



PACKAGED ELECTRIC / ELECTRIC

LCM

Model L™ Ultra-High Efficiency Rooftop Units

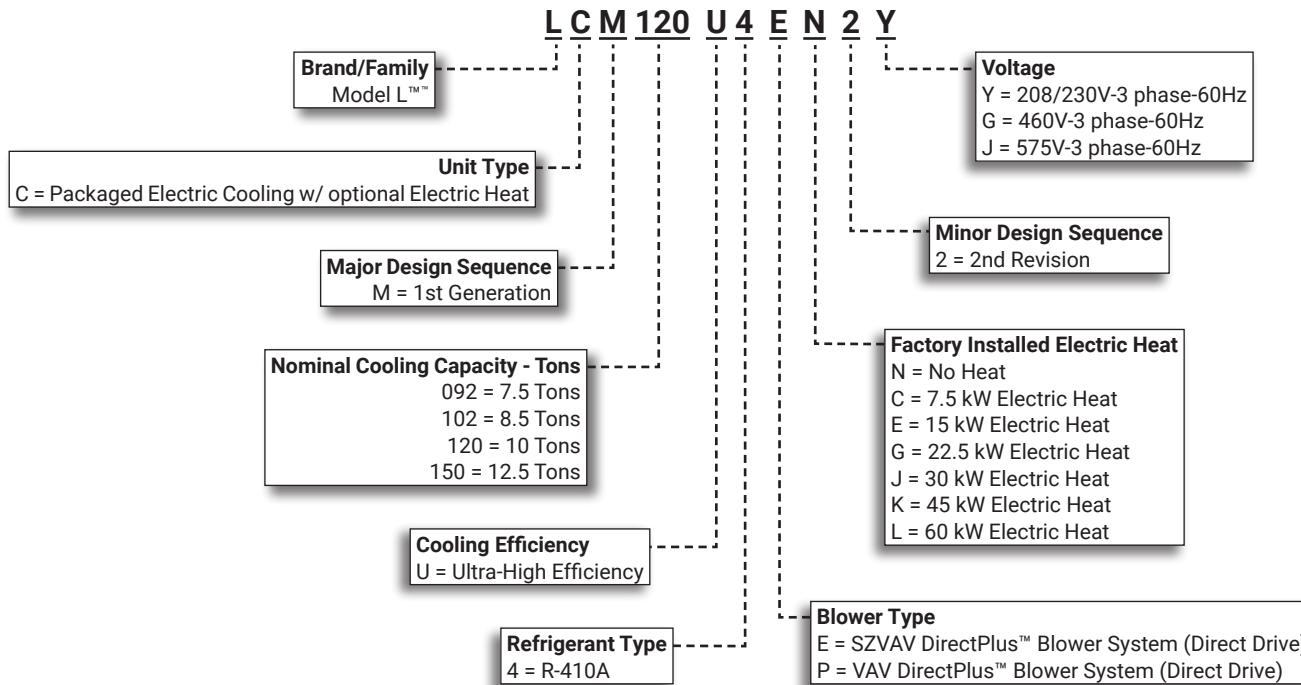
60 Hz

**COMMERCIAL  
PRODUCT SPECIFICATIONS**

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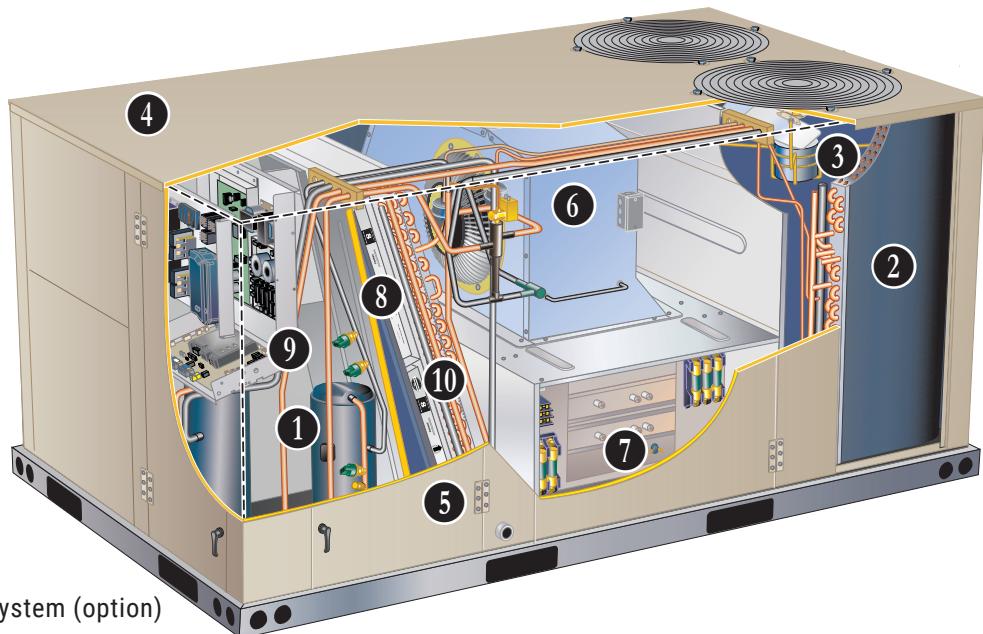
**CORE**  
CONTROL SYSTEM**SMARTWIRE™ SYSTEM****ASHRAE 90.1  
COMPLIANT****7.5 to 12.5 Tons****Net Cooling Capacity - 86,000 to 138,000 Btuh  
Optional Electric Heat - 7.5 to 60 kW****MODEL NUMBER IDENTIFICATION**

NOTE - This document applies to all LCM 7.5-12.5 Ton Model L™ products built on or after January 1st, 2023.

## FEATURE HIGHLIGHTS

The Model L™ packaged rooftop line is engineered with advanced variable speed technology to offer some of the highest energy efficiencies in the industry while delivering superior temperature and humidity control in a wide variety of commercial applications.

1. Variable Capacity Scroll Compressor and Fixed Capacity Scroll Compressor
2. Condenser Coil
3. Variable-Speed ECM Outdoor Coil Fan Motors
4. Heavy Gauge Steel Cabinet
5. Hinged Access Panels
6. DirectPlus™ Direct Drive ECM Blower System
7. Electric Heat (option)
8. Air Filters
9. Lennox® CORE Control System
10. Humiditrol™+ Dehumidification System (option)



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## APPROVALS AND WARRANTY

### APPROVALS

- AHRI Standard 340/360 certified
- 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 90.1-2010 energy efficiency compliant and meet or exceed requirements of Section 6.8
- All models meet DOE 2018 and 2023 energy efficiency standards
- All models meet California Code of Regulations, Title 24 and ASHRAE 90.1-2016 Section 6.4.3.10 requirements for staged airflow
- All models have HCAI (formerly OSHPD) OSP and Special Seismic Certification ([Number: OSP-0596](#)), and meet 2018 International Building Code (IBC), 2019 California Building Code (CBC) ASCE 7, and ICC-ES AC156
- ENERGY STAR® certified
- ISO 9001 Registered Manufacturing Quality System

### WARRANTY

- Compressors - Limited five years
- Lennox® CORE Unit Controller - Limited three years
- High Performance Economizer (optional) - Limited five years
- 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 Dual Compressors

Cooling system consists of one variable capacity scroll compressor and one fixed capacity scroll compressor

### Variable Capacity Scroll Compressor

- High performance, reliability and quiet operation
- Operates on a variable frequency determined to vary capacity based on the cooling load required

### Fixed Capacity Scroll Compressor

- 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

### DC Inverter Control (for Variable Capacity Compressor)

- Converts AC line voltage into filtered variable DC voltage
- Provides continuous compressor operation, while adjusting the capacity according to discharge air temperature
- Adjusts compressor output in increments as small as 1%
- Prevents frequent changes in capacity and ensures efficient, economical operation

- Power Factor Correction (PFC) circuit monitors the DC bus for high, low and abnormal voltage conditions to protect the compressor
- Two LEDS (red and green) indicate inverter operating status and aid in troubleshooting
- Noise filter reduces unwanted electromagnetic interference (EMI)
- Inverter reactor adds inductance to the line between the inverter and the compressor to limit current rise and protect the compressor

### Thermal Expansion Valves

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

### Filter/Driers

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

### High Pressure Switches

- Protects the system from high pressure conditions

### Low Pressure Switches

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

### Diagnostic and Sensor System

- Multiple thermistors continuously monitor the refrigeration system, providing optimum performance and complete circuit protection at all operating conditions

### 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

## FEATURES AND BENEFITS

### COOLING SYSTEM (continued)

#### 2 Condenser Coil

- Copper tube construction
- Enhanced rippled-edge aluminum fins
- Flared shoulder tubing connections
- Silver soldered construction

#### Evaporator Coil

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

#### Anti-Microbial Condensate Drain Pan

- Plastic pan, sloped to meet drainage requirements per ASHRAE 62.1
- Anti-Microbial additive resists growth of mold and mildew on drain pan, which improves indoor air quality and reduces drain line blockage
- Side or bottom drain connections
- Reversible to allow connection at back of unit

#### 3 Variable-Speed ECM Outdoor Coil Fan Motors

- Fan speed is directly controlled by the Lennox® CORE Unit Controller
- Thermal overload protected
- Totally enclosed
- Permanently lubricated ball bearings
- Shaft up
- Wire basket mount

#### Outdoor Coil Fans

- PVC coated fan guard furnished

### Options/Accessories

#### Factory Installed

##### Service Valves

- Fully serviceable brass valves installed in discharge & liquid lines

**NOTE** - Not available for units equipped with Humiditrol™+ Dehumidification option.

#### Factory or Field Installed

##### Condensate Drain Trap

- Constructed of PVC (factory or field) or copper (field only)

**NOTE** - Trap is field installed only; PVC version 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

### CABINET

#### 4 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) configuration

**NOTE** - Units can be field converted to horizontal airflow with optional Horizontal Discharge Kit.

#### Duct Flanges

- Provided for horizontal duct attachment

#### 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 1680 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

#### 5 Hinged Access Panels

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

### Required Selections

#### Airflow Configuration

- Specify downflow or horizontal

### Options/Accessories

#### Factory or Field Installed

##### Return Air Adaptor Plate

- For same size LC/LG/LH and TC/TG/TH unit replacement
- Installs on return air opening in unit to match return air opening on existing roof curbs
- Also see Accessory Air Resistance table

## FEATURES AND BENEFITS

### CABINET (continued)

#### Options/Accessories (continued)

### Factory Installed

#### Corrosion Protection

- Completely flexible immersed coating
- Electrodeposited dry film process (AST ElectroFin E-Coat)
- ASTM B117 / DIN 53167 Salt Spray - 15,000+ hours
- ASTM G85 Annex A3 SWAAT Modified Salt Spray - 3000 hours
- VA Master Construction Specification Division 23 for High Humidity Installations
- CID AA-52474A (GSA)
- Indoor Corrosion Protection:
  - Coated coil
  - Coated reheat coil (Humiditrol™+)
  - Painted blower housing
  - Painted indoor base
- Outdoor Corrosion Protection:
  - Coated coil
  - Painted outdoor base

### Factory or Field Installed

#### Combination Coil/Hail Guards

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

### Field Installed

#### Horizontal Discharge Kit

- Consists of duct covers to block off downflow supply and return air openings for horizontal applications
- Also includes return air duct flanges for end return air when Economizer is used in horizontal applications

**NOTE** - When configuring unit for horizontal application with Economizer, a separate Horizontal Barometric Relief Damper with Hood must be ordered separately for installation in the return air duct.

### BLOWER

#### ⑥ DirectPlus™ Direct Drive ECM Blower System

- High-efficiency, variable-speed ECM (electronically commutated) motor
- Eliminates the need for a separate variable-frequency drive
- SZVAV equipped models modulate the amount of supply blower airflow according to cooling demand, heating demand, ventilation demand or smoke alarm
- The amount of airflow for each stage can be set according to a parameter in the Lennox® CORE Unit Controller
- Unit is shipped from the factory with preset airflows
- Fully variable speed motor modulates to maximize system efficiency
- Combines the motor and electronics into one unit
- Aerodynamically optimized impeller
- Backward curved blades mounted directly onto the rotor



- Air inlet grill reduces indoor sound levels without affecting air performance



#### Supply Static Pressure Transducer (VAV Models Only)

- Sends information to the Lennox® CORE Unit Controller to control blower speed to the desired supply duct static pressure
- Shipped with the unit for remote field installation in the supply duct

### Required Selections

#### Blower Selection

- SZVAV (Single Zone Variable Air Volume) controls the speed of the blower based on the cooling and heating demands
- VAV (Variable Air Volume) blower varies the air volume to maintain a constant supply duct static pressure

## FEATURES AND BENEFITS

### ELECTRICAL

#### 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 are used to connect common accessories or maintenance parts for easy removal or installation

#### Phase/Voltage Detection

- Monitors power supply to ensure 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 ensure 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

### 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** - The SCR option is not available with 45 kW and 60 kW 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.

#### Short-Circuit Current Rating (SCCR)

- Higher short-circuit protection up to 100kA

**NOTE** - Disconnect Switch is not available as an option with High SCCR option. SCCR option only available with factory installed electric heat.

#### Factory or Field Installed

##### Disconnect Switch

- Accessible outside of unit
- Spring loaded weatherproof cover furnished

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#### 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
- Non-powered, field-wired

#### Field Installed

##### GFI Weatherproof Cover

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

## FEATURES AND BENEFITS

### INDOOR AIR QUALITY

#### 8 Air Filters

- Disposable 2 inch MERV 4 filters furnished as standard

#### Options/Accessories

#### **Factory or Field Installed**

##### Healthy Climate® High Efficiency Air Filters

- Disposable MERV 8, MERV 13 or MERV 16 (Minimum Efficiency Reporting Value based on ASHRAE 52.2) efficiency 2-inch pleated filters

#### **Field Installed**

##### Healthy Climate® UVC Germicidal Lamps



- Germicidal lamps emit ultra-violet (UV-C) energy, which has been proven to be effective in reducing microbes such as viruses, bacteria, yeasts, and molds
  - This process either destroys the organism or controls its ability to reproduce
  - UV-C energy greatly reduces the growth and proliferation of mold and other bioaerosols (bacteria and viruses) on illuminated surfaces (particularly coil and drain pan)
  - Installed in the blower/evaporator coil section
  - Safety interlock switch automatically shuts off power to the UVC light when panel is removed
  - Interlock switch is factory installed or field installed in the blower/evaporator coil section panel
  - All necessary hardware for installation is included
  - Lamps operate on 110/230V, 1 phase power supply
- NOTE** - For 460V and 575V units, field installed lamps utilize jumpers to the outdoor fan transformer for voltage needed. See the installation Instructions.
- Approved by ETL

#### Needlepoint Bipolar Ionization (NPBI) Kit

- NPBI technology integrates with system controls for effective air treatment
  - Ionization has been shown to effectively reduce harmful pathogens, pollutants and odors
- NOTE** - Please visit [www.sciencedirect.com](http://www.sciencedirect.com) for additional information.
- Brush-type ionizer introduces a high concentration of both positive and negative ions into the airstream
  - These bipolar ions are then dispersed into the occupied space through the duct system proactively reducing the airborne contaminants
  - Ions travel within the building air stream and attach to particles, pathogens, and gas molecules, making them larger and easier to capture in the filtration system
  - UL 2998 certified for zero ozone emission

#### Indoor Air Quality (CO<sub>2</sub>) Sensors

- Monitors CO<sub>2</sub> levels, reports to the Lennox® CORE Unit Controller which adjusts Economizer dampers as needed

#### 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

## CONTROL SYSTEM

### LENNOX® CORE CONTROL SYSTEM



The Lennox® CORE Control System is designed to accelerate equipment install and service. Standard with all Model L™ rooftop units, control system integrates key technologies that lower installation costs, drive system efficiency, and protect your investments.

- 9 The Lennox® CORE Unit Controller is a microprocessor-based controller that provides flexible control of all unit functions.

