

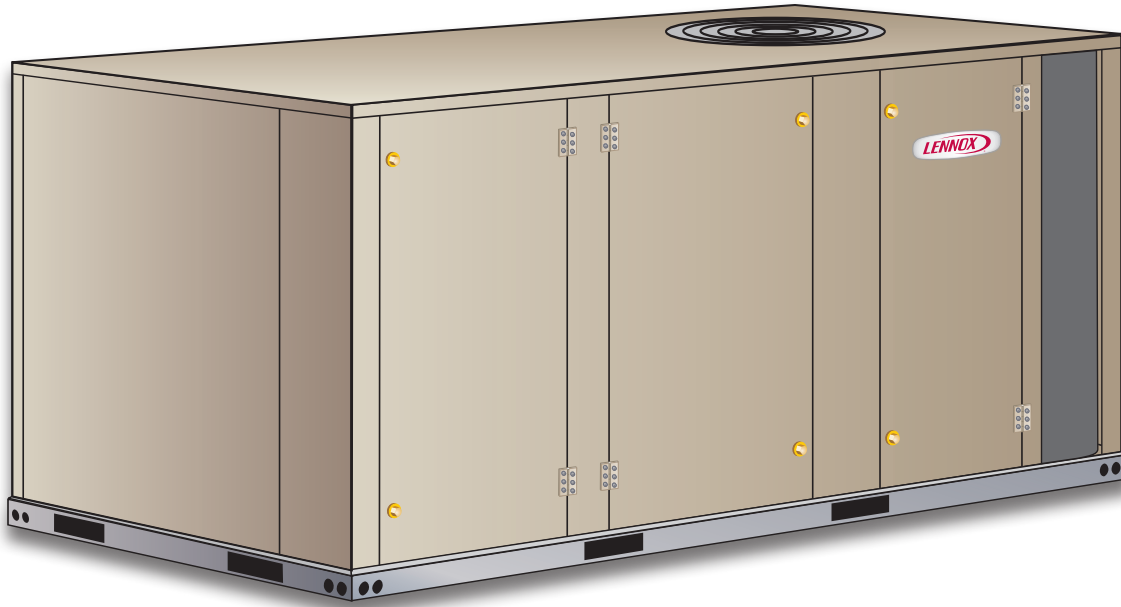


**KHA072**

Landmark® Rooftop Units  
Standard Efficiency - 50 Hz

Bulletin No. 490187  
May 2022  
Supersedes March 2021

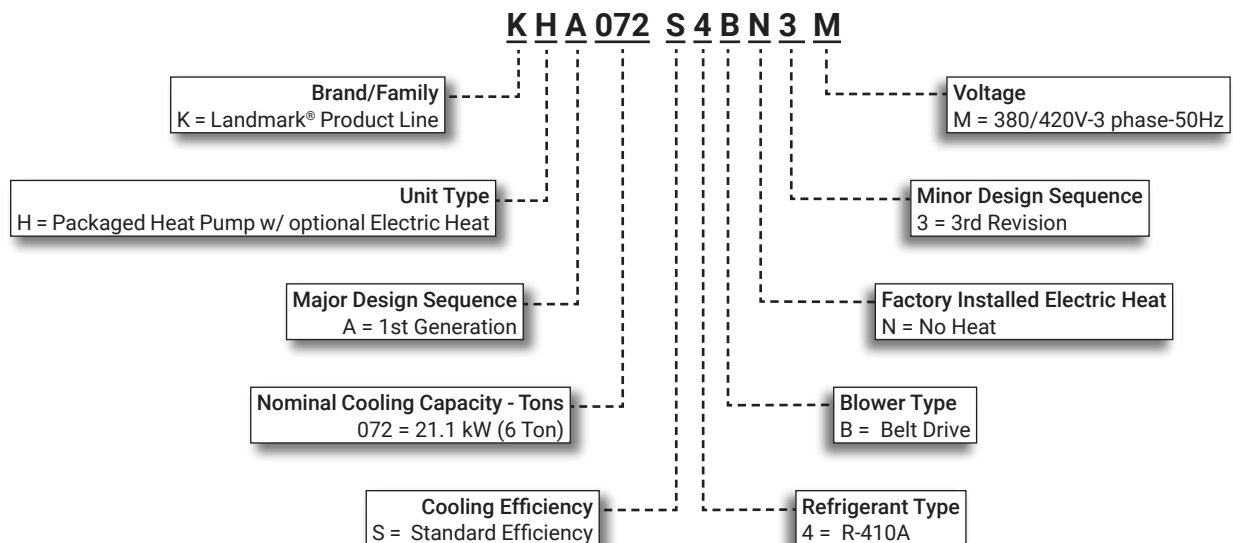
**COMMERCIAL  
PRODUCT SPECIFICATIONS**



**LANDMARK®**  
Performance Marked by Flexibility™

**21 kW (6 Tons)**  
**Net Cooling Capacity - 9.0 to 17.4 kW (30 600 to 59 300 Btuh)**  
**Net Heating Capacity - 9.6 to 18.4 kW (32 700 to 63 000 Btuh)**  
**Optional Electric Heat - 5.7 to 23 kW**

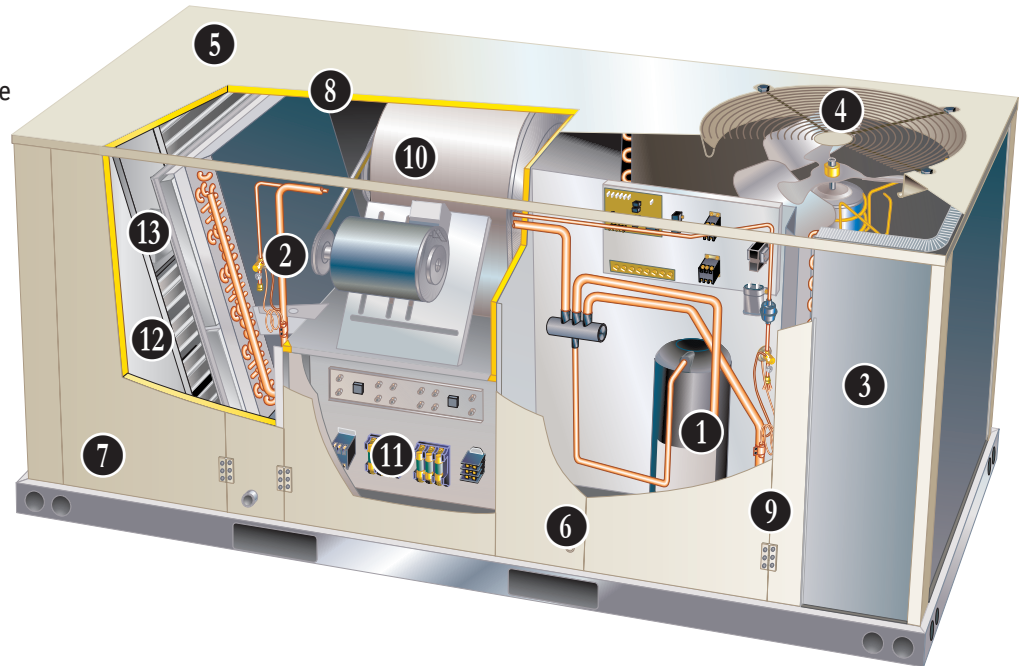
**MODEL NUMBER IDENTIFICATION**



## FEATURE HIGHLIGHTS

Landmark® rooftop units from Lennox are the new standard for reliable, efficient rooftop units built for long-lasting performance that can significantly improve indoor environments.

