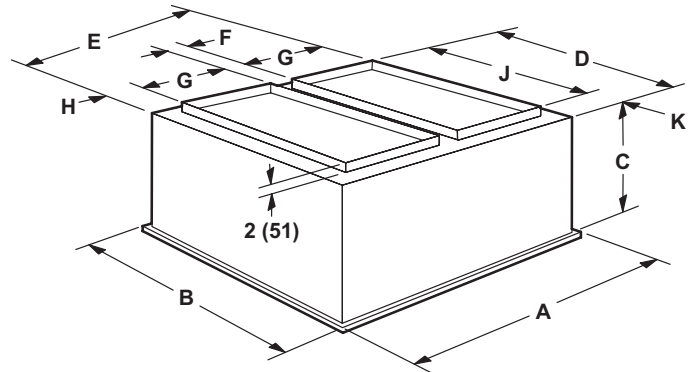
DIMENSIONS - ACCESSORIES

COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

STEP-DOWN CEILING DIFFUSER



FLUSH CEILING DIFFUSER



Model Number		LARTD30/36S
A	in.	65-5/8
	mm	1667
B	in.	65-5/8
	mm	1667
C	in.	40-1/2
	mm	1029
D	in.	63-1/2
	mm	1613
E	in.	63-1/2
	mm	1613
F	in.	4-1/2
	mm	114
G	in.	28
	mm	711
H	in.	1-1/2
	mm	38
J	in.	60
	mm	1524
K	in.	1-3/4
	mm	44
L	in.	63-1/2
	mm	1613
M	in.	63-1/2
	mm	1613
N	in.	12-1/8
	mm	308
Duct Size	in.	28 x 60
	mm	711 x 1524

Model Number		LAFD30/36S
A	in.	65-5/8
	mm	1667
B	in.	65-5/8
	mm	1667
C	in.	40
	mm	1016
D	in.	63-1/2
	mm	1613
E	in.	63-1/2
	mm	1613
F	in.	4-1/4
	mm	108
G	in.	28
	mm	711
H	in.	1-5/8
	mm	32
J	in.	60
	mm	1524
K	in.	1-3/4
	mm	44
Duct Size	in.	28 x 60
	mm	711 x 1524

REVISIONS

Sections	Description of Change
Document	Removed CAV models and belt auto-tensioner.
Options/Accessories	Removed L Connection Control System - Product discontinued.



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