#### CORE Mobile Service App

- Guided Setup with progress indicators, detailed help, and exportable summaries to manage simple, trouble-free setup, reducing commissioning times
- Enhanced Test Functionality provides real-time sensor readings, trending, and reports that enable easy troubleshooting
- Ability to set and configure parameters of the CORE Control System to manage sequence of operation
- Economizer test function ensures economizer is operating correctly



#### Additional Features:

- Built-In 7-Segment Display shows Unit Status and active alarms for easy troubleshooting
- Buttons for test and clearing delays
- SmartWire™ System with keyed and removable screw terminals ensure correct field wiring
- Built-in BACnet MS/TP and IP allow open integration to building management systems.
- Two-port Ethernet Switch enables daisy chaining for BACnet IP and automatic firmware updates

#### NOTE - Unit Internet Connection required.

- 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 Lennox® CORE Unit Controller enhance functionality without the need to change components
- Unit Controller Software

#### Configurable Built-In Functions

- Full modulation of variable speed compressor for discharge air temperature control in room sensor or thermostat mode
- Discharge Air Cooling Control

- Up to three distinct Cooling Airflows in Thermostat Mode.
- Programmable independent heating, ventilation and cooling blower speeds
- Discharge Air Heating Control
- Economizer Control Options (See Economizer / Exhaust Air / Outdoor Air sections)
- Exhaust Fan Control Modes for fresh air damper position
- Configurable Morning Warm-up
- Night Setback Mode
- Fresh Air Tempering for Improved Ventilation
- Demand Control Ventilation
- Low Ambient Controls for operation down to 0°F
- Humiditrol™+ Operation
- Enhanced Dehumidification (Latent Demand Control without reheat)

#### Component Protection / Unit Safeguards:

- Compressor Time-Off Delay
- Adjustable Blower On/Off Delay
- Return Air Temperature Limit Control
- Safety Switch Input allows Controller to respond to a external safety switch trip
- Service Relay Output
- Thermostat Bounce Delay
- Smoke Alarm Mode has four choices (unit off, positive pressure, negative pressure, purge)
- "Strike Three" Protection
- Gas Valve Time Delay Between First and Second Stage
- Minimum Compressor Run Time

#### Control Methods / Interfaces:

- DDC and 24V Thermostat
- BACnet MS/TP and IP
- LONTalk (Factory and Field Option)
- Lennox SBUS
- Compatibility with Lennox Wireless Room Sensors
- Zone Temperature Sensor Input
- Dehumidistat and Humidity Sensor Inputs
- Indoor Air Quality Inputs (2)
- Built-in Control Parameter Defaults
- Permanent Diagnostic Code Storage
- Field Adjustable Control Parameters (Over 200 settings)
- Multiple Configurable Digital Inputs
- LED Indicators
- PC Interface connects the Lennox® CORE Unit Controller to a PC with the Lennox Unit Controller Software

#### NOTE - Lennox® CORE Control System features vary with the type of rooftop unit in which the control is installed.

## CONTROL SYSTEM

### LENNOX® CORE 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 and issues alarm if necessary

##### 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**

#### **(Field Installed)**

##### After-Market DDC

- Novar® Unit Controller and options

##### Thermostats

- Control system and thermostat options, see page 13
- After-Market unit controller options

## **OPTIONS / ACCESSORIES**

#### **ECONOMIZER**

- Economizer operation is set and controlled by the Lennox® CORE Unit Controller
- Simple plug-in connections from Economizer to unit controller for easy installation
- All Model L™ 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**

##### 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 and IECC compliant
- Downflow or Horizontal with Outdoor Air Hood
- Outdoor Air Hood is included when Economizer is factory installed and is furnished with Economizer when ordered for field installation
- Downflow Barometric Relief Dampers with Exhaust Hood is also furnished

**NOTE** - Horizontal economizer applications require optional Horizontal Low Profile Barometric Relief Dampers and Horizontal Discharge Kit.

- 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 thermoplastic vulcanizate (TPV) 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)**

#### **Factory or Field Installed (continued)**

##### Differential Sensible Control

- Factory setting
- Uses outdoor air and return air sensors that are furnished with the unit
- The Lennox® CORE 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

##### 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**

#### Horizontal Low Profile 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** - Requires Horizontal Discharge Kit.

### **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 Lennox® CORE 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 (CO<sub>2</sub> 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 Lennox® CORE Unit Controller changes the Economizer position to help maintain a constant building pressure

**NOTE** - Not available with Demand Control Ventilation (CO<sub>2</sub> Sensor) or Outdoor Air CFM Control.

## **POWER EXHAUST**

### **Factory or Field Installed**

#### Power Exhaust Fan

- Installs internal to unit for downflow applications only with Economizer option
- Provides exhaust air pressure relief
- Interlocked to run when supply air blower is operating
- Fan runs when outdoor air dampers are 50% open (adjustable)
- Motor is overload protected
- Fan is 20 in. diameter
- Five blades
- One 1/3 hp motor

**NOTE** - Requires Economizer with furnished Downflow Barometric Relief Dampers with Exhaust Hood.

## **OPTIONS / ACCESSORIES**

### **OUTDOOR AIR OPTIONS**

#### **Factory or Field Installed**

##### **Outdoor Air Damper**

- Downflow or Horizontal
- Linked mechanical dampers
- 0 to 25% (fixed) outdoor air adjustable
- Installs in unit
- Includes outdoor air hood
- Motorized 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** - Manual Outdoor Air Damper is a field installed option only.

**NOTE** - Outdoor Air Hood is included when motorized damper is factory installed. Outdoor Air Hood is furnished with motorized or manual damper when ordered for field installation.

### **ROOF CURBS**

#### **Field Installed**

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

#### **Hybrid Roof Curbs, Downflow**

- Interlocking tabs fasten corners together
- No tools required for assembly
- Can also be fastened together with furnished hardware
- Available in 8, 14, 18, and 24 inch heights

#### **Adjustable Pitch Curb**

- Fully adjustable pitch curbs (3/4 in. per foot in any direction) provide a level platform for rooftop units allowing flexible installations on roofs with uneven or sloped angles
- Interlocking tabs fasten corners together
- No tools required for assembly
- Hardware is furnished to connect upper curb with lower curb
- Available in 14 inch height

#### **Adaptor Curbs (not shown)**

- Curbs are regionally sourced
- Dimensions vary based upon the source

**NOTE** - Contact your local sales representative for a detailed cut sheet with applicable dimensions.

### **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

### OVERVIEW

- Factory installed option designed to control humidity  
10 • Humiditrol + utilizes advanced control algorithms, variable speed technology and a reheat coil to efficiently control humidity levels independent of room temperature  
• Provides dehumidification on demand using ASHRAE 90.1 recommended method for comfort conditioning humidity control  
• Unit comes equipped with one row reheat coil and solenoid valve

**NOTE** - A dehumidification demand from a relative humidity sensor, dehumidistat, a DDC controller or building automation system is required to control humidity

### BENEFITS

- Improves indoor air quality
- Discharge air control for overcool protection
- Adjustable discharge air temperature setpoint
- Energy efficient dehumidification
- Modulating latent and sensible capacity
- Helps prevents 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

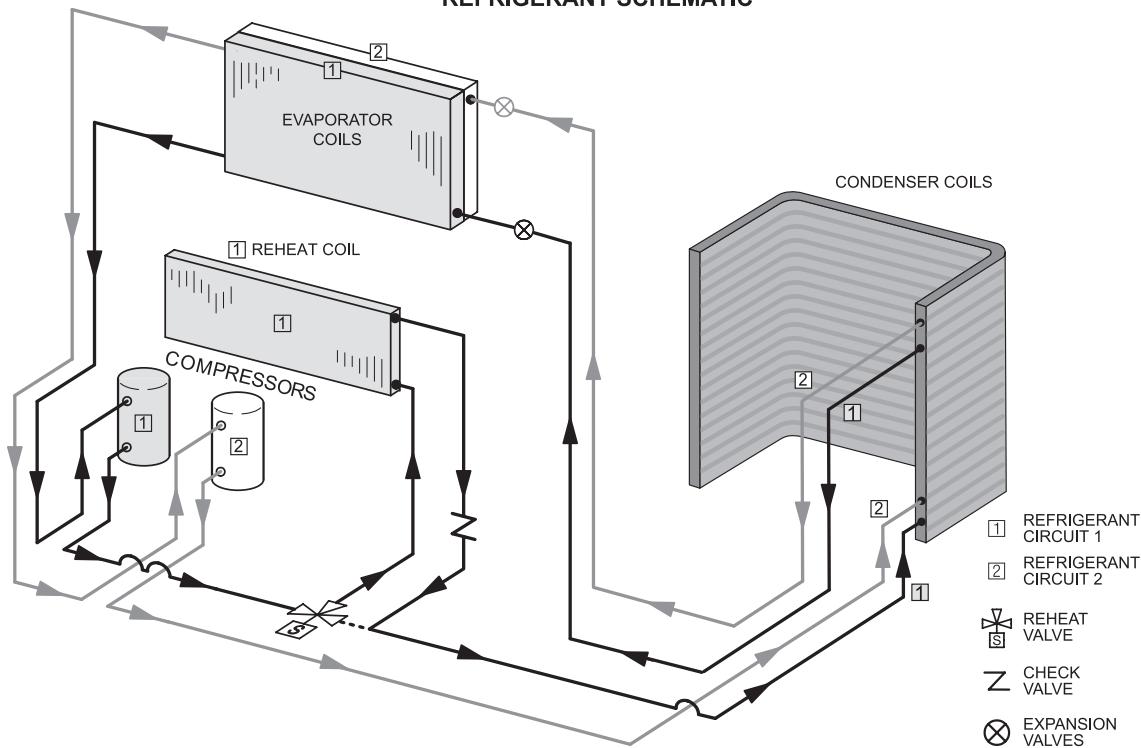
- Reheat operation will initiate on a dehumidification demand and does not require a cooling demand
- The unit will operate in hot gas reheat dehumidification mode until the relative humidity of the conditioned space is below the setpoint
- A solenoid valve diverts hot gas from the compressor to the 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
- Unit will continue to operate in this mode until the dehumidification demand is satisfied
- The reheat coil is sized to provide optimal reheat performance without overheating supply air
- The compressor will modulate based on dehumidification load

#### Dehumidification and Cooling Demand (Thermostat/ Room Sensor Application)

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

**NOTE** - See Sequence of Operation for additional information.

REFRIGERANT SCHEMATIC



## OPTIONAL CONVENTIONAL TEMPERATURE CONTROL SYSTEMS

### CS8500 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 CO<sub>2</sub>
- 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

### CS7500 Commercial 7-Day Programmable Thermostat



- Premium Universal Thermostat
- Full Color Touchscreen Interface
- Up To 4 Heat / 2 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

### CS3000 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

### Wireless/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
- Bluetooth™ Mesh Operation
- SBUS Wired Operation
- Automatic Sensor Averaging
- Locking Hex Screw

### Wireless Repeater for LCS-5030



- Extends Effective Range of Wireless Sensor (LCS-5030)
  - 24VAC Only
  - Locking Hex Screw
- NOTE** - Wireless only.

## OPTIONAL CONVENTIONAL TEMPERATURE CONTROL SYSTEMS

### Wired Temperature/Humidity Room Sensor (Non-Communicating)



- 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.
<b>CS8500 Commercial 7 Day Programmable Thermostat</b>	
CS8500 7-Day Thermostat	No CO <sub>2</sub> Sensing <b>17G75</b>
	With CO <sub>2</sub> Sensing <b>17G76</b>
Sensors/Accessories	<sup>1</sup> Remote non-adjustable wall-mount 10k <b>47W37</b>
	<sup>1</sup> Remote non-adjustable wall-mount 11k <b>94L61</b>
<b>Sysbus Network Cable (Yellow) for CS8500 and LCS-5030 Wired Room Sensor</b>	
Twisted pair 100% shielded communication cable, Red and Black 22 AWG, yellow jacket, rated at 75°C, 300V, Plenum rated Insulation - Low smoke PVC, NEC, CMP	500 ft. box <b>27M19</b>
	1000 ft. box <b>94L63</b>
	2500 ft. roll <b>68M25</b>
<b>CS7500 Commercial 7-Day Programmable Thermostat</b>	
CS7500 7-Day Thermostat	<b>17G74</b>
Sensors/Accessories	<sup>2</sup> Remote non-adjustable wall-mount 20k <b>47W36</b>
	<sup>2</sup> Remote non-adjustable wall-mount 10k <b>47W37</b>
	Remote non-adjustable discharge air (duct mount) <b>19L22</b>
	Outdoor temperature sensor <b>X2658</b>
<b>CS3000 Commercial 5-2 Day Programmable Thermostat</b>	
CS3000 5-2 Day Thermostat	<b>11Y05</b>
Sensors/Accessories	Remote non-adjustable wall mount 10k averaging <b>47W37</b>
	Thermostat wall mounting plate <b>X2659</b>
<b>Universal Thermostat Guard with Lock (clear)</b>	
	Inside Dimensions (H x W x D) 5-7/8 x 8-3/8 x 3 in. <b>39P21</b>
<b>Temperature/Humidity Room Sensors</b>	
LCS-5030 Wireless/Wired Temperature/Humidity Room Sensor	<b>21L07</b>
Wireless Repeater for LCS-5030	<b>21L09</b>
A335MT13AE1 Wired Temperature/Humidity Room Sensor (Non-Communicating)	<b>21W06</b>

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

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

One Sensor - (1) 47W36, Two Sensors - (2) 47W37, Three Sensors - (2) 47W36 and (1) 47W37  
Four Sensors - (4) 47W36, Five Sensors - (3) 47W36 and (2) 47W37

## SEQUENCE OF OPERATION

### **COOLING**

#### **A-Two-Stage Thermostat**

1 - Economizer With Outdoor Air Suitable

##### **Y1 Demand**

- Compressors Off
- Blower Cooling Low
- Dampers Modulate

*NOTE - If dampers are at maximum open for five minutes, blower runs at cooling high.*

##### **Y2 Demand**

- Compressors Modulate
- Blower Cooling High
- Dampers Maximum Open

2 - No Economizer or Outdoor Air Not Suitable

##### **Y1 Demand**

- Compressors Modulate
- Blower Cooling Low
- Dampers Minimum Position

##### **Y2 Demand**

- Compressors Modulate
- Blower Cooling High
- Dampers Minimum Position

#### **B-Three-Stage Thermostat**

1 - Economizer With Outdoor Air Suitable

##### **Y1 Demand**

- Compressors Off
- Blower Cooling Low
- Dampers Modulate

*NOTE - If dampers are at maximum open for five minutes, blower runs at cooling intermediate.*

##### **Y2 Demand**

- Compressors Modulate
- Blower Cooling Intermediate
- Dampers Maximum Open

##### **Y3 Demand**

- Compressors Modulate
- Blower Cooling High
- Dampers Maximum Open

## SEQUENCE OF OPERATION

### COOLING (CONTINUED)

2 - No Economizer or Outdoor Air Not Suitable

#### **Y1 Demand**

- Compressors Modulate
- Blower Cooling Low
- Dampers Minimum Position

#### **Y2 Demand**

- Compressors Modulate
- Blower Cooling Intermediate
- Dampers Minimum Position

#### **Y3 Demand**

- Compressors Modulate
- Blower Cooling High
- Dampers Minimum Position

### **C - Room Sensor**

1 - Economizer With Outdoor Air Suitable

- Compressors Off
- Blower Modulates
- Dampers Modulate

*NOTE - If dampers are at maximum open for five minutes, compressors are energized and the blower modulates.*

2 - No Economizer or Outdoor Air Not Suitable

- Compressors Modulate
- Blower Modulates
- Dampers Minimum Position

*NOTE - Free cooling is locked out when a dehumidification demand is received. The unit operates in dehumidification mode as if the outdoor air is not suitable.*

### **HEATING**

**Heating Mode: Thermostat or Room Sensor (Up to 2 Stages)**

#### **W1 Demand**

1st stage of electric heat is energized and the supply fan operates at high speed.

#### **W2 Demand**

2nd stage of electric heat is energized and the supply fan operates at high speed.

## SEQUENCE OF OPERATION

### HUMIDITROL™+

#### **A - Thermostat Mode With 24V Humidistat**

Dehumidification Demand (DI4) and No Cooling Demand

Compressor operates at 100%, blower and outdoor fans modulate to maintain indoor coil and discharge air temperatures, reheat valve is energized.

##### **Y1 and DI4 Demand**

Compressors are modulating, blower is on low, and the reheat valve is de-energized.

##### **Y2 and DI4 Demand**

Compressors are modulating, blower is on high, reheat valve is de-energized.

#### **B - Thermostat Mode With Zone Relative Humidity Sensor**

Dehumidification Demand (Zone Relative Humidity is greater than the relative humidity setpoint) and No Cooling Demand

Compressor modulates based on zone relative humidity, blower and outdoor fans modulate to maintain indoor coil and discharge air temperatures, reheat valve is energized.

Y1 and Dehumidification Demand

Compressors are modulating, blower is on low, and the reheat valve is de-energized.

Y2 and Dehumidification Demand

Compressors are modulating, blower is on high, reheat valve is de-energized.

#### **C - Room Sensor Mode With Humidistat**

Dehumidification Demand (DI4) and No Cooling Demand

Compressor 1 operates at 100%, blower and outdoor fans modulate to maintain indoor coil and discharge air temperatures, reheat valve is energized.

Cooling and Dehumidification Demand

Compressors are modulating, blower is modulating, reheat valve is de-energized.

#### **D - Room Sensor Mode With Zone Relative Humidity Sensor**

Dehumidification Demand (Zone Relative Humidity is greater than the relative humidity setpoint) and No Cooling Demand

Compressor 1 modulates based on zone relative humidity, blower and outdoor fans modulate to maintain indoor coil and discharge air temperatures, reheat valve is energized.

Cooling and Dehumidification Demand

Compressors are modulating, blower is modulating, and the reheat valve is de-energized.