1. Single Speed Scroll Compressor
2. Check/Thermal Expansion Valve
3. Coil Construction
4. Outdoor Coil Fan Motor
5. Construction
6. Power Entry
7. Exterior Panels
8. Insulation
9. Hinged Access Panels (option)
10. Blower
11. Electric Heat (option)
12. Economizer (option)
13. Power Exhaust Fan (option)



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## PERFORMANCE/QUALITY AND CE MARK OPTION

### PERFORMANCE

- Components bonded for grounding to meet safety standards for servicing required by Underwriters Laboratories (UL) and the International Electrotechnical Commission (IEC)
- Cooling performance is rated at test conditions included in Air-Conditioning, Heating and Refrigeration Institute (AHRI) Standard 340/360-2007 while operating at rated voltage and air volumes
- International Organization for Standardization (ISO) 9001 Registered Manufacturing Quality System

### CE MARK OPTION

- The CE mark has been added to our rooftop product line as a configure to order (CTO) option. This optional construction allows units to be sold into countries requiring CE marking for rooftop products
- CE marked units meet the requirements of the Machinery Directive 2006/42/EC, Low Voltage Directive 73/23/EEC, EMC Directive 89/336/EEC, and Gas Directive 90/396/EEC. Declaration of conformity certificates will be provided for each CE marked unit on demand
- Key features of this over and above standard product features are:
  - Touch-proof electrical components meeting the requirements of EN 60529
  - Branch circuits over 0.5 kW load have overcurrent protection
  - Rotary style/finger safe disconnect switch with locking handle prevents disconnect door from being opened with the power on. Padlock can be applied to lock the disconnect switch in the OFF position
  - The factory wiring has been redesigned for separation of high and low voltage circuits



## FEATURES AND BENEFITS

### COOLING SYSTEM

- Designed to maximize sensible and latent cooling performance at design conditions
- System can operate from -1°C to 52°C without any additional controls

#### R-410A Refrigerant

- Non-chlorine
- Ozone friendly

#### 1 Single Speed Scroll Compressor

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

#### Compressor Crankcase Heater

- Protects against refrigerant migration that can occur during low ambient operation

#### 2 Check/Thermal Expansion Valve

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

#### High Pressure Switch

- Protects the system from high pressure conditions

#### Reversing Valves

- 4-way interchange reversing valve effects a rapid change in direction of refrigerant flow resulting in quick changeover from cooling to heating and vice versa

#### Defrost Control

- Control furnished as standard
- Gives a demand defrost cycle whenever system heating performance falls below optimum levels

- Sensing element on coil determines when defrost cycle is required and when to terminate cycle
- Anti-short cycle (5 minutes) incorporated into the board
- Diagnostic LEDs furnished as an aid in troubleshooting

#### Filter/Drier

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

#### Freezestat

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

#### 3 Coil Construction

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

#### Indoor Coil

- Cross row circuiting
- Rifled copper tubing optimizes both sensible and latent cooling capacity

#### Condensate Drain Pan

- Plastic pan, sloped to meet drainage requirements of American Society of Heating Refrigeration and Air Conditioning Engineers 62.1
- Side or bottom drain connections.
- Reversible to allow connection at back of unit

## FEATURES AND BENEFITS

### **COOLING SYSTEM (continued)**

- 4 Outdoor Coil Fan Motor**
- Thermal overload protected
  - Totally enclosed
  - Permanently lubricated sleeve bearing (standard efficiency)
  - Permanently lubricated ball bearings (high efficiency)
  - Shaft up
  - Wire basket mount

#### **Outdoor Coil Fan**

- Polyvinyl chloride (PVC) coated fan guard furnished

### **Required Selections**

#### **Cooling Capacity**

- Specify nominal cooling capacity

### **Options / Accessories**

#### **Field Installed**

##### **Condensate Drain Trap**

- Field installed only
- Available in copper or polyvinyl chloride (PVC)

##### **Drain Pan Overflow Switch**

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

##### **Low Ambient Kit**

- Cycles the outdoor fan while allowing compressor operation in the cooling cycle
- This intermittent fan operation allows the system to operate without icing the evaporator coil and losing capacity
- Designed for use in ambient temperatures no lower than -18°C

### **CABINET**

**5 Construction**

- Heavy-gauge steel panels
- Two-layer enamel paint finish
- Full perimeter heavy-gauge galvanized steel base rail
- Base rails have rigging holes
- Three sides of the base rail have fork 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
- Can be field converted to horizontal air flow configuration without the need of a kit

**6 Power Entry**

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

**7 Exterior Panels**

- Constructed of heavy-gauge, galvanized steel with a two-layer enamel paint finish

**8 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

#### **Access Panels**

- Economizer/Filter section
- Heating/Blower section
- Compressor/Controls section

**NOTE** - Include a filler panel for proper cabinet fit for optional accessories (Economizers, Power Exhaust, Outdoor Air Dampers and Barometric Relief Dampers).

### **Options / Accessories**

#### **Factory Installed**

##### **Corrosion Protection**

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

**9 Hinged Access Panels**

- Economizer/Filter section
- Heating/Blower section
- Compressor/Controls section
- Panels seal and slotted, 29 mm hex bolt quarter-turn latches provide a tight air and water seal

#### **Field Installed**

##### **Combination Coil/Hail Guards**

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

## FEATURES AND BENEFITS

### CONTROLS

#### Unit Control

- All control voltage is provided via a 24V (secondary) transformer with built-in circuit breaker protection
- Up to 2 heat / 2 cool staging with a third party DDC control system or thermostat
- Low voltage terminal block provides screw terminal connections for thermostat or controller wiring
- Night Setback Mode saves energy by closing outdoor air dampers and operating supply fan on thermostat demand only

### Options / Accessories

#### Field Installed

##### 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

##### Thermostats

- Control system and thermostat options, see page 27
- Aftermarket unit controller options, see Options/ Accessories table

### BLOWER

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

#### Motor

- Overload protected
- Ball bearings
- Two-Speed belt drive motors (low static/high static) are available on all model in several different sizes to maximize air performance

#### Supply Air Blower

- Forward curved blades
- Blower wheel is statically and dynamically balanced
- Belt drive motors have adjustable pulley for speed change

#### Ordering Information

- Specify drive kit number when base unit is ordered

### Required Selections

- Order belt drive blower. (See Blower Data Table for specifications)
- Order drive kit, see Drive Kit Specifications Table

### INDOOR AIR QUALITY

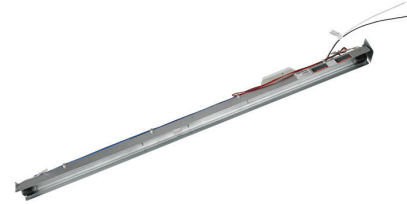
#### Air Filters

- Disposable 51 mm filters furnished as standard

### Options / Accessories

#### 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)
- Field installed in the blower/evaporator coil section
- Magnetic safety interlock terminates power when access panels are removed
- All necessary hardware for installation is included
- Lamps operate on 220V-1ph power supply

**NOTE** - Step-down transformer must be field supplied for field installation for 380/420V primary to 220V secondary.

### ELECTRICAL

#### Marked & Color-Coded Wiring

- All electrical wiring is color-coded and marked to identify which components it is connecting

#### Electrical Plugs

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

### Required Selections

#### Voltage Choice

- Specify when ordering base unit

### Options / Accessories

#### Field Installed

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

## OPTIONS / ACCESSORIES

### ECONOMIZER

#### Factory or Field Installed

#### 12 Standard Economizer

##### **NOTE - Factory Installed Economizer Includes -**

Barometric Relief Dampers, Combination Outdoor Air/Exhaust Hood and Harness.

##### **Field Installed Economizer Does Not Include -**

Barometric Relief Dampers, Combination Outdoor Air/Exhaust Hood and Harness, these must be ordered separately.

• Factory installed Economizer can be ordered with two exhaust options:

- Barometric Relief Dampers
- No Exhaust

##### **Features:**

- Gear-driven action
- Return air and outdoor air dampers
- Plug-in connections to unit
- Neoprene seals
- 24-volt, fully-modulating spring return motor
- Occupied/Unoccupied mode with field furnished setback thermostat
- Demand Control Ventilation (DCV) ready using optional CO<sub>2</sub> sensors
- Mixed Air Sensor is furnished for field installation in the rooftop unit

**NOTE** - Mixed Air Sensor is factory installed when Economizer is factory installed.

- Single sensible sensor is furnished with Economizer and enables economizer operation if the outdoor temperature is less than the setpoint of the control
- Barometric Relief Dampers allow relief of excess air, dampers prevent blow back and outdoor air infiltration during off cycle, bird screen furnished

**NOTE** - Barometric Relief Dampers are required when Economizer is factory installed with field installed Power Exhaust Fan option. See Power Exhaust Fan section and Options/Accessories table.

**NOTE** - Horizontal Barometric Dampers are required for horizontal Economizer applications and must be ordered separately.

#### **Standard Economizer Control Module**

• Standard Economizer Control Module can be adjusted to operate based on outdoor air temperatures

##### **Economizer Controls:**

- **Damper Minimum Position**  
Can be set lower than traditional minimum air requirements resulting in cost savings
- **IAQ Sensor** - Signals dampers to modulate and maintain 13°C when CO<sub>2</sub> is higher than the CO<sub>2</sub> setpoint



• **Demand Control Ventilation (DCV) LED** - A steady green Demand Control Ventilation LED indicates the IAQ reading is higher than setpoint and requires more fresh air

• **Free Cool LED** - A steady green LED indicates outdoor air is suitable for free cooling

- Free Cooling runs when outdoor air temperature is lower than the set temperature on the economizer control

**NOTE:** The Free Cooling default setting for outdoor air temperature sensor is 13°C.

#### **High Performance Economizer Features**

##### **Features:**

- Gear-driven action
- High torque 24-volt fully-modulating spring return damper motor
- Return air and outdoor air dampers
- Plug-in connections to unit
- Nylon bearings
- Enhanced thermoplastic vulcanizate (TPV) seals
- Flexible stainless steel jamb seals
- Combination Outdoor Air/Exhaust Hood is furnished
- Field installed Economizer includes Barometric Relief Dampers with Combination Outdoor Air/Exhaust Hood
- Occupied/Unoccupied mode with field furnished setback thermostat
- Demand Control Ventilation (DCV) ready using optional CO<sub>2</sub> sensors
- Mixed Air Sensor is furnished for field installation in the rooftop unit

**NOTE** - Mixed Air Sensor is factory installed when Economizer is factory installed.

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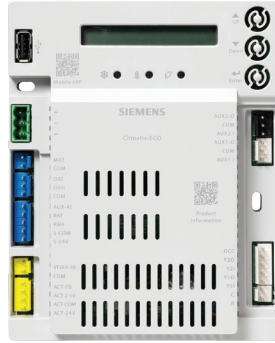
**NOTE** - Horizontal Barometric Dampers are required for horizontal Economizer applications and must be ordered separately.



### **ECONOMIZER (continued)**

#### High Performance Economizer Control Module

- Provides inputs and outputs to control economizer based on parameter settings
- Free cooling based on single dry bulb temperature, or combination temperature + humidity sensors
- Automatic switchover for different control modes
- Parameter settings based on climate zone, using GPS functionality in the Climatix Mobile application
- LED indication for free cooling operation, sensor operation and damper operation
- Quick installation and easy commissioning with the **Climatix Mobile App** on a mobile device



**NOTE** - WLAN Stick is required for App connection to module(s).

- Module displays any alarm messages (fault detection and diagnostics) as an aid in troubleshooting
- RS485 port for BACnet MSTP or Modbus RTU communication
- USB port for firmware updates and WLAN connection for setup and commissioning
- QR codes on module for quick access to download Climatix Mobile App and user documentation
- User Interface for normal operation, parameter setup and alarm notifications with an LCD display and three operation buttons:
  1. **Up Button** - Move to the previous value, step or category
  2. **Down Button** - Move to the next value, step or category
  3. **Enter Button** -
    - Press to edit the current value or option
    - Press to confirm a newly selected value or option
    - Press Enter + Up to jump up one category
    - Press Enter + Down to jump down one category

**NOTE** - Refer to Installation Instructions for complete setup information and menu parameters available.

### **Factory or Field Installed**

#### Single Enthalpy Temperature Control

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

#### **Field Installed**

##### Differential Enthalpy Control

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

##### WLAN Stick

- Required for Climatix Mobile App usage
- Plugs into USB port on Module to provide a temporary WLAN connection for setup, commissioning and servicing

**NOTE** - Only one WLAN Stick is required and can be used on multiple modules.

### **EXHAUST**

#### **Field Installed**

- 13 **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 406 mm diameter with 4 fan blades and a 0.25 kW motor

**NOTE** - If Power Exhaust is field installed with a factory installed Economizer, the Economizer must be ordered with the "No Exhaust" option and the Barometric Relief Dampers with Exhaust Hood must also be ordered separately for field installation.

## OPTIONS / ACCESSORIES

### **OUTDOOR AIR**

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

##### **Outdoor Air Dampers - Downflow or Horizontal**

- Single blade damper
- 0 to 25% (fixed) outdoor air adjustable
- Installs in unit
- Motorized model features fully modulating spring return damper motor with plug-in connection
- Manual model features a slide damper
- Maximum mixed air temperature in cooling mode: 38°C

#### **ROOF CURBS**

- Nailer strip furnished
- 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 203, 356, 457, and 610 mm heights

**NOTE** - 072 models can be used on smaller 2026 mm Hybrid Roof Curbs (not full perimeter) with 400 mm overhang at condenser end of unit. See dimension drawing on page 25.