## OPTIONS / ACCESSORIES

Item Description	Catalog Number	Unit Model No			
		092	102	120	150
<b>COOLING SYSTEM</b>					
Condensate Drain Trap	PVC <b>22H54</b>	OX	OX	OX	OX
	Copper <b>76W27</b>	X	X	X	X
Corrosion Protection	Factory	O	O	O	O
Drain Pan Overflow Switch	<b>21Z07</b>	OX	OX	OX	OX
Refrigerant Type	R-410A	O	O	O	O
Service Valves (not for Humiditrol™ + equipped units)	Factory	O	O	O	O
<b>BLOWER - SUPPLY AIR</b>					
Blower	DirectPlus™ Direct Drive ECM Blower System with SZVAV	Factory	O	O	O
	DirectPlus™ Direct Drive ECM Blower System with VAV	Factory	O	O	O
<b>CABINET</b>					
Combination Coil/Hail Guards	<b>24M51</b>	OX	OX		
	<b>13T05</b>			OX	OX
Horizontal Discharge Kit	<b>51W25</b>	X	X	X	X
Return Air Adaptor Plate (for LC/LG and TC/TG/TH unit replacement)	<b>54W96</b>	OX	OX	OX	OX
<b>CONTROLS</b>					
Blower Proving Switch	<b>21Z10</b>	OX	OX	OX	OX
Commercial Controls	LonTalk® Module - For Lennox® CORE Control System	<b>54W27</b>	OX	OX	OX
	Novar® LSE	Factory	O	O	O
Dirty Filter Switch	<b>53W67</b>	OX	OX	OX	OX
Fresh Air Tempering	<b>21Z08</b>	OX	OX	OX	OX
Smoke Detector - Supply or Return (Power board and one sensor)	<b>11K76</b>	OX	OX	OX	OX
Smoke Detector - Supply and Return (Power board and two sensors)	<b>11K80</b>	OX	OX	OX	OX
<b>INDOOR AIR QUALITY</b>					
<b>Air Filters</b>					
Healthy Climate® High Efficiency Air Filters 20 x 25 x 2 in.	MERV 8 (Order 4) <b>50W61</b>	OX	OX	OX	OX
	MERV 13 (Order 4) <b>52W41</b>	OX	OX	OX	OX
	MERV 16 (Order 4) <b>21U41</b>	OX	OX	OX	OX
Replacement Media Filter With Metal Mesh Frame 20 x 25 x 2 in. (includes non-pleated filter media)	(Order 4) <b>Y3063</b>	X	X	X	X
<b>Indoor Air Quality (CO<sub>2</sub>) Sensors</b>					
Sensor - Wall-mount, off-white plastic cover with LCD display	<b>77N39</b>	X	X	X	X
Sensor - Wall-mount, off-white plastic cover, no display	<b>23V86</b>	X	X	X	X
Sensor - Black plastic case with LCD display, rated for plenum mounting	<b>87N52</b>	X	X	X	X
Sensor - Wall-mount, black plastic case, no display, rated for plenum mounting	<b>87N54</b>	X	X	X	X
CO <sub>2</sub> Sensor Duct Mounting Kit - for downflow applications	<b>85L43</b>	X	X	X	X
Aspiration Box - for duct mounting non-plenum rated CO <sub>2</sub> sensors ( <b>77N39</b> )	<b>90N43</b>	X	X	X	X
<b>Needlepoint Bipolar Ionization (NPBI)</b>					
Needlepoint Bipolar Ionization (NPBI) Kit	<b>21U36</b>	OX	OX	OX	OX
<b>UVC Germicidal Lamps</b>					
<sup>1</sup> Healthy Climate® UVC Light Kit (110/230V-1ph)	<b>21A93</b>	OX	OX	OX	OX

<sup>1</sup> For 460V and 575V units, field installed lamps utilize jumpers to the outdoor fan transformer for voltage needed. See the installation Instructions.

NOTE - Catalog numbers shown are for ordering optional accessories if a field installed option is available.

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

O = Configure To Order (Factory Installed)

X = Field Installed

## OPTIONS / ACCESSORIES

Item Description	Catalog Number	Unit Model No			
		092	102	120	150
<b>ELECTRICAL</b>					
Voltage 60 Hz	208/230V-3ph	Factory	O	O	O
	460V-3ph	Factory	O	O	O
	575V-3ph	Factory	O	O	O
HACR Circuit Breakers		Factory	O	O	O
Disconnect Switch - See Electrical/Electric Heat tables for selection	80 amp	<b>54W56</b>	OX	OX	OX
	150 amp	<b>54W57</b>	OX	OX	OX
¹ Short-Circuit Current Rating (SCCR) of 100kA (includes Phase/Voltage Detection)		Factory	O	O	O
GFI Service Outlets	15 amp non-powered, field-wired (208/230V, 460V only)	<b>74M70</b>	OX	OX	OX
	20 amp non-powered, field-wired (575V only)	<b>67E01</b>	OX	OX	OX
Weatherproof Cover for GFI		<b>10C89</b>	X	X	X
<b>ELECTRIC HEAT</b>					
7.5 kW	208/240V-3ph	<b>23U73</b>	OX	OX	
	460V-3ph	<b>23U74</b>	OX	OX	
	575V-3ph	<b>23U75</b>	OX	OX	
15 kW	208/240V-3ph	<b>23U76</b>	OX	OX	OX
	460V-3ph	<b>23U77</b>	OX	OX	OX
	575V-3ph	<b>23U78</b>	OX	OX	OX
22.5 kW	208/240V-3ph	<b>23U79</b>	OX	OX	OX
	460V-3ph	<b>23U80</b>	OX	OX	OX
	575V-3ph	<b>23U81</b>	OX	OX	OX
30 kW	208/240V-3ph	<b>23U82</b>	OX	OX	OX
	460V-3ph	<b>23U83</b>	OX	OX	OX
	575V-3ph	<b>23U84</b>	OX	OX	OX
45 kW	208/240V-3ph	<b>23U85</b>	OX	OX	OX
	460V-3ph	<b>23U86</b>	OX	OX	OX
	575V-3ph	<b>23U87</b>	OX	OX	OX
60 kW	208/240V-3ph	<b>23U88</b>			OX
	460V-3ph	<b>23U89</b>			OX
	575V-3ph	<b>23U90</b>			OX
² SCR (Silicon Controlled Rectifier) Electric Heat Control		Factory	O	O	O
Thermostat (required)		<b>Y9682</b>	X	X	X
Duct Sensor (required)		<b>Y9683</b>	X	X	X

<sup>1</sup> Disconnect Switch not available with higher SCCR option. Short-Circuit Current Rating option only available with factory installed electric heat.

<sup>2</sup> SCR option is not available with 45 kW and 60 kW electric heat (208/230V) models.

NOTE - Catalog numbers shown are for ordering optional accessories if a field installed option is available.

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

O = Configure To Order (Factory Installed)

X = Field Installed

## OPTIONS / ACCESSORIES

Item Description	Catalog Number	Unit Model No
		092 102 120 150
<b>ECONOMIZER</b>		
<b>High Performance Economizer (Approved for California Title 24 Building Standards / AMCA Class 1A Certified)</b>		
High Performance Economizer Downflow or Horizontal - Includes Outdoor Air Hood and Downflow Barometric Relief Dampers with Exhaust Hood  NOTE - For horizontal economizer applications order optional Horizontal Low Profile Barometric Relief Dampers and Horizontal Discharge Kit separately.	20U80	OX OX OX OX
<b>Economizer Controls</b>		
Differential Enthalpy (Not for Title 24)	Order 2 21Z09	OX OX OX OX
Sensible Control	Sensor is Furnished Factory	O O O O
Single Enthalpy (Not for Title 24)	21Z09	OX OX OX OX
Global Control	Sensor Field Provided Factory	O O O O
Building Pressure Control	13J77	X X X X
Outdoor Air CFM Control	13J76	X X X X
<b>Horizontal Barometric Relief Dampers (for horizontal economizer applications)</b>		
Horizontal Low Profile Barometric Relief Dampers With Exhaust Hood	53K04	X X X X
<b>OUTDOOR AIR</b>		
<b>Outdoor Air Dampers</b>		
Motorized Dampers (Hood furnished)	14G28	OX OX OX OX
Manual Dampers (Hood furnished)	14G29	OX OX OX OX
<b>POWER EXHAUST</b>		
Standard Static	208/230V-3ph 53W44	OX OX OX OX
	460V-3ph 53W45	OX OX OX OX
	575V-3ph 53W46	OX OX OX OX
<b>HUMIDITROL™+ HOT GAS REHEAT OPTION</b>		
Humiditrol+ Dehumidification Option		O O O O
<b>ROOF CURBS</b>		
<b>Hybrid Roof Curbs, Downflow</b>		
8 in. height	11F54	X X X X
14 in. height	11F55	X X X X
18 in. height	11F56	X X X X
24 in. height	11F57	X X X X
<b>Adjustable Pitch Curb</b>		
14 in. height	54W50	X X X X
<b>CEILING DIFFUSERS</b>		
Step-Down - Order one	RTD11-95S 13K61	X X
	RTD11-135S 13K62	X
	RTD11-185S 13K63	X
Flush - Order one	FD11-95S 13K56	X X
	FD11-135S 13K57	X
	FD11-185S 13K58	X
Transitions (Supply and Return) - Order one	C1DIFF30B-1 12X65	X X
	C1DIFF31B-1 12X66	X
	C1DIFF32B-1 12X67	X

NOTE - Catalog numbers shown are for ordering optional accessories if a field installed option is available.

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

O = Configure To Order (Factory Installed)

X = Field Installed

SPECIFICATIONS		UNIT			
General Data	Nominal Tonnage	7.5 Ton	8.5 Ton	10 Ton	12.5 Ton
	Efficiency Type	Ultra-High	Ultra-High	Ultra-High	Ultra-High
	Model Number	LCM092U4E	LCM102U4E	LCM120U4E	LCM150U4E
	Blower Type	DirectPlus™ ECM Direct Drive with SZVAV	DirectPlus™ ECM Direct Drive with SZVAV	DirectPlus™ ECM Direct Drive with SZVAV	DirectPlus™ ECM Direct Drive with SZVAV
	Model Number	LCM092U4P	LCM102U4P	LCM120U4P	LCM150U4P
	Blower Type	DirectPlus™ ECM Direct Drive with VAV	DirectPlus™ ECM Direct Drive with VAV	DirectPlus™ ECM Direct Drive with VAV	DirectPlus™ ECM Direct Drive with VAV
Cooling Performance	Gross Cooling Capacity - Btuh	90,500	101,600	121,800	144,000
	<sup>1</sup> Net Cooling Capacity - Btuh	86,000	97,000	114,000	138,000
	<sup>1</sup> AHRI Rated Air Flow - cfm	2800	3400	3600	4400
	Total Unit Power - kW	7.2	8.1	9.5	12.5
	<sup>1</sup> IEER (Btuh/Watt)	22.0	21.0	21.0	20.0
	<sup>1</sup> EER (Btuh/Watt)	12.6	12.6	12.2	11.0
Refrigerant Charge	Refrigerant Type	R-410A	R-410A	R-410A	R-410A
	Without Reheat Option	Circuit 1 Circuit 2	13 lbs. 11 oz. 9 lbs. 13 oz.	13 lbs. 15 oz. 9 lbs. 10 oz.	15 lbs. 8 oz. 11 lbs. 2 oz.
	With Reheat Option	Circuit 1 Circuit 2	15 lbs. 0 oz. 9 lbs. 13 oz.	15 lbs. 0 oz. 9 lbs. 10 oz.	18 lbs. 12 oz. 11 lbs. 2 oz.
	Electric Heat Available - See page 19		7.5, 15, 22.5, 30 & 45 kW		15, 22.5, 30, 45 & 60 kW
	Compressor Type (number)	Variable Capacity Scroll (1) Fixed Capacity Scroll (1)			
	Outdoor Coil	Net face area (total) - sq. ft.	20.5	20.5	28
Outdoor Coil Fans		Tube diameter - in.	3/8	3/8	3/8
		Number of rows	3	3	3
		Fins per inch	20	20	20
		Motor - (No.) hp	(2) 1/3 ECM	(2) 1/3 ECM	(2) 1/3 ECM
		Motor rpm	400-850	400-1020	500-1020
		Total Motor watts	65-450	65-750	65-750
Indoor Coil		Diameter - (No.) in.	(2) 24	(2) 24	(2) 24
		Number of blades	3	3	3
		Total Air volume - cfm	7300	8800	8800
		Net face area (total) - sq. ft.	13.54	13.54	13.54
		Tube diameter - in.	3/8	3/8	3/8
		Number of rows	4	4	4
		Fins per inch	14	14	14
		Drain connection - Number and size	(1) 1 in. NPT coupling		
Indoor Blower		Expansion device type	Balance port TXV, removable head		
		Nominal motor output	3.75 HP (ECM)	3.75 HP (ECM)	3.75 HP (ECM)
		Blower wheel nominal diameter x width - in.	(1) 22 x 9	(1) 22 x 9	(1) 22 x 9
		Type of filter	MERV 4, Disposable		
Filters		Number and size - in.	(4) 20 x 25 x 2		
		Electrical characteristics	208/230V, 460V, or 575V - 60 hz -3 phase		

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

<sup>1</sup> 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.

## COOLING RATINGS

NOTE – For Temperatures and Capacities not shown in tables, see bulletin – Cooling Unit Rating Table Correction Factor Data in Miscellaneous Engineering Data section.

## **7.5 TON - LCM092U4E/P (LOW COOLING)**

Entering Wet Bulb Tem- perature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																							
		65°F						75°F						85°F						95°F					
		Total Cool Cap.		Comp. Motor Input		Sensible To Total Ratio (S/T)		Total Cool Cap.		Comp. Motor Input		Sensible To Total Ratio (S/T)		Total Cool Cap.		Comp. Motor Input		Sensible To Total Ratio (S/T)		Total Cool Cap.		Comp. Motor Input		Sensible To Total Ratio (S/T)	
		cfm	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F			
63°F	800	66.2	3.77	0.55	0.62	0.71	64.3	4.37	0.55	0.64	0.71	62	4.99	0.6	0.64	0.71	59.7	5.68	0.59	0.67	0.74				
	1335	80.2	3.8	0.6	0.7	0.79	77.6	4.41	0.61	0.7	0.8	74.9	5.04	0.61	0.71	0.81	71.8	5.73	0.62	0.73	0.83				
	1875	89	3.82	0.63	0.75	0.87	85.8	4.44	0.64	0.77	0.89	82.4	5.07	0.65	0.78	0.91	78.7	5.76	0.67	0.81	0.93				
67°F	800	69.8	3.76	0.48	0.57	0.62	67.5	4.37	0.48	0.56	0.62	65.2	5	0.5	0.56	0.63	62.5	5.69	0.49	0.56	0.63				
	1335	84.4	3.81	0.49	0.57	0.66	81.7	4.42	0.5	0.58	0.67	78.8	5.06	0.5	0.58	0.68	75.6	5.75	0.5	0.59	0.69				
	1875	93.8	3.84	0.52	0.61	0.72	90.4	4.45	0.51	0.62	0.73	86.9	5.09	0.52	0.63	0.75	83	5.78	0.53	0.64	0.76				
71°F	800	72.8	3.77	0.39	0.47	0.53	70.3	4.38	0.42	0.47	0.53	68	5.01	0.41	0.47	0.53	65.6	5.71	0.4	0.47	0.53				
	1335	88.6	3.82	0.4	0.48	0.55	85.7	4.43	0.4	0.48	0.55	82.7	5.07	0.4	0.48	0.56	79.4	5.77	0.39	0.48	0.56				
	1875	98.3	3.85	0.4	0.5	0.59	94.9	4.47	0.4	0.5	0.59	91.3	5.11	0.4	0.5	0.6	87.2	5.81	0.4	0.51	0.6				

NOTE - Compressors operating at maximum capacity.

## **7.5 TON - LCM092U4E/P (HIGH COOLING)**

Entering Wet Bulb Tem- perature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil															
		85°F				95°F				105°F				115°F			
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)	Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)	Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)	Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)	Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)	Total Cool Cap.
		cfm	kBtu/h	kW	75°F	80°F	85°F	kBtu/h	kW	75°F	80°F	85°F	kBtu/h	kW	75°F	80°F	85°F
63°F	1875	82.4	5.07	0.64	0.77	0.9	78.7	5.76	0.66	0.79	0.92	74.7	6.54	0.67	0.81	0.95	69.9
	2625	88.8	5.1	0.71	0.88	1	84.6	5.78	0.73	0.9	1	80.3	6.57	0.75	0.93	1	75.4
	3600	94.9	5.12	0.81	1	1	90.8	5.82	0.83	1	1	86.3	6.6	0.86	1	1	81
67°F	1875	86.9	5.09	0.52	0.62	0.73	83	5.78	0.53	0.63	0.74	78.7	6.56	0.53	0.65	0.77	73.8
	2625	93.7	5.12	0.56	0.68	0.84	89.3	5.81	0.57	0.7	0.87	84.3	6.59	0.57	0.72	0.9	78.7
	3600	99	5.15	0.61	0.79	0.97	94.1	5.84	0.61	0.82	1	88.5	6.61	0.63	0.86	1	82.4
71°F	1875	91.3	5.11	0.4	0.5	0.6	87.2	5.81	0.4	0.51	0.6	82.8	6.59	0.4	0.52	0.63	77.6
	2625	98.5	5.14	0.41	0.54	0.66	93.9	5.84	0.42	0.55	0.67	88.6	6.62	0.41	0.56	0.7	82.8
	3600	104.2	5.17	0.44	0.6	0.77	99	5.86	0.44	0.61	0.79	93.2	6.64	0.45	0.63	0.84	86.7

NOTE - Compressors operating at maximum capacity.