#### **Adjustable Pitch Curb**

- Downflow
- 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 356 mm 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



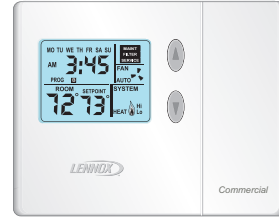
## OPTIONAL CONVENTIONAL TEMPERATURE CONTROL SYSTEMS

### ComfortSense® 7500 Commercial 7-Day Programmable Thermostat



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

### ComfortSense® 3000 Commercial 5-2 Day Programmable Thermostat



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

### BACnet Compatible Thermostat With Reheat Function



- 7-Day Programmable
- BTL listed MS/TP ensures compatibility with any BACnet system
- Built-in control programs for conventional and heat pump applications
- Conventional systems up to 3-stage heat and 3-stage cool
- Heat pumps with 1 or 2 compressors and up to 2-stage auxiliary heat
- On-board temperature and humidity sensor
- Multiple configurable inputs and outputs enable advanced control strategies
- Set-up Wizard enables rapid system configuration
- No special tools required for installation or commissioning
- Seven-day (2, 4 or 6 event) occupancy scheduling per day
- Backlit 5-inch LCD touchscreen

| Description  |   | Catalog No.  |
|--|---|--------------|
| <b>ComfortSense® 7500 Commercial 7-Day Programmable Thermostat</b> |   |              |
| CS7500 7-Day Thermostat  |   | <b>17G74</b> |
| Sensors/   | <sup>1</sup> Remote non-adjustable wall-mount 20k | <b>47W36</b> |
| Accessories  | <sup>1</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>ComfortSense® 3000 5-2 Day Programmable</b>                     |   |              |
| CS3000 5-2 Day Thermostat  |   | <b>11Y05</b> |
| Sensor/  | Remote non-adjustable wall mount 10k averaging    | <b>47W37</b> |
| Accessories  | Thermostat wall mounting plate                    | <b>X2659</b> |
| BACnet   | <sup>2</sup> 7-Day BACnet Thermostat              | <b>Y8241</b> |
| Controls   | <sup>3</sup> BACnet Module (factory or field)     | <b>16X70</b> |
| <sup>4</sup> BACnet  | With Display                                      | <b>97W23</b> |
| Room Sensors   | Without Display                                   | <b>97W24</b> |
| <b>Universal Thermostat Guard with Lock (clear)</b>                |   |              |
|  | Inside Dimensions (H x W) 5 7/8 x 8 3/8 in.       | <b>39P21</b> |

<sup>1</sup> 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

<sup>2</sup> BACnet Thermostat (Y8241) will control units with and without the Humiditrol® option. If there is a mix of units equipped with and without Humiditrol on the same site, this thermostat can be used for all units if suitable.

<sup>3</sup> Not compatible with units equipped with Humiditrol® option.

<sup>4</sup> Only compatible with BACnet Module (16X70).

## OPTIONS / ACCESSORIES

| Item  | Model No.                               | Catalog No.  | Unit Model Number<br>KHA072 |
|---|---|--------------|-----------------------------|
| <b>CE MARK</b>  |   |              |                             |
| CE Marked Unit  |   |              | O                           |
| <b>COOLING SYSTEM</b>   |   |              |                             |
| Condensate Drain Trap   | Polyvinyl Chloride (PVC)                | <b>22H54</b> | X                           |
|   | Copper                                  | <b>76W27</b> | X                           |
| Drain Pan Overflow Switch   |   | <b>74W42</b> | X                           |
| Low Ambient Kit   |   | <b>14D96</b> | X                           |
| Efficiency  |   | Standard     | O                           |
| Refrigerant Type  |   | R-410A       | O                           |
| <b>BLOWER - SUPPLY AIR</b>  |   |              |                             |
| Motor   | Belt Drive - 1.5 kW Standard Efficiency |              | O                           |
| Drive Kits  | Kit A04 - 807 - 1117 rev/min            |              | O                           |
| See Blower Data Tables for selection  | Kit A08 - 994 - 1326 rev/min            |              | O                           |
|   | Kit A09 - 1193 - 1524 rev/min           |              | O                           |
| <b>CABINET</b>  |   |              |                             |
| Combination Coil Hail Guards  |   | <b>13T17</b> | X                           |
| Corrosion Protection  |   |              | O                           |
| Hinged Access Panels  |   |              | O                           |
| <b>CONTROLS</b>   |   |              |                             |
| <b>NOTE - Also see Conventional Thermostat Control Systems on page 9 for Additional Options.</b>  |   |              |                             |
| Smoke Detector - Supply or Return (Power board and one sensor)  |   | <b>21Z11</b> | X                           |
| Smoke Detector - Supply and Return (Power board and two sensors)  |   | <b>21Z12</b> | X                           |
| <b>ECONOMIZER</b>   |   |              |                             |
| <b>Standard Economizer With Outdoor Air Hood (Sensible Control)</b>   |   |              |                             |
| Standard Economizer   |   | <b>23T20</b> | OX                          |
| Factory Installed Economizer - Includes Barometric Relief Dampers, Combination Outdoor Air/Exhaust Hood and Harness   |   |              |                             |
| Field Installed Economizer - Barometric Relief Dampers, Combination Outdoor Air/Exhaust Hood and Harness are not furnished and must be ordered separately (see below) |   |              |                             |
| Barometric Relief Dampers, Combination Hood and Harness for Field Installed Economizer  |   | <b>23B17</b> | X                           |
| Economizer - No Exhaust   |   | Factory      | O                           |
| <b>Standard Economizer Controls</b>   |   |              |                             |
| Single Enthalpy Control   |   | <b>21Z09</b> | OX                          |
| Differential Enthalpy Control (order 2)   |   | <b>21Z09</b> | X                           |
| <b>High Performance Economizer With Outdoor Air Hood (Sensible Control)</b>   |   |              |                             |
| High Performance Economizer - Includes Barometric Relief Dampers and Exhaust Hood   |   | <b>20H49</b> | OX                          |
| High Performance Economizer - No Exhaust  |   | Factory      | O                           |
| <b>High Performance Economizer Controls</b>   |   |              |                             |
| Single Enthalpy Control   |   | <b>10Z75</b> | OX                          |
| Differential Enthalpy Control (order 2)   |   | <b>10Z75</b> | X                           |
| <b>Economizer Accessories</b>   |   |              |                             |
| Horizontal Economizer Conversion Kit  |   | <b>17W45</b> | X                           |
| <b>OUTDOOR AIR</b>  |   |              |                             |
| <b>Outdoor Air Dampers - Includes Outdoor Air Hood</b>  |   |              |                             |
| Manual  |   | <b>15D18</b> | OX                          |
| Motorized   |   | <b>15D17</b> | OX                          |
| <b>POWER EXHAUST FAN</b>  |   |              |                             |
| Standard Static   | 380/420V-3ph                            | <b>21Z16</b> | X                           |
| <i>NOTE - Order Barometric Relief Dampers with Exhaust Hood below if unit is ordered with factory installed Economizer with "No Exhaust" option</i>                   |   |              |                             |

NOTE - The catalog and model numbers that appear here are for ordering field installed accessories only.

OX - Field Installed or Configure to Order (Factory installed)

O - Configure to Order (Factory Installed)

X - Field Installed.

## OPTIONS / ACCESSORIES

| Item  | Model No.                               | Catalog No.        | Unit Model Number<br>KHA072 |
|---|---|--------------------|-----------------------------|
| <b><sup>1</sup> BAROMETRIC RELIEF</b>   |   |                    |                             |
| Barometric Relief Dampers with Exhaust Hood   |   | <b>74W38</b>       | X                           |
| <sup>1</sup> Required when Economizer is factory installed (no exhaust option) with field installed Power Exhaust Fan option. |   |                    |                             |
| <b>ELECTRICAL</b>   |   |                    |                             |
| Voltage 50 hz with neutral (No neutral on CE marked models)   |   | 380/420V - 3 phase | O                           |
| <b><sup>1</sup> ELECTRIC HEAT</b>   |   |                    |                             |
| 5.7 kW  | K1EH0057AN1M                            | <b>67W92</b>       | X                           |
| 11.5 kW   | K1EH0115AN1M                            | <b>67W93</b>       | X                           |
| 17.2 kW   | K1EH0172AN1M                            | <b>67W94</b>       | X                           |
| 23 kW   | K1EH0230N-1M                            | <b>67W95</b>       | X                           |
| <b>INDOOR AIR QUALITY</b>   |   |                    |                             |
| <b>Air Filters</b>  |   |                    |                             |
| Healthy Climate®  | MERV 8 (406 x 508 x 51) - C1FLTR15A-1-  | <b>54W20</b>       |                             |
| High Efficiency Air Filters   | MERV 13 (406 x 508 x 51) - T1FLTR40A-1- | <b>52W37</b>       |                             |
| Order 4 per unit  | MERV 8 (508 x 508 x 51) - C1FLTR15D-1-  | <b>54W21</b>       | X                           |
|   | MERV 13 (508 x 508 x 51) - C1FLTR40D-1- | <b>52W39</b>       | X                           |
| <b>Indoor Air Quality (CO<sub>2</sub>) Sensors</b>  |   |                    |                             |
| Sensor - Wall-mount, off-white plastic cover with LCD display   | C0SNSR50AE1L                            | <b>77N39</b>       | X                           |
| Sensor - Wall-mount, black plastic case, no display, rated for plenum mounting  | C0SNSR53AE1L                            | <b>87N54</b>       | X                           |
| CO <sub>2</sub> Sensor Duct Mounting Kit - for downflow applications  | C0MISC19AE1-                            | <b>85L43</b>       | X                           |
| Aspiration Box - for duct mounting non-plenum rated CO <sub>2</sub> sensor (77N39)  | C0MISC16AE1-                            | <b>90N43</b>       | X                           |
| <b>UVC Germicidal Lamps</b>   |   |                    |                             |
| <sup>2</sup> Healthy Climate® UVC Light Kit (220V-1ph)  | E1UVCL10AN1-                            | <b>21A92</b>       | X                           |
| <b>ROOF CURBS</b>   |   |                    |                             |
| <b>Hybrid Roof Curbs, Downflow</b>  |   |                    |                             |
| 203 mm height   | C1CURB70A-1                             | <b>11F50</b>       | <sup>2</sup> X              |
| 356 mm height   | C1CURB71A-1                             | <b>11F51</b>       | <sup>2</sup> X              |
| 457 mm height   | C1CURB72A-1                             | <b>11F52</b>       | <sup>2</sup> X              |
| 610 mm height   | C1CURB73A-1                             | <b>11F53</b>       | <sup>2</sup> X              |
| <b>Hybrid Roof Curbs, Full Perimeter, Downflow</b>  |   |                    |                             |
| 203 mm height   | K1CURB70AP1                             | <b>11S47</b>       | X                           |
| 356 mm height   | K1CURB71AP1                             | <b>11S48</b>       | X                           |
| 457 mm height   | K1CURB72AP1                             | <b>11T01</b>       | X                           |
| 610 mm height   | K1CURB73AP1                             | <b>11T06</b>       | X                           |
| <b>Adjustable Pitch Curb, Downflow</b>  |   |                    |                             |
| 356 mm height   | C1CURB55AT1                             | <b>43W27</b>       | <sup>3</sup> X              |
| <b>CEILING DIFFUSERS</b>  |   |                    |                             |
| Step-Down - Order one   | RTD11-95S                               | <b>13K61</b>       | X                           |
| Flush - Order one   | FD11-95S                                | <b>13K56</b>       | X                           |
| Transitions (Supply and Return) - Order one   | T1TRAN20N-1                             | <b>17W54</b>       | X                           |

<sup>1</sup> Nominal kW at 420V-3ph-50hz.

<sup>2</sup> Lamps operate on 110-230V single-phase power supply. Step-down transformer may be ordered separately for 460V and 575V units. Alternately, 110V power supply may be used to directly power the UVC ballast(s).

<sup>3</sup> KHA072 model will fit smaller roof curbs with overhang. See dimension drawing.

NOTE - The catalog and model numbers that appear here are for ordering field installed accessories only.

OX - Field Installed or Configure to Order (Factory installed)

O - Configure to Order (Factory Installed)

X - Field Installed.