## **8.5 TON - LCM102U4E/P (LOW COOLING)**

Entering Wet Bulb Tem- perature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																							
		65°F						75°F						85°F						95°F					
		Total Cool Cap. Input	Comp. Motor Input	Sensible To Total Ratio (S/T)		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)					
		cfm	kBtu/h	kW	75°F	80°F	85°F	kBtu/h	kW	75°F	80°F	85°F	kBtu/h	kW	75°F	80°F	85°F	kBtu/h	kW	75°F	80°F	85°F			
63°F	800	70.6	4.03	0.54	0.61	0.7	68.6	4.67	0.55	0.63	0.7	66.2	5.34	0.57	0.63	0.7	63.9	6.07	0.56	0.64	0.71				
	1465	89	4.05	0.6	0.69	0.78	86.1	4.71	0.6	0.7	0.79	83.1	5.39	0.61	0.7	0.81	79.6	6.12	0.62	0.72	0.82				
	2125	99.3	4.08	0.63	0.76	0.88	95.8	4.74	0.64	0.77	0.89	92.1	5.41	0.65	0.78	0.9	88	6.15	0.66	0.81	0.93				
67°F	800	74.6	4.02	0.49	0.54	0.59	72.2	4.68	0.48	0.54	0.59	69.7	5.35	0.51	0.56	0.62	67.4	6.07	0.5	0.56	0.62				
	1465	93.8	4.06	0.49	0.57	0.66	90.8	4.72	0.5	0.58	0.66	87.7	5.4	0.5	0.58	0.67	84.1	6.14	0.5	0.59	0.68				
	2125	104.9	4.1	0.51	0.61	0.72	101.3	4.75	0.51	0.62	0.74	97.3	5.43	0.52	0.64	0.75	92.9	6.17	0.52	0.64	0.76				
71°F	800	78.6	4.02	0.4	0.49	0.53	75.9	4.68	0.43	0.48	0.53	72.9	5.35	0.42	0.47	0.52	70.4	6.09	0.41	0.47	0.52				
	1465	98.6	4.08	0.4	0.47	0.54	95.5	4.74	0.39	0.48	0.55	92.1	5.42	0.4	0.48	0.55	88.3	6.16	0.4	0.47	0.56				
	2125	110.4	4.11	0.4	0.49	0.59	106.5	4.77	0.4	0.5	0.59	102.3	5.46	0.4	0.51	0.61	97.8	6.2	0.4	0.51	0.61				

NOTE - Compressors operating at maximum capacity.

## 8.5 TON - LCM102U4E/P (HIGH COOLING)

Entering Wet Bulb Tem- perature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																							
		85°F						95°F						105°F						115°F					
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)						
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb						
63°F		cfm	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F			
		2125	92.1	5.41	0.64	0.77	0.9	88	6.15	0.65	0.79	0.92	83.3	6.98	0.67	0.82	0.95	78	7.93	0.69	0.84	0.98			
		2975	99.2	5.44	0.72	0.88	1	94.8	6.17	0.74	0.91	1	89.8	7.01	0.77	0.94	1	84.1	7.96	0.78	0.97	1			
67°F		4080	106.1	5.46	0.81	1	1	101.4	6.21	0.83	1	1	96.4	7.04	0.87	1	1	90.4	7.99	0.92	1	1			
		2125	97.3	5.43	0.52	0.63	0.74	92.9	6.17	0.52	0.63	0.75	88	7.01	0.53	0.65	0.78	82.4	7.95	0.54	0.66	0.8			
		2975	104.6	5.46	0.56	0.69	0.85	99.5	6.2	0.57	0.7	0.87	94	7.03	0.58	0.73	0.9	87.7	7.99	0.58	0.77	0.94			
		4080	110.4	5.49	0.61	0.78	0.98	104.6	6.22	0.62	0.81	1	98.5	7.05	0.64	0.87	1	91.6	8	0.66	0.89	1			
71°F		2125	102.3	5.46	0.4	0.51	0.6	97.8	6.2	0.4	0.51	0.61	92.6	7.03	0.4	0.52	0.63	86.9	7.98	0.4	0.53	0.64			
		2975	110.1	5.49	0.42	0.55	0.67	104.9	6.22	0.42	0.55	0.68	99	7.06	0.42	0.57	0.7	92.4	8.01	0.43	0.58	0.74			
		4080	116.1	5.51	0.45	0.59	0.79	110.3	6.25	0.44	0.61	0.79	103.9	7.08	0.46	0.62	0.85	96.5	8.03	0.45	0.64	0.87			

**NOTE - Compressors operating at maximum capacity.**

## COOLING RATINGS

NOTE - For Temperatures and Capacities not shown in tables, see bulletin – Cooling Unit Rating Table Correction Factor Data in Miscellaneous Engineering Data section.

### 10 TON - LCM120U4E/P (LOW COOLING)

Entering Wet Bulb Tem- pera- ture	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																							
		65°F						75°F						85°F						95°F					
		Total Cool Cap. Input	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)						
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb						
63°F	875	80	5.13	0.55	0.62	0.68	78.1	5.8	0.56	0.62	0.69	76.1	6.59	0.55	0.64	0.7	73.5	7.5	0.56	0.64	0.71				
	1650	103.7	5.21	0.6	0.69	0.78	100.6	5.89	0.6	0.69	0.78	97.3	6.69	0.6	0.7	0.79	93.7	7.59	0.61	0.7	0.8				
	2500	117.8	5.26	0.64	0.75	0.86	114.1	5.94	0.65	0.77	0.88	110	6.75	0.66	0.77	0.89	105.4	7.66	0.66	0.79	0.91				
67°F	875	84.7	5.13	0.47	0.53	0.58	82.7	5.82	0.47	0.52	0.6	80.5	6.61	0.46	0.55	0.6	77.6	7.51	0.49	0.54	0.6				
	1650	109.3	5.23	0.5	0.57	0.65	106.2	5.92	0.5	0.57	0.66	102.7	6.7	0.5	0.58	0.66	98.9	7.63	0.5	0.58	0.67				
	2500	124.5	5.29	0.51	0.61	0.71	120.5	5.98	0.51	0.62	0.72	116.2	6.78	0.52	0.63	0.74	111.5	7.7	0.53	0.64	0.76				
71°F	875	89.6	5.15	0.41	0.47	0.52	87.6	5.83	0.41	0.46	0.54	84.9	6.63	0.41	0.49	0.53	81.7	7.53	0.43	0.48	0.53				
	1650	115	5.25	0.4	0.48	0.54	111.7	5.94	0.4	0.47	0.55	108.1	6.74	0.4	0.48	0.55	104.1	7.65	0.4	0.48	0.55				
	2500	131	5.3	0.4	0.5	0.58	126.8	6	0.41	0.49	0.59	122.4	6.81	0.4	0.5	0.6	117.5	7.74	0.4	0.51	0.61				

NOTE - Compressors operating at maximum capacity.

### 10 TON - LCM120U4E/P (HIGH COOLING)

Entering Wet Bulb Tem- pera- ture	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																							
		85°F						95°F						105°F						115°F					
		Total Cool Cap. Input	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)						
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb						
63°F	2500	109.6	6.56	0.64	0.76	0.89	105	7.43	0.65	0.78	0.91	100.2	8.4	0.66	0.8	0.93	94.8	9.47	0.68	0.83	0.96				
	3500	118.1	6.63	0.71	0.86	1	112.9	7.5	0.73	0.89	1	107.7	8.48	0.75	0.91	1	102.1	9.54	0.77	0.94	1				
	4800	125.9	6.68	0.8	0.99	1	120.5	7.57	0.82	1	1	115.3	8.54	0.86	1	1	109.4	9.63	0.88	1	1				
67°F	2500	115.8	6.61	0.52	0.62	0.73	111	7.49	0.53	0.63	0.75	105.7	8.46	0.53	0.64	0.76	100.3	9.54	0.54	0.66	0.79				
	3500	124.8	6.68	0.56	0.68	0.83	119.2	7.55	0.57	0.69	0.85	113.4	8.53	0.58	0.71	0.88	107	9.61	0.58	0.74	0.91				
	4800	131.8	6.73	0.59	0.77	0.96	125.7	7.61	0.62	0.81	0.99	119.2	8.59	0.63	0.84	1	112.2	9.66	0.65	0.87	1				
71°F	2500	121.8	6.66	0.4	0.5	0.6	116.9	7.55	0.41	0.51	0.61	111.5	8.52	0.4	0.52	0.62	105.7	9.59	0.41	0.52	0.63				
	3500	131.4	6.73	0.41	0.54	0.66	125.6	7.61	0.42	0.55	0.68	119.5	8.6	0.43	0.56	0.68	112.9	9.67	0.43	0.56	0.71				
	4800	138.7	6.77	0.43	0.59	0.76	132.4	7.66	0.45	0.6	0.77	125.8	8.65	0.44	0.61	0.81	118.5	9.73	0.45	0.63	0.82				

NOTE - Compressors operating at maximum capacity.

### 12.5 TON - LCM150U4E/P (LOW COOLING)

Entering Wet Bulb Tem- pera- ture	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																							
		65°F						75°F						85°F						95°F					
		Total Cool Cap. Input	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)						
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb						
63°F	1100	99.1	7.01	0.56	0.62	0.69	96.8	7.84	0.56	0.62	0.69	94.1	8.84	0.56	0.63	0.71	91.1	9.97	0.56	0.64	0.71				
	1965	125.2	7.13	0.6	0.69	0.77	121.5	7.99	0.6	0.69	0.78	117.5	9	0.61	0.7	0.79	113.1	10.13	0.61	0.71	0.8				
	3125	144	7.24	0.65	0.76	0.87	139.3	8.11	0.66	0.77	0.89	134.3	9.13	0.67	0.79	0.91	128.7	10.25	0.68	0.8	0.93				
67°F	1100	105	7.03	0.47	0.53	0.59	102.5	7.87	0.47	0.52	0.61	99.9	8.88	0.49	0.53	0.61	96.3	10	0.49	0.57	0.6				
	1965	131.8	7.17	0.5	0.57	0.65	128.2	8.03	0.5	0.58	0.65	124	9.05	0.5	0.58	0.66	119.4	10.19	0.5	0.59	0.67				
	3125	151.9	7.29	0.52	0.62	0.73	147.1	8.17	0.52	0.62	0.74	141.8	9.21	0.53	0.63	0.75	135.9	10.35	0.53	0.65	0.77				
71°F	1100	111	7.06	0.41	0.47	0.52	108.6	7.91	0.41	0.46	0.54	105.2	8.92	0.4	0.49	0.54	100.8	10.03	0.43	0.48	0.53				
	1965	138.6	7.21	0.4	0.47	0.55	134.7	8.08	0.4	0.48	0.55	130.3	9.09	0.4	0.48	0.56	125.5	10.25	0.4	0.48	0.56				
	3125	159.7	7.33	0.41	0.5	0.6	154.7	8.24	0.41	0.51	0.6	149.2	9.26	0.4	0.51	0.61	143.1	10.43	0.41	0.52	0.62				

NOTE - Compressors operating at maximum capacity.

### 12.5 TON - LCM150U4E/P (HIGH COOLING)

Entering Wet Bulb Tem- pera- ture
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## HUMIDITROL™+ DEHUMIDIFICATION SYSTEM RATINGS

### 7.5 | 8.5 TON - LCM092U4E/P / LCM102U4E/P WITH HUMIDITROL™+ OPERATING

Entering Wet Bulb Tempera- ture	Outdoor Air Temperature Entering Outdoor Coil																							
	65°F						75°F						85°F						95°F					
	Total Air Vol.	Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Air Vol.	Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Air Vol.	Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Air Vol.	Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb						Dry Bulb						Dry Bulb						Dry Bulb		
	cfm	kBtuh	kW	75°F	80°F	85°F	cfm	kBtuh	kW	75°F	80°F	85°F	cfm	kBtuh	kW	75°F	80°F	85°F	cfm	kBtuh	kW	75°F	80°F	85°F
63°F	1201	23.6	2.2	0.5	0.7	1.0	1152	23.0	2.2	0.5	0.7	0.9	1059	17.8	2.4	0.4	0.6	0.9	879	10.5	2.7	0.1	0.4	0.8
67°F	895	28.2	2.2	0.3	0.4	0.6	866	27.1	2.2	0.3	0.4	0.6	814	20.9	2.4	0.2	0.4	0.5	759	14.4	2.8	N/A	0.2	0.4
71°F	684	31.5	2.1	0.2	0.3	0.4	686	29.8	2.1	0.2	0.3	0.4	642	23.8	2.5	0.1	0.2	0.3	576	17.7	2.8	N/A	0.1	0.2

NOTE - Both compressors operating at maximum capacity, indoor blower operating at optimal CFM and outdoor fan operating to maintain a discharge air temperature target equal to indoor dry bulb temperature.

### 10 TON - LCM120U4E/P WITH HUMIDITROL™+ OPERATING

Entering Wet Bulb Tempera- ture	Outdoor Air Temperature Entering Outdoor Coil																							
	65°F						75°F						85°F						95°F					
	Total Air Vol.	Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Air Vol.	Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Air Vol.	Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Air Vol.	Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb						Dry Bulb						Dry Bulb						Dry Bulb		
	cfm	kBtuh	kW	75°F	80°F	85°F	cfm	kBtuh	kW	75°F	80°F	85°F	cfm	kBtuh	kW	75°F	80°F	85°F	cfm	kBtuh	kW	75°F	80°F	85°F
63°F	1382	30.7	3.1	0.4	0.6	0.8	1267	26.5	3.2	0.4	0.6	0.8	1170	24.1	3.2	0.3	0.6	0.8	1042	16.0	3.5	0.1	0.4	0.7
67°F	1067	34.6	3.1	0.2	0.4	0.5	1021	33.0	3.0	0.2	0.4	0.5	900	27.1	3.2	0.2	0.3	0.5	802	20.4	3.6	N/A	0.2	0.4
71°F	864	40.0	2.9	0.2	0.3	0.4	808	37.1	2.9	0.2	0.3	0.4	739	30.5	3.2	0.1	0.2	0.3	728	24.6	3.6	N/A	0.1	0.2

NOTE - Both compressors operating at maximum capacity, indoor blower operating at optimal CFM and outdoor fan operating to maintain a discharge air temperature target equal to indoor dry bulb temperature.

### 12.5 TON - LCM150U4E/P WITH HUMIDITROL™+ OPERATING

Entering Wet Bulb Tempera- ture	Outdoor Air Temperature Entering Outdoor Coil																							
	65°F						75°F						85°F						95°F					
	Total Air Vol.	Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Air Vol.	Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Air Vol.	Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Air Vol.	Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb						Dry Bulb						Dry Bulb						Dry Bulb		
	cfm	kBtuh	kW	75°F	80°F	85°F	cfm	kBtuh	kW	75°F	80°F	85°F	cfm	kBtuh	kW	75°F	80°F	85°F	cfm	kBtuh	kW	75°F	80°F	85°F
63°F	1675	24.0	4.2	0.4	0.6	0.8	1556	31.7	4.1	0.4	0.6	0.8	1406	28.8	4.1	0.3	0.6	0.8	1309	19.9	4.5	0.2	0.5	0.8
67°F	1248	40.5	4.1	0.2	0.4	0.5	1215	38.9	4.0	0.2	0.4	0.5	1119	32.9	4.1	0.2	0.3	0.5	1020	24.7	4.6	N/A	0.2	0.4
71°F	1015	47.2	3.8	0.2	0.3	0.4	1009	43.8	3.8	0.2	0.3	0.4	932	36.2	4.2	0.0	0.2	0.3	927	29.7	4.6	N/A	0.1	0.2

NOTE - Both compressors operating at maximum capacity, indoor blower operating at optimal CFM and outdoor fan operating to maintain a discharge air temperature target equal to indoor dry bulb temperature.

## BLOWER DATA

**BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY (NO HEAT SECTION) WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.**

FOR ALL UNITS ADD:

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

See page 26 for wet coil and option/accessory air resistance data.

See page 26 for minimum air volume required for use with optional electric heat.

Total Air Volume cfm	Total Static Pressure - in. w.g.													
	0.2		0.4		0.6		0.8		1.0		1.2		1.4	
	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts
1750	759	223	864	298	961	359	1049	420	1128	508	1199	607	1260	704
2000	846	271	943	345	1035	410	1117	488	1189	598	1255	704	1313	804
2250	945	303	1030	391	1111	476	1184	577	1247	697	1310	806	1367	905
2500	1035	366	1109	476	1180	583	1245	688	1306	797	1368	903	1426	1008
2750	1113	476	1182	601	1248	715	1310	809	1371	902	1432	1011	1491	1129
3000	1195	596	1261	718	1324	827	1385	922	1444	1024	1503	1146	1559	1279
3250	1282	711	1346	827	1406	935	1464	1044	1521	1167	1576	1306	1629	1460
3500	1372	821	1432	940	1489	1060	1544	1192	1598	1337	1650	1494	1700	1663
3750	1461	949	1517	1081	1571	1221	1624	1373	1675	1532	1725	1700	1773	1875
4000	1549	1109	1602	1256	1653	1413	1703	1576	1753	1743	1801	1916	1847	2091
4250	1637	1298	1687	1458	1735	1625	1784	1795	1831	1966	1877	2139	1923	2310
4500	1724	1510	1772	1678	1818	1851	1864	2023	1910	2195	1955	2365	2000	2530
4750	1811	1738	1856	1910	1901	2083	1946	2254	1990	2423	2034	2587	2079	2746
5000	1897	1973	1941	2144	1985	2314	2028	2480	2071	2644	2114	2805	2158	2959
5250	1983	2205	2026	2373	2069	2538	2111	2699	2153	2860	2195	3017	---	---
5500	2070	2428	2112	2595	2153	2756	2194	2912	---	---	---	---	---	---
5750	2156	2643	2197	2809	---	---	---	---	---	---	---	---	---	---
Total Air Volume cfm	Total Static Pressure - in. w.g.													
	1.6		1.8		2.0		2.2		2.4		2.6			
	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts
1750	1316	793	1373	875	1432	963	1491	1064	1548	1175	1604	1300		
2000	1368	894	1425	982	1483	1081	1540	1196	1596	1322	1650	1458		
2250	1423	1001	1480	1101	1537	1216	1593	1344	1647	1483	1700	1629		
2500	1483	1117	1539	1236	1594	1368	1648	1509	1700	1657	1752	1810		
2750	1547	1256	1601	1394	1654	1539	1705	1690	1756	1846	1806	2004		
3000	1612	1425	1664	1577	1715	1734	1765	1893	1815	2053	1864	2213		
3250	1680	1623	1729	1787	1778	1949	1828	2110	1876	2269	1925	2426		
3500	1748	1835	1796	2003	1844	2165	1893	2324	1942	2479	1991	2633		
3750	1819	2048	1866	2214	1914	2374	1963	2530	2012	2684	2061	2837		
4000	1893	2260	1940	2423	1988	2581	2036	2737	2084	2891	2134	3044		
4250	1969	2475	2016	2634	2063	2790	2111	2945	2159	3098	---	---		
4500	2046	2689	2093	2844	2140	2998	2187	3153	---	---	---	---		
4750	2124	2900	2170	3053	---	---	---	---	---	---	---	---		
5000	2203	3111	---	---	---	---	---	---	---	---	---	---		
5250	---	---	---	---	---	---	---	---	---	---	---	---		
5500	---	---	---	---	---	---	---	---	---	---	---	---		

## BLOWER DATA

### FACTORY INSTALLED OPTIONS/FIELD INSTALLED ACCESSORY AIR RESISTANCE - in. w.g.

Air Volume cfm	Wet Indoor Coil		Electric Heat	Economizer	Humiditrol + Condenser Reheat Coil	Filters			Return Air Adaptor Plate
						MERV 8	MERV 13	MERV 16	
	092, 102	120, 150							
1750	0.04	0.04	0.03	0.05	0.02	0.01	0.03	0.06	0.00
2000	0.05	0.05	0.03	0.06	0.02	0.01	0.03	0.08	0.00
2250	0.06	0.06	0.04	0.08	0.02	0.01	0.04	0.09	0.00
2500	0.07	0.07	0.04	0.11	0.03	0.01	0.05	0.10	0.00
2750	0.08	0.08	0.05	0.12	0.03	0.02	0.05	0.11	0.00
3000	0.10	0.09	0.06	0.13	0.03	0.02	0.06	0.12	0.02
3250	0.11	0.10	0.06	0.15	0.04	0.02	0.06	0.13	0.02
3500	0.12	0.11	0.09	0.15	0.04	0.03	0.07	0.15	0.04
3750	0.14	0.13	0.09	0.15	0.05	0.03	0.08	0.16	0.07
4000	0.15	0.14	0.09	0.19	0.05	0.04	0.08	0.17	0.09
4250	0.17	0.15	0.13	0.19	0.06	0.04	0.09	0.19	0.11
4500	0.19	0.17	0.14	0.22	0.07	0.04	0.09	0.20	0.12
4750	0.20	0.18	0.17	0.25	0.07	0.05	0.10	0.21	0.16
5000	0.22	0.20	0.20	0.29	0.08	0.06	0.10	0.23	0.18
5250	0.24	0.22	0.22	0.32	0.08	0.06	0.11	0.24	0.19
5500	0.25	0.23	0.25	0.34	0.09	0.07	0.12	0.25	0.22
5750	0.27	0.25	0.31	0.45	0.10	0.07	0.12	0.27	0.25
6000	0.29	0.27	0.33	0.52	0.10	0.08	0.13	0.28	0.27

### MINIMUM AIR VOLUME REQUIRED FOR USE WITH OPTIONAL ELECTRIC HEAT

Electric Heat kW	Minimum cfm
7.5	1750
15	2750
22.5	2750
30	2750
45	2750
60	3500

### POWER EXHAUST FAN PERFORMANCE

Return Air System Static Pressure in. w.g.	Air Volume Exhausted cfm
0	3175
0.05	2955
0.10	2685
0.15	2410
0.20	2165
0.25	1920
0.30	1420
0.35	1200

## BLOWER DATA

### CEILING DIFFUSERS AIR RESISTANCE - in. w.g.

Unit Size	RTD11 Step-Down Diffuser				FD11 Flush Diffuser
	Air Volume cfm	2 Ends Open	1 Side, 2 Ends Open	All Ends & Sides Open	
092 Models	2400	0.21	0.18	0.15	0.14
	2600	0.24	0.21	0.18	0.17
	2800	0.27	0.24	0.21	0.20
	3000	0.32	0.29	0.25	0.25
	3200	0.41	0.37	0.32	0.31
	3400	0.50	0.45	0.39	0.37
	3600	0.61	0.54	0.48	0.44
	3800	0.73	0.63	0.57	0.51
102 & 120 Models	3600	0.36	0.28	0.23	0.15
	3800	0.40	0.32	0.26	0.18
	4000	0.44	0.36	0.29	0.21
	4200	0.49	0.40	0.33	0.24
	4400	0.54	0.44	0.37	0.27
	4600	0.60	0.49	0.42	0.31
	4800	0.65	0.53	0.46	0.35
	5000	0.69	0.58	0.50	0.39
	5200	0.75	0.62	0.54	0.43
	4200	0.22	0.19	0.16	0.10
150 Models	4400	0.28	0.24	0.20	0.12
	4600	0.34	0.29	0.24	0.15
	4800	0.40	0.34	0.29	0.19
	5000	0.46	0.39	0.34	0.23
	5200	0.52	0.44	0.39	0.27
	5400	0.58	0.49	0.43	0.31
	5600	0.64	0.54	0.47	0.35
	5800	0.70	0.59	0.51	0.39

### CEILING DIFFUSER AIR THROW DATA

Model No.	Air Volume	¹ Effective Throw Range	
		RTD11 Step-Down	FD11 Flush
	cfm	ft.	ft.
092 Models	2600	24 - 29	19 - 24
	2800	25 - 30	20 - 28
	3000	27 - 33	21 - 29
	3200	28 - 35	22 - 29
	3400	30 - 37	22 - 30
102, 120 Models	3600	25 - 33	22 - 29
	3800	27 - 35	22 - 30
	4000	29 - 37	24 - 33
	4200	32 - 40	26 - 35
	4400	34 - 42	28 - 37
150 Models	5600	39 - 49	28 - 37
	5800	42 - 51	29 - 38
	6000	44 - 54	40 - 50
	6200	45 - 55	42 - 51
	6400	46 - 55	43 - 52
	6600	47 - 56	45 - 56

<sup>¹</sup> Throw is the horizontal or vertical distance an air stream travels on leaving the outlet or diffuser before the maximum velocity is reduced to 50 ft. per minute. Four sides open.

**ELECTRICAL/ELECTRIC HEAT DATA**
**7.5 TON**

Model No.		LCM092U4E/ LCM092U4P		
<sup>1</sup> Voltage - 60Hz		208/230V-3ph	460V-3ph	575V-3ph
Compressor 1 (Inverter)	Rated Load Amps	8.5	4	3.2
	Locked Rotor Amps	17	10	12
Compressor 2 (Non-Inverter)	Rated Load Amps	13.7	6.1	4.8
	Locked Rotor Amps	83.1	43	33
Outdoor Fan Motors (2)	Full Load Amps (2 ECM)	2.8	1.4	1.1
	Total	5.6	2.8	2.2
Power Exhaust (1) 0.33 HP	Full Load Amps	2.4	1.3	1
Service Outlet 115V GFI (amps)		15	15	20
Indoor Blower Motor	Horsepower	3.75	3.75	3.75
	Full Load Amps	8.7	4.7	4.1
<sup>2</sup> Maximum Overcurrent Protection (MOCP)	Unit Only	50	25	20
	With (1) 0.33 HP Power Exhaust	50	25	20
<sup>3</sup> Minimum Circuit Ampacity (MCA)	Unit Only	40	20	16
	With (1) 0.33 HP Power Exhaust	43	21	17

**ELECTRIC HEAT DATA**

Electric Heat Voltage		208V	240V	480V	600V
<sup>2</sup> Maximum Overcurrent Protection (MOCP)	Unit+ Electric Heat	<b>7.5 kW</b>	50	25	20
		<b>15 kW</b>	<sup>4</sup> 50	60	30
		<b>22.5 kW</b>	<sup>4</sup> 70	80	40
		<b>30 kW</b>	<sup>4</sup> 90	110	60
		<b>45 kW</b>	150	150	80
<sup>3</sup> Minimum Circuit Ampacity (MCA)	Unit+ Electric Heat	<b>7.5 kW</b>	40	20	16
		<b>15 kW</b>	50	29	24
		<b>22.5 kW</b>	70	40	33
		<b>30 kW</b>	90	51	42
		<b>45 kW</b>	129	74	60
<sup>2</sup> Maximum Overcurrent Protection (MOCP)	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	<b>7.5 kW</b>	50	25	20
		<b>15 kW</b>	60	35	25
		<b>22.5 kW</b>	<sup>4</sup> 80	90	45
		<b>30 kW</b>	<sup>4</sup> 100	110	60
		<b>45 kW</b>	150	80	70
<sup>3</sup> Minimum Circuit Ampacity (MCA)	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	<b>7.5 kW</b>	43	21	17
		<b>15 kW</b>	53	31	25
		<b>22.5 kW</b>	73	42	34
		<b>30 kW</b>	93	53	43
		<b>45 kW</b>	132	76	61

**ELECTRICAL ACCESSORIES**

Disconnect	<b>7.5 kW</b>	<b>54W56</b>	<b>54W56</b>	<b>54W56</b>	<b>54W56</b>
	<b>15 kW</b>	<b>54W56</b>	<b>54W56</b>	<b>54W56</b>	<b>54W56</b>
	<b>22.5 kW</b>	<b>54W56</b>	<b>54W56</b>	<b>54W56</b>	<b>54W56</b>
	<b>30 kW</b>	<b>54W57</b>	<b>54W57</b>	<b>54W56</b>	<b>54W56</b>
	<b>45 kW</b>	<b>54W57</b>	<b>54W57</b>	<b>54W56</b>	<b>54W56</b>

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

<sup>1</sup> Extremes of operating range are plus and minus 10% of line voltage.

<sup>2</sup> HACR type breaker or fuse.

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

<sup>4</sup> Factory installed circuit breaker not available.

**ELECTRICAL/ELECTRIC HEAT DATA**
**8.5 TON**

Model No.		LCM102U4E / LCM102U4P		
1 Voltage - 60Hz		208/230V-3ph	460V-3ph	575V-3ph
Compressor 1 (Inverter)	Rated Load Amps	11.8	5.5	4.4
	Locked Rotor Amps	17	10	12
Compressor 2 (Non-Inverter)	Rated Load Amps	13.7	6.1	4.8
	Locked Rotor Amps	83.1	43	33
Outdoor Fan Motors (2)	Full Load Amps (2 ECM)	2.8	1.4	1.1
	Total	5.6	2.8	2.2
Power Exhaust (1) 0.33 HP	Full Load Amps	2.4	1.3	1
Service Outlet 115V GFI (amps)		15	15	20
Indoor Blower Motor	Horsepower	3.75	3.75	3.75
	Full Load Amps	8.7	4.7	4.1
<sup>2</sup> Maximum Overcurrent Protection (MOCP)	Unit Only	50	25	20
	With (1) 0.33 HP Power Exhaust	50	25	20
<sup>3</sup> Minimum Circuit Ampacity (MCA)	Unit Only	44	21	17
	With (1) 0.33 HP Power Exhaust	46	22	18

**ELECTRIC HEAT DATA**

Electric Heat Voltage		208V	240V	480V	600V
<sup>2</sup> Maximum Overcurrent Protection (MOCP)	Unit+ Electric Heat	<b>7.5 kW</b>	50	25	20
		<b>15 kW</b>	<sup>4</sup> 50	60	30
		<b>22.5 kW</b>	<sup>4</sup> 70	80	40
		<b>30 kW</b>	<sup>4</sup> 90	110	60
		<b>45 kW</b>	150	150	80
<sup>3</sup> Minimum Circuit Ampacity (MCA)	Unit+ Electric Heat	<b>7.5 kW</b>	44	21	17
		<b>15 kW</b>	50	29	24
		<b>22.5 kW</b>	70	40	33
		<b>30 kW</b>	90	51	42
		<b>45 kW</b>	129	74	60
<sup>2</sup> Maximum Overcurrent Protection (MOCP)	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	<b>7.5 kW</b>	50	25	20
		<b>15 kW</b>	60	35	25
		<b>22.5 kW</b>	<sup>4</sup> 80	45	35
		<b>30 kW</b>	<sup>4</sup> 100	60	45
		<b>45 kW</b>	150	80	70
<sup>3</sup> Minimum Circuit Ampacity (MCA)	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	<b>7.5 kW</b>	46	22	18
		<b>15 kW</b>	53	31	25
		<b>22.5 kW</b>	73	42	34
		<b>30 kW</b>	93	53	43
		<b>45 kW</b>	132	76	61

**ELECTRICAL ACCESSORIES**

Disconnect	<b>7.5 kW</b>	<b>54W56</b>	<b>54W56</b>	<b>54W56</b>	<b>54W56</b>
	<b>15 kW</b>	<b>54W56</b>	<b>54W56</b>	<b>54W56</b>	<b>54W56</b>
	<b>22.5 kW</b>	<b>54W56</b>	<b>54W56</b>	<b>54W56</b>	<b>54W56</b>
	<b>30 kW</b>	<b>54W57</b>	<b>54W57</b>	<b>54W56</b>	<b>54W56</b>
	<b>45 kW</b>	<b>54W57</b>	<b>54W57</b>	<b>54W56</b>	<b>54W56</b>

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

<sup>1</sup> Extremes of operating range are plus and minus 10% of line voltage.

<sup>2</sup> HACR type breaker or fuse.

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

<sup>4</sup> Factory installed circuit breaker not available.