## SPECIFICATIONS

|   |   |                        |  |
|---|---|------------------------|--|
| <b>General Data</b>                                     |   | <b>Nominal Size</b>    | <b>21 kW (6 Ton)</b>   |
|   |   | <b>Model No.</b>       | <b>KHA072S4B</b>   |
|   |   | <b>Efficiency Type</b> | <b>Standard</b>  |
|   |   | <b>Blower Type</b>     | Single Speed<br>Belt Drive   |
| <b>Cooling Performance</b>                              | Gross Cooling Capacity - kW (Btuh)            |                        | 18.1 (61 800)  |
|   | <sup>1</sup> Net Cooling Capacity - kW (Btuh) |                        | 17.4 (59 300)  |
|   | AHRI Rated Air Flow - L/s (cfm)               |                        | 970 (2060)   |
|   | <sup>2</sup> Sound Rating Number (dB)         |                        | 83   |
|   | Total Unit Power - kW                         |                        | 5.6  |
|   | <sup>1</sup> EER (Btuh/Watt)                  |                        | 11.0   |
|   | <sup>1</sup> IEER (Btuh/Watt)                 |                        | 12.1   |
| <b>Refrigerant</b>                                      | Type  |                        | R-410A   |
|   | Charge Furnished                              |                        | 9.30 kg<br>(20 lbs. 8 oz.)   |
| <b>Heating Performance</b>                              | Total High Heating Capacity - kW (Btuh)       |                        | 18.4 (63 000)  |
|   | Total Unit Power - kW                         |                        | 5.8  |
|   | <sup>1</sup> COP                              |                        | 3.3  |
|   | Total Low Heating Capacity - kW (Btuh)        |                        | 10.5 (36 000)  |
|   | Total Unit Power - kW                         |                        | 4.7  |
|   | <sup>1</sup> COP                              |                        | 2.25   |
| <b>Electric Heating Options</b>                         |   |                        | See Electric Heat, page 17   |
| <b>Compressor Type (no.)</b>                            |   |                        | Scroll (1)   |
| <b>Outdoor Coil</b>                                     | Net face area - m <sup>2</sup> (sq. ft.)      |                        | 2.6 (28.00)  |
|   | Tube diameter - mm (in.)                      |                        | 9.5 (3/8)  |
|   | Number of rows                                |                        | 2  |
|   | Fins per meter (Fins / inch)                  |                        | 788 (20)   |
| <b>Outdoor Coil Fan</b>                                 | Motor W (HP)                                  |                        | 374 (1/2)  |
|   | Motor rev/min                                 |                        | 900  |
|   | Total motor watts                             |                        | 520  |
|   | Diameter - mm (in.) / No. of blades           |                        | 610 (24) - 4   |
|   | Total air volume - L/s (cfm)                  |                        | 2260 (4780)  |
| <b>Indoor Coil</b>                                      | Net face area - m <sup>2</sup> (sq. ft.)      |                        | 0.90 (9.7)   |
|   | Tube diameter - mm (in.)                      |                        | 9.5 (3/8)  |
|   | Number of rows                                |                        | 4  |
|   | Fins per meter (Fins / inch)                  |                        | 552 (14)   |
|   | Drain Connection (no. and size) - in.         |                        | (1) 1 NPT  |
|   | Expansion device type                         |                        | Balanced Port Thermostatic Expansion Valve, removeable power head              |
| <sup>3</sup> <b>Indoor Blower &amp; Drive Selection</b> | Nominal Motor kW (HP)                         |                        | 1.5 (2)  |
|   | Maximum Usable Motor kW (HP)                  |                        | 1.7 (2.3)  |
|   | Wheel nom. diameter x width - mm (in.)        |                        | 254 x 254 (10 x 10)  |
|   | Drive Kit (rev/min range)                     |                        | A04 - (807 - 1117)<br>A08 - (994-1326)<br>A09 - (1193 - 1524)                  |
| <b>Filters</b>  | Type  |                        | Disposable   |
|   | Number and size - mm (in.)                    |                        | (4) 20 x 20 x 2  |
| <b>Electrical Characteristics - 50 hz</b>               |   |                        | 380/420V - 50 hertz - 3 phase with neutral<br>(No neutral on CE marked models) |

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

<sup>1</sup> Rating test conditions are those included in Air-Conditioning, Heating and Refrigeration Institute (AHRI) Standard '340/360 while operating at rated voltage and air volumes:

**Cooling Ratings** - 35°C (95°F) outdoor air temperature and 27°C (80°F) dry bulb/19°C (67°F) wet bulb entering indoor coil air.

**High Temperature Heating Ratings** - 8°C (47°F) dry bulb/6°C (43°F) wet bulb outdoor air temperature and 21°C (70°F) entering indoor coil air.

**Low Temperature Heating Ratings** - -8°C (17°F) dry bulb/-9°C (15°F) wet bulb outdoor air temperature and 21°C (70°F) entering indoor coil air.

<sup>2</sup> Sound Rating Number rated in accordance with test conditions included in AHRI Standard 270.

<sup>3</sup> Using total air volume and system static pressure requirements determine from blower performance tables rev/min and motor size required. Maximum usable size of motors furnished is shown. If motors of comparable size are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

## COOLING / HEATING RATINGS

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

### 21 KW - KHA072S4 - COOLING CAPACITY

| Entering Wet Bulb Temperature | Total Air Volume | Outdoor Air Temperature Entering Outdoor Coil |                   |                               |      |      |                 |                   |                               |      |      |                 |                   |                               |      |      |                 |                   |                               |      |      |
|-------------------------------|------------------|---|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|
|                               |                  | 26.7°C  |                   |                               |      |      | 35°C            |                   |                               |      |      | 43.3°C          |                   |                               |      |      | 46°C            |                   |                               |      |      |
|                               |                  | 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                      |      |      |
| L/s                           | kW               | kW  | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C |      |
| 17.2°C                        | 905              | 18.5  | 3.55              | 0.72                          | 0.9  | 1    | 16.7            | 4.16              | 0.74                          | 0.95 | 1    | 14.7            | 4.88              | 0.77                          | 1    | 1    | 14.1            | 5.14              | 0.82                          | 1    | 1    |
|                               | 1135             | 19.5  | 3.56              | 0.78                          | 1    | 1    | 17.8            | 4.16              | 0.81                          | 1    | 1    | 15.9            | 4.88              | 0.87                          | 1    | 1    | 15.3            | 5.15              | 0.92                          | 1    | 1    |
|                               | 1360             | 20.6  | 3.56              | 0.86                          | 1    | 1    | 18.9            | 4.17              | 0.9                           | 1    | 1    | 16.9            | 4.89              | 0.97                          | 1    | 1    | 16.2            | 5.14              | 0.99                          | 1    | 1    |
| 19.4°C                        | 905              | 19.8  | 3.56              | 0.55                          | 0.7  | 0.85 | 17.9            | 4.16              | 0.56                          | 0.72 | 0.9  | 15.8            | 4.89              | 0.57                          | 0.75 | 0.97 | 15.0            | 5.15              | 0.59                          | 0.80 | 0.99 |
|                               | 1135             | 20.7  | 3.56              | 0.6                           | 0.76 | 0.96 | 18.7            | 4.16              | 0.6                           | 0.78 | 1    | 16.5            | 4.89              | 0.62                          | 0.84 | 1    | 15.8            | 5.14              | 0.65                          | 0.89 | 1    |
|                               | 1360             | 21.4  | 3.57              | 0.63                          | 0.83 | 1    | 19.4            | 4.16              | 0.64                          | 0.88 | 1    | 17.1            | 4.89              | 0.67                          | 0.94 | 1    | 16.4            | 5.14              | 0.71                          | 0.97 | 1    |
| 21.7°C                        | 905              | 21.1  | 3.56              | 0.41                          | 0.54 | 0.68 | 19.1            | 4.16              | 0.4                           | 0.55 | 0.7  | 17              | 4.89              | 0.38                          | 0.56 | 0.72 | 16.2            | 5.14              | 0.39                          | 0.59 | 0.77 |
|                               | 1135             | 22.1  | 3.57              | 0.43                          | 0.59 | 0.74 | 20              | 4.17              | 0.42                          | 0.6  | 0.77 | 17.7            | 4.89              | 0.41                          | 0.61 | 0.81 | 17.0            | 5.14              | 0.42                          | 0.64 | 0.87 |
|                               | 1360             | 22.8  | 3.57              | 0.45                          | 0.63 | 0.81 | 20.7            | 4.17              | 0.44                          | 0.64 | 0.85 | 18.3            | 4.89              | 0.44                          | 0.67 | 0.91 | 17.5            | 5.15              | 0.45                          | 0.71 | 0.95 |