**ELECTRICAL/ELECTRIC HEAT DATA**
**10 TON**

Model No.		LCM120U4E/ LCM120U4P		
1 Voltage - 60Hz		208/230V-3ph	460V-3ph	575V-3ph
Compressor 1 (Inverter)	Rated Load Amps	13.5	6.3	5
	Locked Rotor Amps	21	11	12
Compressor 2 (Non-Inverter)	Rated Load Amps	16	7.8	5.7
	Locked Rotor Amps	110	52	38.9
Outdoor Fan Motors (2)	Full Load Amps (2 ECM)	2.8	1.4	1.1
	Total	5.6	2.8	2.2
Power Exhaust (1) 0.33 HP	Full Load Amps	2.4	1.3	1
Service Outlet 115V GFI (amps)		15	15	20
Indoor Blower Motor	Horsepower	3.75	3.75	3.75
	Full Load Amps	8.7	4.7	4.1
<sup>2</sup> Maximum Overcurrent Protection (MOCP)	Unit Only	60	30	20
	With (1) 0.33 HP Power Exhaust	60	30	25
<sup>3</sup> Minimum Circuit Ampacity (MCA)	Unit Only	48	24	19
	With (1) 0.33 HP Power Exhaust	51	25	20

**ELECTRIC HEAT DATA**

Electric Heat Voltage		208V	240V	480V	600V
<sup>2</sup> Maximum Overcurrent Protection (MOCP)	Unit+ Electric Heat	<b>15 kW</b>	60	30	25
		<b>22.5 kW</b>	<sup>4</sup> 70	80	35
		<b>30 kW</b>	<sup>4</sup> 90	110	45
		<b>45 kW</b>	150	150	60
		<b>60 kW</b>	<sup>4</sup> 150	175	70
<sup>3</sup> Minimum Circuit Ampacity (MCA)	Unit+ Electric Heat	<b>15 kW</b>	50	29	24
		<b>22.5 kW</b>	70	40	33
		<b>30 kW</b>	90	51	42
		<b>45 kW</b>	129	74	60
		<b>60 kW</b>	136	79	63
<sup>2</sup> Maximum Overcurrent Protection (MOCP)	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	<b>15 kW</b>	60	35	25
		<b>22.5 kW</b>	<sup>4</sup> 80	90	35
		<b>30 kW</b>	<sup>4</sup> 100	110	45
		<b>45 kW</b>	150	80	70
		<b>60 kW</b>	<sup>4</sup> 150	175	70
<sup>3</sup> Minimum Circuit Ampacity (MCA)	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	<b>15 kW</b>	53	31	25
		<b>22.5 kW</b>	73	42	34
		<b>30 kW</b>	93	53	43
		<b>45 kW</b>	132	76	61
		<b>60 kW</b>	139	80	65

**ELECTRICAL ACCESSORIES**

Disconnect	<b>15 kW</b>	<b>54W56</b>	<b>54W56</b>	<b>54W56</b>	<b>54W56</b>
	<b>22.5 kW</b>	<b>54W56</b>	<b>54W56</b>	<b>54W56</b>	<b>54W56</b>
	<b>30 kW</b>	<b>54W57</b>	<b>54W57</b>	<b>54W56</b>	<b>54W56</b>
	<b>45 kW</b>	<b>54W57</b>	<b>54W57</b>	<b>54W56</b>	<b>54W56</b>
	<b>60 kW</b>	<b>N/A</b>	<b>N/A</b>	<b>54W57</b>	<b>54W56</b>

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

<sup>1</sup> Extremes of operating range are plus and minus 10% of line voltage.

<sup>2</sup> HACR type breaker or fuse.

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

<sup>4</sup> Factory installed circuit breaker not available.

**ELECTRICAL/ELECTRIC HEAT DATA**
**12.5 TON**

Model No.		LCM150U4E / LCM150U4P		
		208/230V-3ph	460V-3ph	575V-3ph
<sup>1</sup> Voltage - 60Hz				
Compressor 1 (Inverter)	Rated Load Amps	16.4	7.7	6.2
	Locked Rotor Amps	21	11	12
Compressor 2 (Non-Inverter)	Rated Load Amps	22.4	10.6	7.7
	Locked Rotor Amps	149	75	54
Outdoor Fan Motors (2)	Full Load Amps (2 ECM)	2.8	1.4	1.1
	Total	5.6	2.8	2.2
Power Exhaust (1) 0.33 HP	Full Load Amps	2.4	1.3	1
Service Outlet 115V GFI (amps)		15	15	20
Indoor Blower Motor	Horsepower	3.75	3.75	3.75
	Full Load Amps	8.7	4.7	4.1
<sup>2</sup> Maximum Overcurrent Protection (MOCP)	Unit Only	80	35	25
	With (1) 0.33 HP Power Exhaust	80	40	30
<sup>3</sup> Minimum Circuit Ampacity (MCA)	Unit Only	59	29	23
	With (1) 0.33 HP Power Exhaust	62	30	24

**ELECTRIC HEAT DATA**

Electric Heat Voltage		208V	240V	480V	600V
<sup>2</sup> Maximum Overcurrent Protection (MOCP)	Unit+ Electric Heat	<b>15 kW</b>	80	35	25
		<b>22.5 kW</b>	80	40	35
		<b>30 kW</b>	<sup>4</sup> 90	60	45
		<b>45 kW</b>	150	80	60
		<b>60 kW</b>	<sup>4</sup> 150	80	70
<sup>3</sup> Minimum Circuit Ampacity (MCA)	Unit+ Electric Heat	<b>15 kW</b>	59	29	24
		<b>22.5 kW</b>	70	40	33
		<b>30 kW</b>	90	51	42
		<b>45 kW</b>	129	74	60
		<b>60 kW</b>	136	79	63
<sup>2</sup> Maximum Overcurrent Protection (MOCP)	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	<b>15 kW</b>	80	40	30
		<b>22.5 kW</b>	<sup>4</sup> 80	45	35
		<b>30 kW</b>	<sup>4</sup> 100	60	45
		<b>45 kW</b>	150	80	70
		<b>60 kW</b>	<sup>4</sup> 150	80	70
<sup>3</sup> Minimum Circuit Ampacity (MCA)	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	<b>15 kW</b>	62	31	25
		<b>22.5 kW</b>	73	42	34
		<b>30 kW</b>	93	53	43
		<b>45 kW</b>	132	76	61
		<b>60 kW</b>	139	80	65

**ELECTRICAL ACCESSORIES**

Disconnect	<b>15 kW</b>	<b>54W56</b>	<b>54W56</b>	<b>54W56</b>	<b>54W56</b>
	<b>22.5 kW</b>	<b>54W56</b>	<b>54W56</b>	<b>54W56</b>	<b>54W56</b>
	<b>30 kW</b>	<b>54W57</b>	<b>54W57</b>	<b>54W56</b>	<b>54W56</b>
	<b>45 kW</b>	<b>54W57</b>	<b>54W57</b>	<b>54W56</b>	<b>54W56</b>
	<b>60 kW</b>	N/A	N/A	<b>54W57</b>	<b>54W56</b>

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

<sup>1</sup> Extremes of operating range are plus and minus 10% of line voltage.

<sup>2</sup> HACR type breaker or fuse.

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

<sup>4</sup> Factory installed circuit breaker not available.

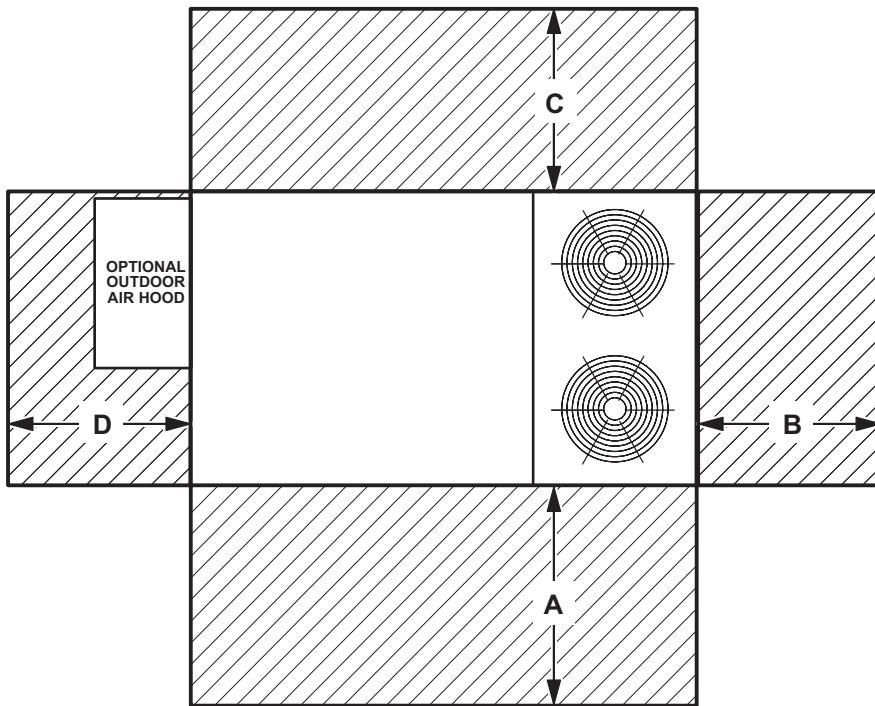
## ELECTRIC HEAT CAPACITIES

Volts Input	7.5 kW			15 kW			22.5 kW			30 kW			45 kW			60 kW		
	kW Input	Btuh Output	No. of Stages															
208	5.6	19,100	1	11.3	38,600	1	16.9	57,700	2	22.5	76,800	2	33.8	115,300	2	45.0	153,600	2
220	6.3	21,500	1	12.6	43,000	1	18.9	64,500	2	25.2	86,000	2	37.8	129,000	2	50.4	172,000	2
230	6.9	23,600	1	13.8	47,100	1	20.7	70,700	2	27.5	93,900	2	41.3	141,000	2	55.1	188,000	2
240	7.5	25,600	1	15.0	51,200	1	22.5	76,800	2	30.0	102,400	2	45.0	153,600	2	60.0	204,800	2
440	6.9	21,500	1	12.6	43,000	1	18.9	64,500	2	25.2	86,000	2	37.8	129,000	2	50.4	172,000	2
460	6.9	23,600	1	13.8	47,100	1	20.7	70,700	2	27.5	93,900	2	41.3	141,000	2	55.1	188,000	2
480	7.5	25,600	1	15.0	51,200	1	22.5	76,800	2	30.0	102,400	2	45.0	153,600	2	60.0	204,800	2
550	6.3	21,500	1	12.6	43,000	1	18.9	64,500	2	25.2	86,000	2	37.8	129,000	2	50.4	172,000	2
575	6.9	23,600	1	13.8	47,100	1	20.7	70,700	2	27.5	93,900	2	41.3	141,000	2	55.1	188,000	2
600	7.5	25,600	1	15.0	51,200	1	22.5	76,800	2	30.0	102,400	2	45.0	153,600	2	60.0	204,800	2

### FIELD WIRING NOTES

- For use with copper wiring only
- Field wiring not furnished
- All wiring must conform to NEC or CEC and local electrical codes
- For specific wiring information, please refer to the installation instructions

## UNIT CLEARANCES



¹ Unit Clearance	A		B		C		D		Top Clearance
	in.	mm	in.	mm	in.	mm	in.	mm	
Service Clearance	60	1524	36	914	36	934	60	1524	Unobstructed
Minimum Operation Clearance	36	914	36	914	36	914	36	914	

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	
092-102 Min.	58	62	62	60	55	47	60	68
092-102 Max.	72	77	81	79	74	68	66	85
120-150 Min.	55	60	62	60	56	48	60	67
120-150 Max.	79	78	85	83	79	76	73	89

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

¹ Sound Rating Number according to AHRI Standard 370-2001 (includes pure tone penalty).

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

WEIGHT DATA		Shipping		UNIT
Model Number	Net		Shipping	
	Lbs.	kg	Lbs.	kg
092 Base Unit	1120	508	1205	547
092 Max. Unit	1277	579	1362	618
102 Base Unit	1127	511	1212	550
102 Max. Unit	1284	582	1369	621
120 Base Unit	1162	527	1247	566
120 Max. Unit	1326	601	1411	640
150 Base Unit	1178	534	1263	573
150 Max. Unit	1342	609	1427	647

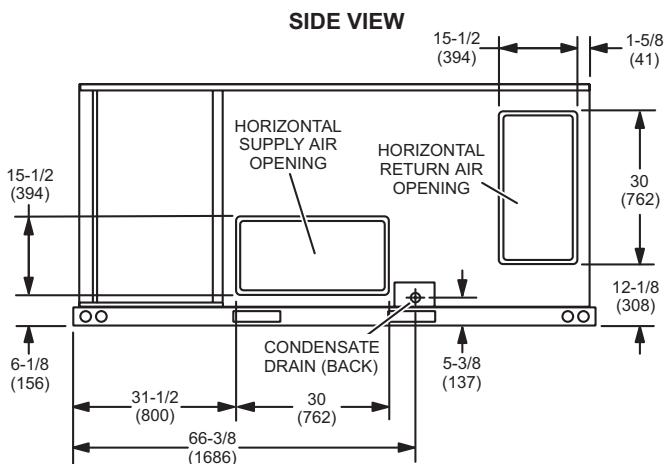
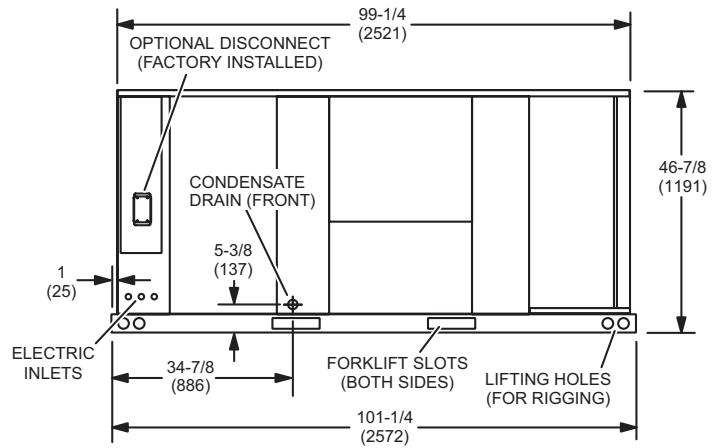
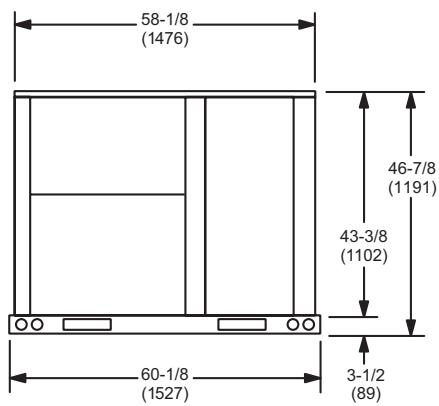
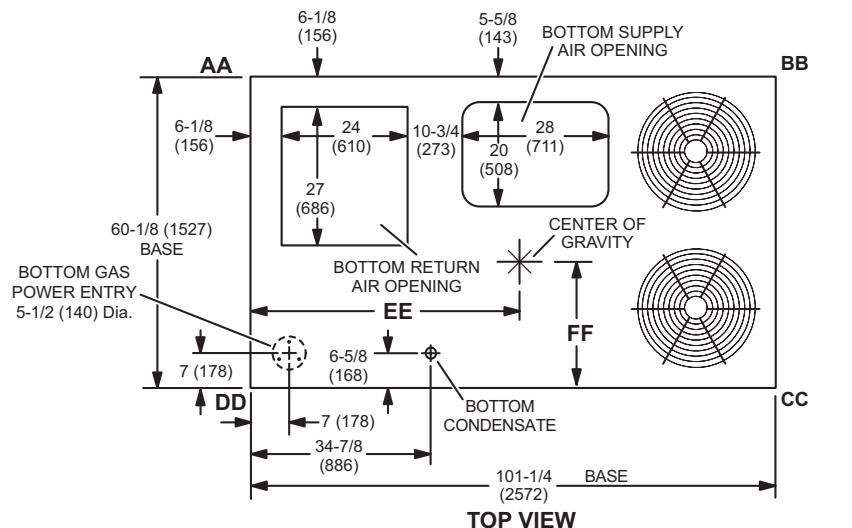
WEIGHT DATA		OPTIONS / ACCESSORIES	
Description		Shipping	Weight
ECONOMIZER / OUTDOOR AIR / EXHAUST			
<b>Economizer</b>			
Economizer Dampers		60	27
Outdoor Air Hood (downflow)		23	10
Barometric Relief Dampers (downflow)		8	4
Barometric Relief Dampers (low profile horizontal)		20	9
<b>Outdoor Air Dampers</b>			
Outdoor Air Damper Section - Automatic		51	23
Outdoor Air Damper Section - Manual		39	18
<b>Power Exhaust</b>			
<b>ELECTRIC HEAT</b>			
7.5 kW		50	23
15 kW		50	23
22.5 kW		57	26
30 kW		57	26
45 kW		59	27
60 kW		68	31
<b>COIL/HAIL GUARDS</b>			
All Models		55	25
<b>HUMIDITROL™+ HOT GAS REHEAT SYSTEM</b>			
Humiditrol+ Dehumidification Option		20	9
<b>ROOF CURBS</b>			
<b>Hybrid Roof Curbs, Downflow</b>			
8 in. height		60	27
14 in. height		85	39
18 in. height		100	45
24 in. height		125	57
<b>Adjustable Pitch Curb, Downflow</b>			
14 in. height		191	82
<b>CEILING DIFFUSERS</b>			
<b>Step-Down</b>			
RTD11-95S		118	54
RTD11-135S		135	61
RTD11-185S		168	76
<b>Flush</b>			
FD11-95S		118	54
FD11-135S		135	61
FD11-185S		168	76
<b>Transitions</b>			
C1DIFF30B-1		30	14
C1DIFF31B-1		32	15
C1DIFF32B-1		36	16

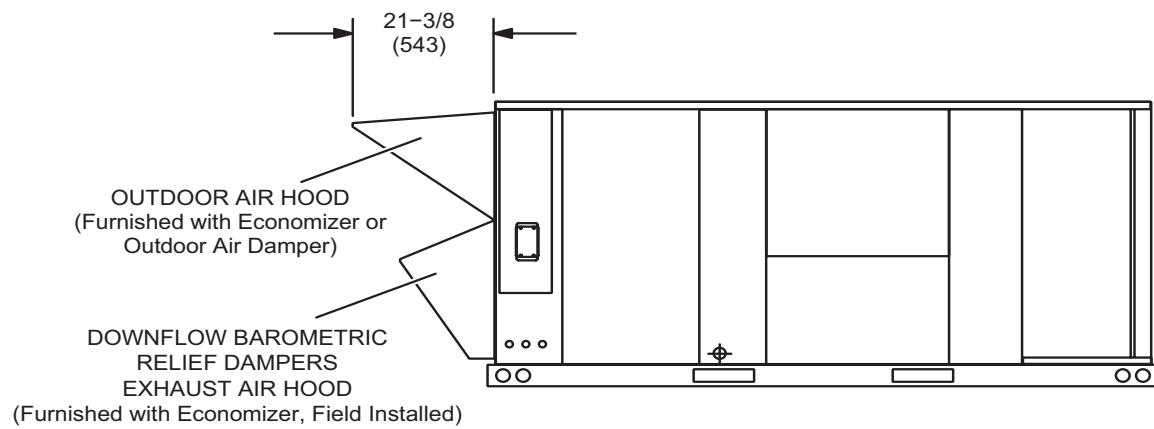
## DIMENSIONS

Model No.	CORNER WEIGHTS												CENTER OF GRAVITY								UNIT			
	AA		BB		CC		DD		EE		FF													
	Base lbs.	Max. kg	Base lbs.	Max. kg	Base lbs.	Max. kg	Base lbs.	Max. kg	Base in.	Max. mm	Base in.	Max. mm	Base in.	Max. mm	Base in.	Max. mm	Base in.	Max. mm						
092	281	127	327	148	252	114	286	130	275	125	306	139	312	142	358	162	46.5	1181	45.5	1156	24.5	622	25.5	648
102	282	128	329	149	254	115	287	130	276	125	308	139	314	143	360	163	46.5	1181	45.5	1156	24.5	622	25.5	648
120	294	133	340	154	264	120	297	135	283	128	318	144	321	146	372	169	46.5	1181	45.5	1156	24.5	622	25.5	648
150	304	138	350	159	273	124	306	139	293	133	327	148	332	151	383	174	46.5	1181	45.5	1156	24.5	622	25.5	648

Base Unit - The unit with NO INTERNAL OPTIONS.

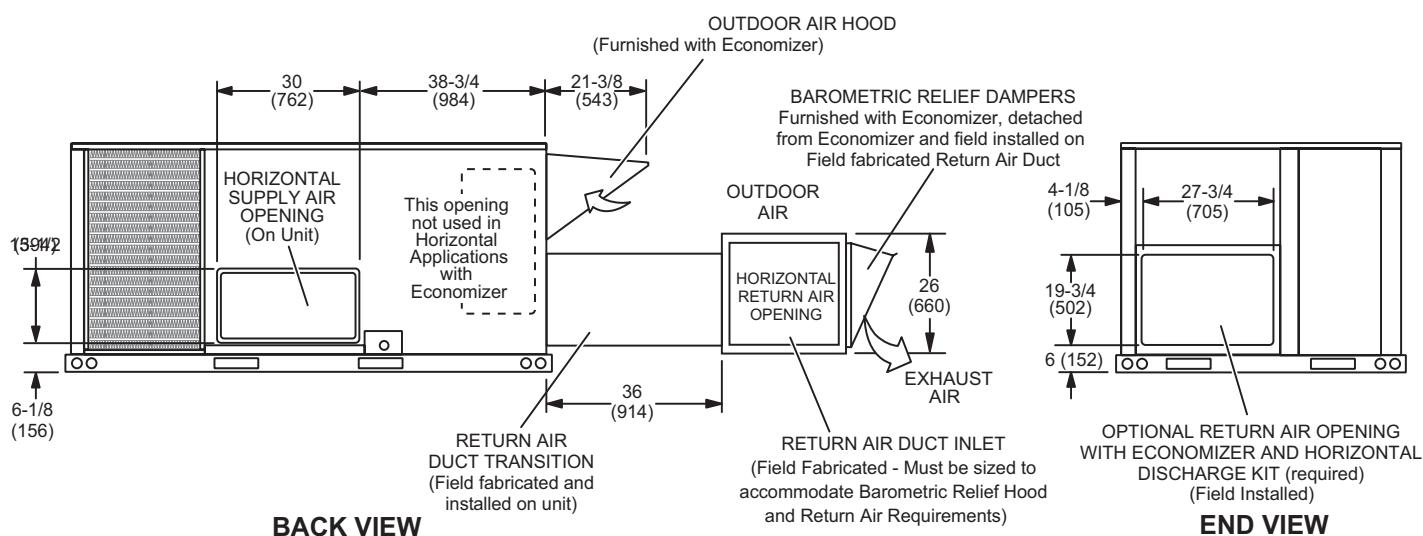
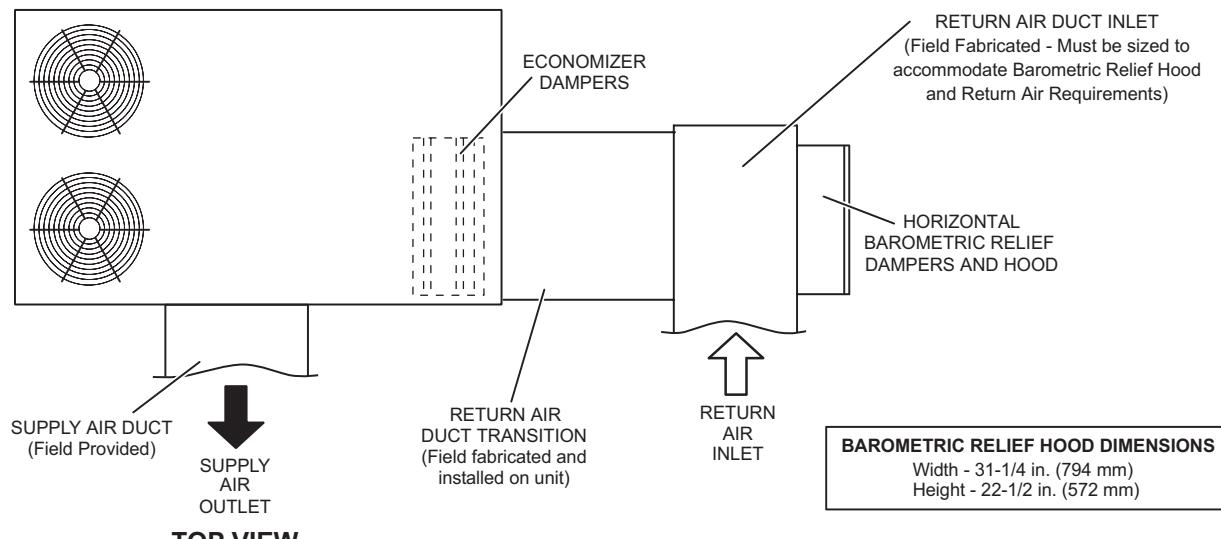
Max. Unit - The unit with ALL INTERNAL OPTIONS Installed. (Economizer, Standard Static Power Exhaust Fans, Controls, etc.). Does not include accessories external to unit or high static power exhaust.



**OUTDOOR AIR HOOD DETAIL**

**HORIZONTAL ECONOMIZER APPLICATION**

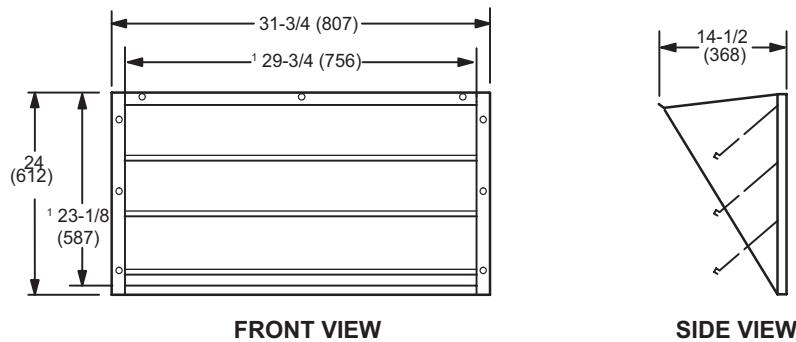
(With Furnished Barometric Relief Dampers and Optional Horizontal Discharge Kit - Required)



**NOTE** - Return Air Duct and Transition must be supported.

**BAROMETRIC RELIEF DAMPERS**  
(Furnished with Economizer)

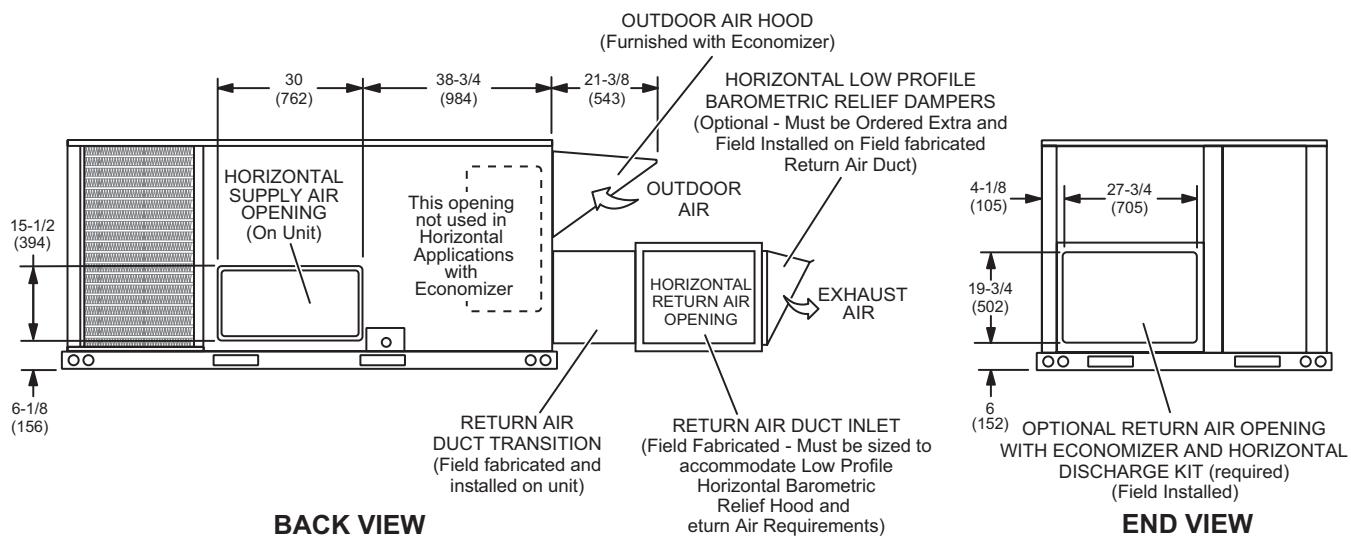
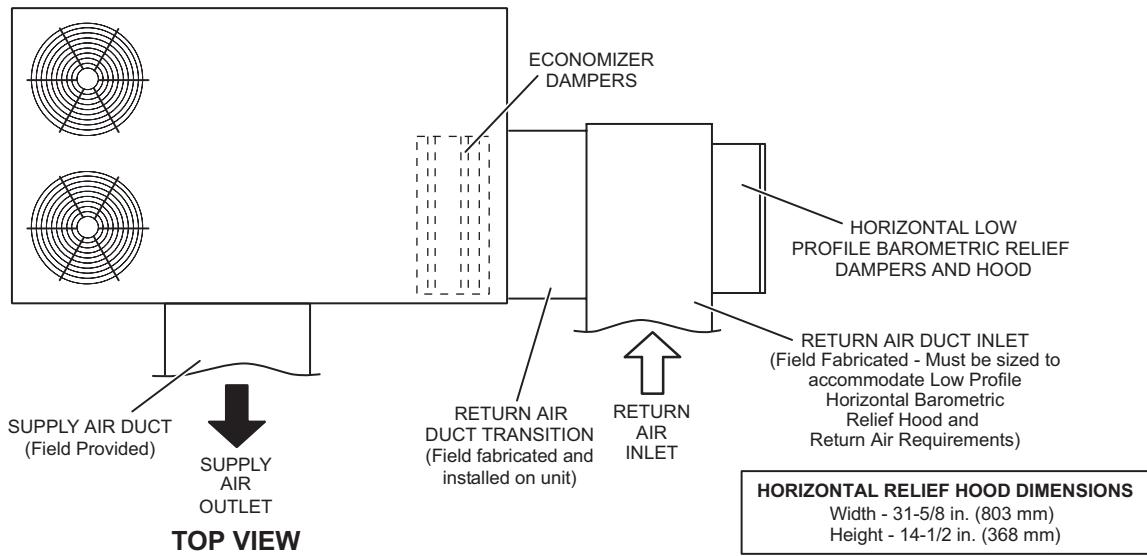
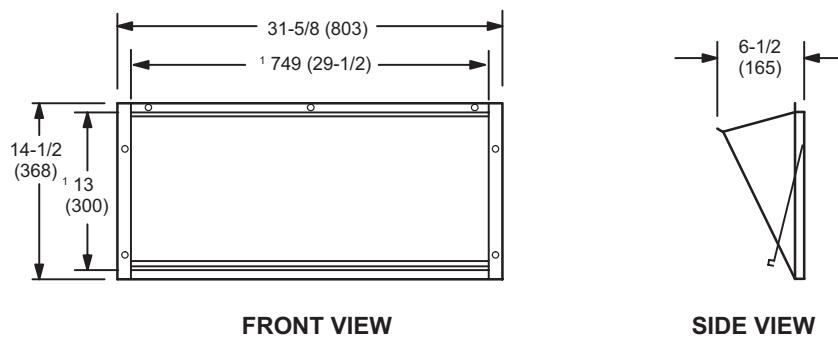
(Field installed in horizontal return air duct adjacent to unit)



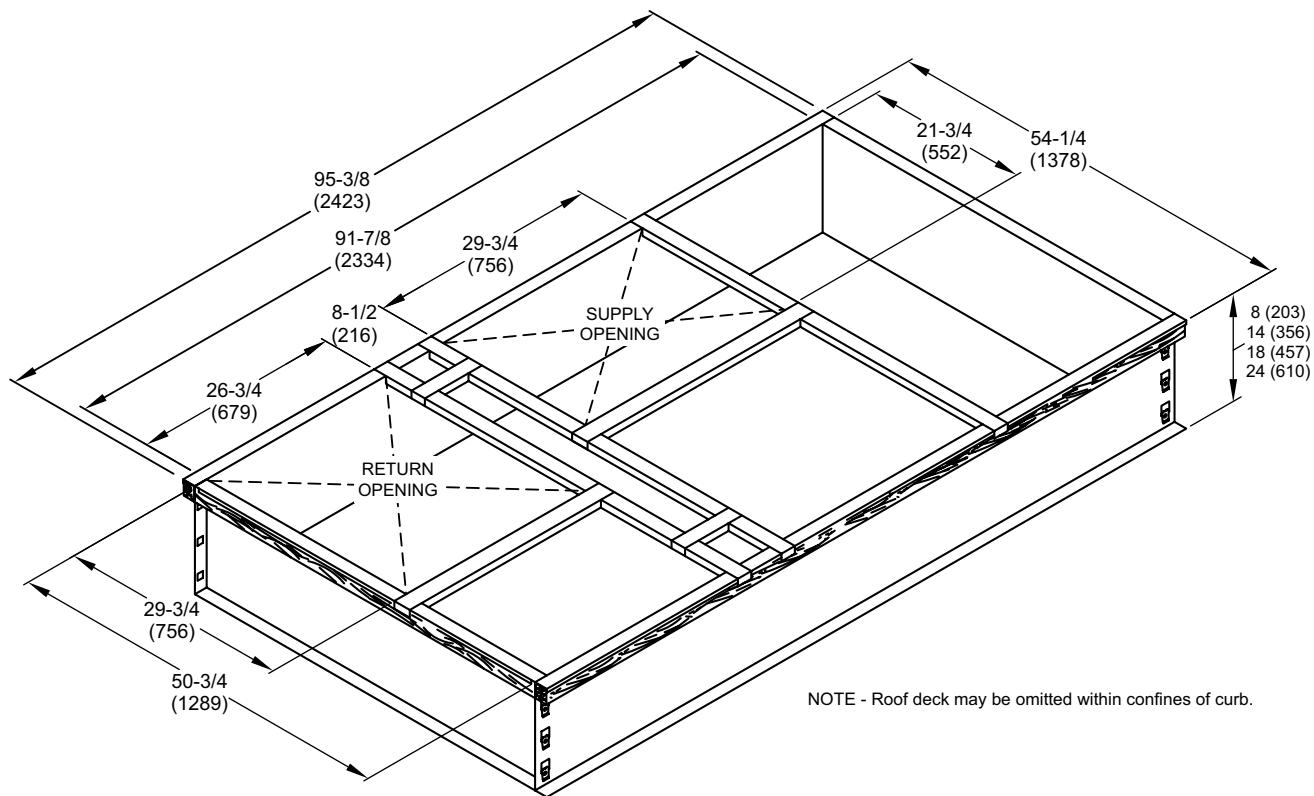
<sup>1</sup> NOTE - Openning size required in return air duct.