| Entering Wet Bulb Temperature | Total Air Volume | Outdoor Air Temperature Entering Outdoor Coil |                   |                               |      |      |                 |                   |                               |      |      |                 |                   |                               |      |      |  |  |  |
|-------------------------------|------------------|---|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|--|--|--|
|                               |                  | 48°C  |                   |                               |      |      | 50°C            |                   |                               |      |      | 51.7°C          |                   |                               |      |      |  |  |  |
|                               |                  | 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                      |      |      |  |  |  |
| L/s                           | kW               | kW  | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C |      |  |  |  |
| 17.2°C                        | 905              | 13.6  | 5.35              | 0.84                          | 1    | 1    | 13.1            | 5.57              | 0.85                          | 1    | 1    | 12.7            | 5.76              | 0.83                          | 1    | 1    |  |  |  |
|                               | 1135             | 14.8  | 5.35              | 0.93                          | 1    | 1    | 14.2            | 5.57              | 0.95                          | 1    | 1    | 13.8            | 5.76              | 0.96                          | 1    | 1    |  |  |  |
|                               | 1360             | 15.7  | 5.35              | 1                             | 1    | 1    | 15.2            | 5.57              | 1                             | 1    | 1    | 14.7            | 5.76              | 1                             | 1    | 1    |  |  |  |
| 19.4°C                        | 905              | 14.4  | 5.35              | 0.59                          | 0.81 | 1    | 13.8            | 5.56              | 0.60                          | 0.82 | 1    | 13.4            | 5.76              | 0.58                          | 0.8  | 1    |  |  |  |
|                               | 1135             | 15.2  | 5.35              | 0.66                          | 0.91 | 1    | 14.6            | 5.56              | 0.67                          | 0.92 | 1    | 14.1            | 5.76              | 0.65                          | 0.92 | 1    |  |  |  |
|                               | 1360             | 15.7  | 5.35              | 0.72                          | 0.99 | 1    | 15.2            | 5.57              | 0.73                          | 1    | 1    | 14.7            | 5.76              | 0.7                           | 1    | 1    |  |  |  |
| 21.7°C                        | 905              | 15.6  | 5.35              | 0.39                          | 0.59 | 0.78 | 15.0            | 5.56              | 0.38                          | 0.59 | 0.80 | 14.5            | 5.76              | 0.37                          | 0.57 | 0.77 |  |  |  |
|                               | 1135             | 16.4  | 5.35              | 0.42                          | 0.65 | 0.88 | 15.7            | 5.57              | 0.42                          | 0.66 | 0.90 | 15.2            | 5.76              | 0.41                          | 0.64 | 0.89 |  |  |  |
|                               | 1360             | 16.8  | 5.35              | 0.45                          | 0.72 | 0.97 | 16.2            | 5.57              | 0.45                          | 0.73 | 0.98 | 15.6            | 5.76              | 0.44                          | 0.7  | 0.99 |  |  |  |

### 21 KW - KHA072S4 - HEATING CAPACITY

| Indoor Coil Air Volume<br>21°C<br>Dry Bulb | Air Temperature Entering Outdoor Coil |                   |                        |                   |                        |                   |                        |                   |                        |                   |
|--|---------------------------------------|-------------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------|
|  | 18°C                                  |                   | 7°C                    |                   | -4°C                   |                   | -15°C                  |                   | -28°C                  |                   |
|  | Total Heating Capacity                | Comp. Motor Input | Total Heating Capacity | Comp. Motor Input | Total Heating Capacity | Comp. Motor Input | Total Heating Capacity | Comp. Motor Input | Total Heating Capacity | Comp. Motor Input |
| L/s  | kW                                    | kW                | kW                     | kW                | kW                     | kW                | kW                     | kW                | kW                     | kW                |
| 906  | 22.9                                  | 4.65              | 17.4                   | 4.14              | 11.9                   | 3.59              | 7.3                    | 3.22              | 3.5                    | 2.43              |
| 1133                                       | 23.5                                  | 4.42              | 18.1                   | 3.91              | 12.5                   | 3.37              | 7.9                    | 3.00              | 4.1                    | 2.21              |
| 1359                                       | 24.0                                  | 4.28              | 18.5                   | 3.78              | 13.0                   | 3.23              | 8.4                    | 2.86              | 4.6                    | 2.07              |

**BLOWER DATA - BELT DRIVE**

**DOWNFLOW**

**BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.**

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (heat section, economizer, etc.).

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.).

See page 16 for blower motors and drives and wet coil and options/accessory air resistance data.