**HORIZONTAL ECONOMIZER APPLICATION**

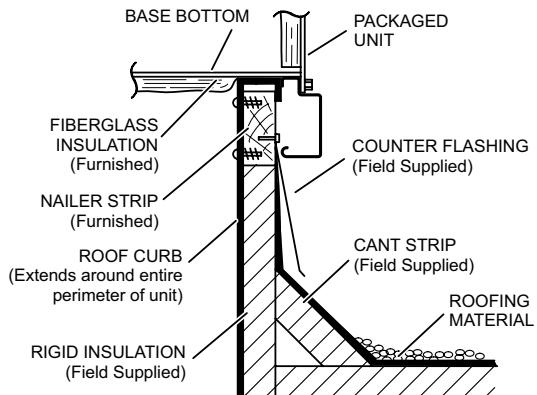
(with Optional Low Profile Horizontal Barometric Relief Dampers and Horizontal Discharge Kit - Required)

**HORIZONTAL LOW PROFILE BAROMETRIC RELIEF DAMPERS**  
(Field installed in horizontal return air duct adjacent to unit)<sup>1</sup> NOTE - Opening size required in return air duct.

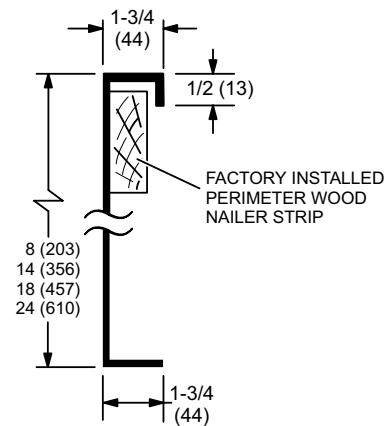
## HYBRID ROOF CURBS - DOUBLE DUCT OPENING



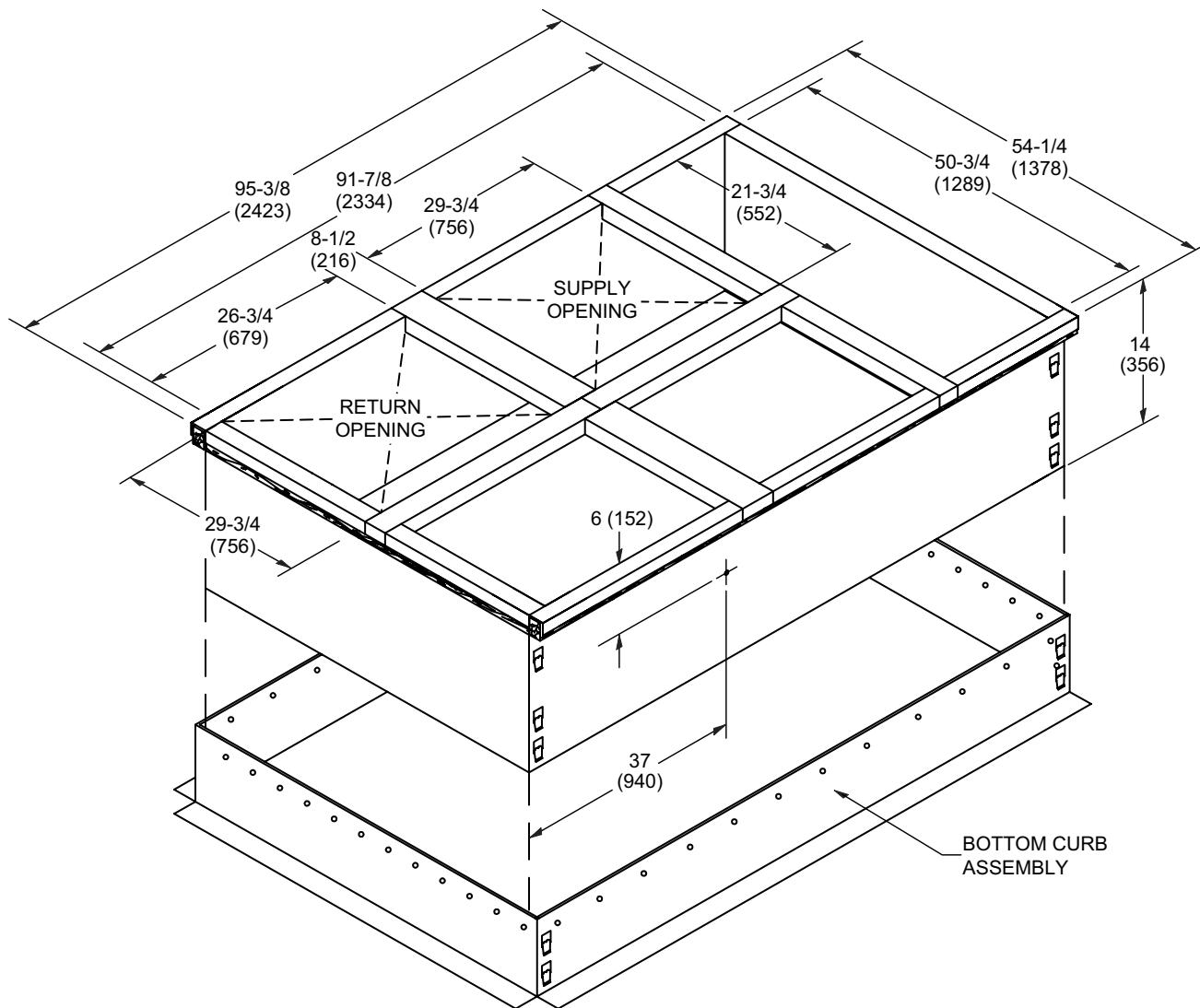
## TYPICAL FLASHING DETAIL FOR ROOF CURB



## DETAIL ROOF CURB

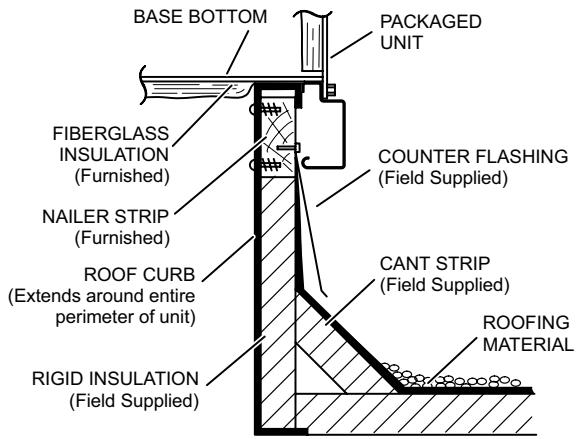


## ADJUSTABLE PITCH CURBS - DOUBLE DUCT OPENING

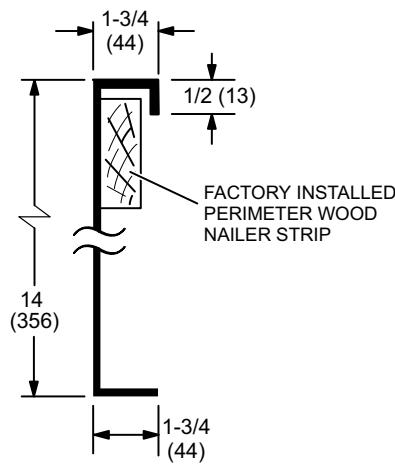


NOTE - Maximum slope pitch is 3/4 in. per 1 foot (19 mm per 305 mm) in any one direction.

## TYPICAL FLASHING DETAIL FOR ROOF CURB

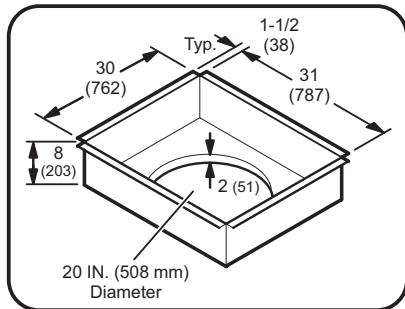


## DETAIL ROOF CURB

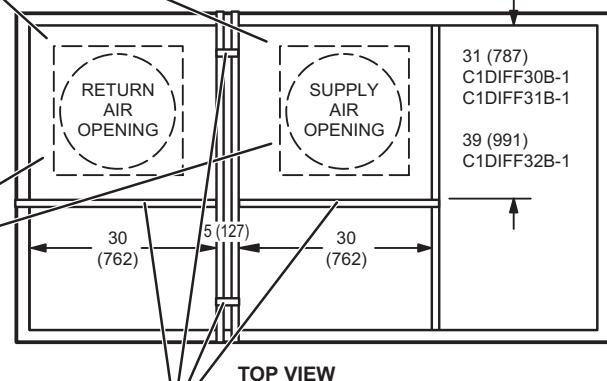
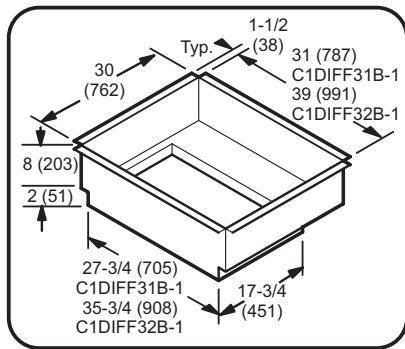


## ROOF CURBS WITH SUPPLY &amp; RETURN AIR TRANSITIONS FOR CEILING DIFFUSERS

**C1DIFF30B-1 ROUND TRANSITIONS**  
(for 092 models)



**C1DIFF31B-1 & C1DIFF32B-1 RECTANGULAR TRANSITIONS**  
(for 102 thru 150 models)



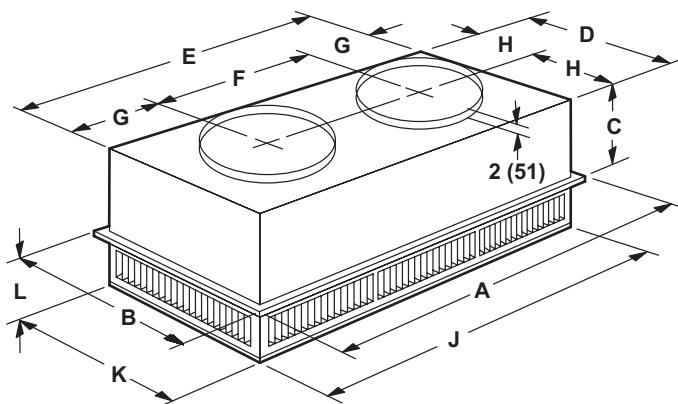
NOTE - These four supports are furnished with the transitions to replace supports furnished with curb for proper transition spacing.

## DIMENSIONS

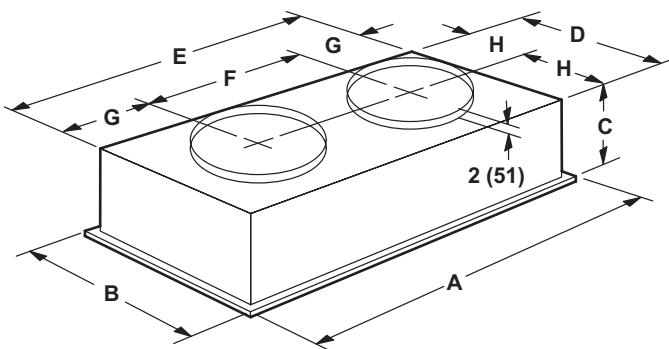
## ACCESSORIES

### COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

#### STEP-DOWN CEILING DIFFUSER



#### FLUSH CEILING DIFFUSER



Model Number		RTD11-95S	
<b>A</b>	in.	47-5/8	
	mm	1159	
<b>B</b>	in.	29-5/8	
	mm	752	
<b>C</b>	in.	14-3/8	
	mm	365	
<b>D</b>	in.	27-1/2	
	mm	699	
<b>E</b>	in.	45-1/2	
	mm	1158	
<b>F</b>	in.	22-1/2	
	mm	572	
<b>G</b>	in.	11-1/2	
	mm	292	
<b>H</b>	in.	13-3/4	
	mm	349	
<b>J</b>	in.	45-1/2	
	mm	1156	
<b>K</b>	in.	27-1/2	
	mm	699	
<b>L</b>	in.	8-1/8	
	mm	206	
<b>Duct Size</b>	in.	20 round	
	mm	508 round	

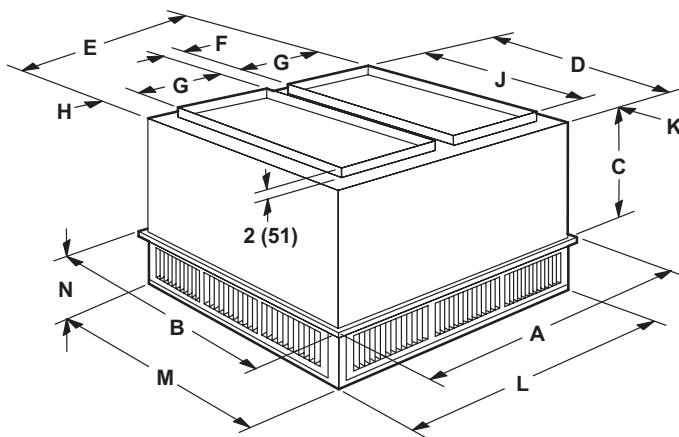
Model Number		FD11-95S	
<b>A</b>	in.	47-5/8	
	mm	1159	
<b>B</b>	in.	29-5/8	
	mm	752	
<b>C</b>	in.	16-5/8	
	mm	422	
<b>D</b>	in.	27	
	mm	686	
<b>E</b>	in.	45	
	mm	1143	
<b>F</b>	in.	22-1/2	
	mm	572	
<b>G</b>	in.	11-1/4	
	mm	286	
<b>H</b>	in.	13-1/2	
	mm	343	
<b>Duct Size</b>	in.	20 round	
	mm	508 round	

## DIMENSIONS

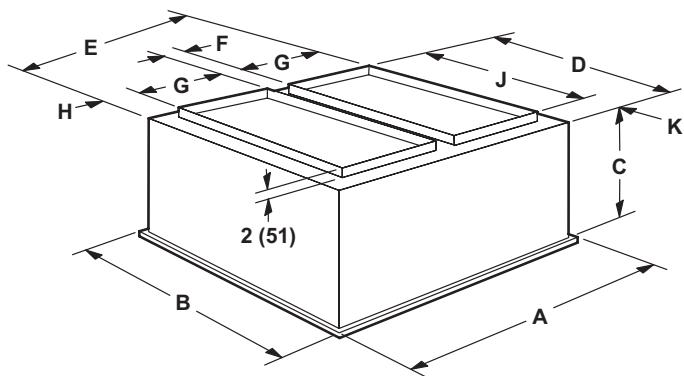
## ACCESSORIES

### COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

#### STEP-DOWN CEILING DIFFUSER



#### FLUSH CEILING DIFFUSER



Model Number		RTD11-135S	RTD11-185S
A	in.	47-5/8	47-5/8
	mm	1210	1210
B	in.	35-5/8	47-5/8
	mm	905	1210
C	in.	20-5/8	24-5/8
	mm	524	625
D	in.	33-1/2	45-1/2
	mm	851	1156
E	in.	45-1/2	45-1/2
	mm	1156	1156
F	in.	4-1/2	4-1/2
	mm	114	114
G	in.	18	18
	mm	457	457
H	in.	2-1/2	2-1/2
	mm	64	64
J	in.	28	36
	mm	711	914
K	in.	2-3/4	4-3/4
	mm	70	121
L	in.	45-1/2	45-1/2
	mm	1156	1156
M	in.	33-1/2	45-1/2
	mm	851	1156
N	in.	9-1/8	10-1/8
	mm	232	257
Duct Size	in.	18 x 28	18 x 36
	mm	457 x 711	457 x 914

Model Number		FD11-135S	FD11-185S
A	in.	47-5/8	47-5/8
	mm	1210	1210
B	in.	35-5/8	47-5/8
	mm	905	1210
C	in.	23-1/4	29-1/4
	mm	591	743
D	in.	33	45
	mm	838	1143
E	in.	45	45
	mm	1143	1143
F	in.	4-1/2	4-1/2
	mm	114	114
G	in.	18	18
	mm	457	457
H	in.	2-1/4	2-1/4
	mm	57	57
J	in.	28	36
	mm	711	914
K	in.	2-1/2	4-1/2
	mm	64	114
Duct Size	in.	18 x 28	18 x 36
	mm	457 x 711	457 x 914

## REVISIONS

Section	Description
Options/Accessories	Combination Coil/Hail Guards - catalog number change.



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Improper installation, adjustment, alteration, service or maintenance can cause property damage or personal injury.  
Installation and service must be performed by a qualified installer and servicing agency.

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