| Air Volume |      | External Static - Pa (in. w.g.) |      |           |         |           |      |            |      |            |         |            |      |            |      |            |         |      |      |      |      |      |      |      |      |
|------------|------|---------------------------------|------|-----------|---------|-----------|------|------------|------|------------|---------|------------|------|------------|------|------------|---------|------|------|------|------|------|------|------|------|
|            |      | 25 (0.10)                       |      | 50 (0.20) |         | 75 (0.30) |      | 100 (0.40) |      | 125 (0.50) |         | 150 (0.60) |      | 175 (0.70) |      | 200 (0.80) |         |      |      |      |      |      |      |      |      |
| L/s        | cfm  | Rev/min                         | kW   | BHP       | Rev/min | kW        | BHP  | Rev/min    | kW   | BHP        | Rev/min | kW         | BHP  | Rev/min    | kW   | BHP        | Rev/min | kW   | BHP  |      |      |      |      |      |      |
| 897        | 1900 | 826                             | 0.27 | 0.36      | 859     | 0.31      | 0.41 | 894        | 0.34 | 0.45       | 928     | 0.37       | 0.50 | 964        | 0.42 | 0.56       | 1000    | 0.46 | 0.61 | 1036 | 0.49 | 0.66 | 1072 | 0.52 | 0.70 |
| 944        | 2000 | 857                             | 0.31 | 0.42      | 889     | 0.35      | 0.47 | 920        | 0.39 | 0.52       | 952     | 0.43       | 0.57 | 986        | 0.46 | 0.62       | 1020    | 0.51 | 0.68 | 1055 | 0.54 | 0.73 | 1091 | 0.57 | 0.77 |
| 991        | 2100 | 878                             | 0.37 | 0.49      | 909     | 0.40      | 0.54 | 940        | 0.44 | 0.59       | 973     | 0.48       | 0.64 | 1006       | 0.52 | 0.70       | 1041    | 0.56 | 0.75 | 1076 | 0.60 | 0.80 | 1112 | 0.63 | 0.85 |
| 1038       | 2200 | 897                             | 0.41 | 0.55      | 929     | 0.46      | 0.61 | 961        | 0.49 | 0.66       | 994     | 0.54       | 0.72 | 1028       | 0.58 | 0.78       | 1063    | 0.62 | 0.83 | 1099 | 0.66 | 0.89 | 1134 | 0.69 | 0.93 |
| 1085       | 2300 | 918                             | 0.46 | 0.62      | 950     | 0.51      | 0.68 | 983        | 0.55 | 0.74       | 1017    | 0.60       | 0.80 | 1052       | 0.64 | 0.86       | 1087    | 0.69 | 0.92 | 1122 | 0.72 | 0.97 | 1157 | 0.76 | 1.02 |
| 1133       | 2400 | 941                             | 0.52 | 0.70      | 974     | 0.57      | 0.77 | 1008       | 0.62 | 0.83       | 1042    | 0.67       | 0.90 | 1077       | 0.72 | 0.96       | 1111    | 0.75 | 1.01 | 1146 | 0.79 | 1.06 | 1181 | 0.83 | 1.11 |
| 1180       | 2500 | 966                             | 0.59 | 0.79      | 1000    | 0.64      | 0.86 | 1034       | 0.69 | 0.93       | 1068    | 0.75       | 1.00 | 1103       | 0.79 | 1.06       | 1137    | 0.83 | 1.11 | 1171 | 0.87 | 1.16 | 1205 | 0.90 | 1.20 |
| 1227       | 2600 | 994                             | 0.67 | 0.90      | 1028    | 0.72      | 0.97 | 1062       | 0.78 | 1.04       | 1096    | 0.82       | 1.10 | 1130       | 0.87 | 1.16       | 1164    | 0.90 | 1.21 | 1197 | 0.94 | 1.26 | 1231 | 0.97 | 1.30 |
| 1274       | 2700 | 1023                            | 0.75 | 1.01      | 1057    | 0.81      | 1.08 | 1091       | 0.86 | 1.15       | 1125    | 0.91       | 1.22 | 1159       | 0.95 | 1.27       | 1192    | 0.98 | 1.32 | 1225 | 1.02 | 1.37 | 1258 | 1.05 | 1.41 |
| 1321       | 2800 | 1053                            | 0.84 | 1.13      | 1088    | 0.90      | 1.21 | 1122       | 0.95 | 1.27       | 1155    | 0.99       | 1.33 | 1188       | 1.04 | 1.39       | 1221    | 1.07 | 1.43 | 1253 | 1.10 | 1.48 | 1286 | 1.14 | 1.53 |
| 1369       | 2900 | 1085                            | 0.94 | 1.26      | 1119    | 0.99      | 1.33 | 1153       | 1.04 | 1.40       | 1186    | 1.08       | 1.45 | 1218       | 1.13 | 1.51       | 1250    | 1.16 | 1.55 | 1281 | 1.20 | 1.61 | 1313 | 1.24 | 1.66 |

| Air Volume |      | External Static - Pa (in. w.g.) |      |            |         |            |      |            |      |            |         |            |      |            |      |            |         |      |      |      |      |      |      |      |      |
|------------|------|---------------------------------|------|------------|---------|------------|------|------------|------|------------|---------|------------|------|------------|------|------------|---------|------|------|------|------|------|------|------|------|
|            |      | 225 (0.90)                      |      | 250 (1.00) |         | 275 (1.10) |      | 300 (1.20) |      | 325 (1.30) |         | 350 (1.40) |      | 375 (1.50) |      | 400 (1.60) |         |      |      |      |      |      |      |      |      |
| L/s        | cfm  | Rev/min                         | kW   | BHP        | Rev/min | kW         | BHP  | Rev/min    | kW   | BHP        | Rev/min | kW         | BHP  | Rev/min    | kW   | BHP        | Rev/min | kW   | BHP  |      |      |      |      |      |      |
| 897        | 1900 | 1109                            | 0.56 | 0.75       | 1146    | 0.59       | 0.79 | 1183       | 0.61 | 0.82       | 1221    | 0.64       | 0.86 | 1260       | 0.67 | 0.90       | 1294    | 0.70 | 0.94 | 1323 | 0.73 | 0.98 | 1349 | 0.76 | 1.02 |
| 944        | 2000 | 1128                            | 0.61 | 0.82       | 1164    | 0.64       | 0.86 | 1201       | 0.66 | 0.89       | 1239    | 0.69       | 0.93 | 1276       | 0.72 | 0.97       | 1310    | 0.75 | 1.01 | 1336 | 0.79 | 1.06 | 1362 | 0.82 | 1.10 |
| 991        | 2100 | 1148                            | 0.66 | 0.89       | 1185    | 0.69       | 0.93 | 1221       | 0.72 | 0.97       | 1258    | 0.75       | 1.01 | 1294       | 0.78 | 1.05       | 1325    | 0.81 | 1.09 | 1351 | 0.85 | 1.14 | 1376 | 0.89 | 1.19 |
| 1038       | 2200 | 1170                            | 0.72 | 0.97       | 1206    | 0.75       | 1.01 | 1242       | 0.78 | 1.05       | 1277    | 0.81       | 1.09 | 1311       | 0.85 | 1.14       | 1341    | 0.88 | 1.18 | 1365 | 0.92 | 1.23 | 1390 | 0.95 | 1.28 |
| 1085       | 2300 | 1193                            | 0.79 | 1.06       | 1228    | 0.81       | 1.09 | 1262       | 0.85 | 1.14       | 1295    | 0.89       | 1.19 | 1327       | 0.93 | 1.24       | 1355    | 0.96 | 1.29 | 1380 | 0.99 | 1.33 | 1406 | 1.02 | 1.37 |
| 1133       | 2400 | 1216                            | 0.86 | 1.15       | 1250    | 0.89       | 1.19 | 1282       | 0.93 | 1.24       | 1313    | 0.97       | 1.30 | 1343       | 1.01 | 1.36       | 1371    | 1.04 | 1.40 | 1396 | 1.07 | 1.44 | 1423 | 1.10 | 1.48 |
| 1180       | 2500 | 1240                            | 0.93 | 1.24       | 1273    | 0.96       | 1.29 | 1302       | 1.01 | 1.36       | 1331    | 1.06       | 1.42 | 1360       | 1.10 | 1.48       | 1388    | 1.13 | 1.52 | 1414 | 1.16 | 1.55 | 1441 | 1.18 | 1.58 |
| 1227       | 2600 | 1265                            | 1.00 | 1.34       | 1296    | 1.04       | 1.40 | 1324       | 1.10 | 1.47       | 1352    | 1.15       | 1.54 | 1381       | 1.19 | 1.60       | 1408    | 1.22 | 1.64 | 1434 | 1.25 | 1.67 | 1460 | 1.27 | 1.70 |
| 1274       | 2700 | 1291                            | 1.09 | 1.46       | 1321    | 1.13       | 1.52 | 1347       | 1.19 | 1.60       | 1374    | 1.25       | 1.67 | 1403       | 1.28 | 1.72       | 1429    | 1.31 | 1.76 | 1455 | 1.34 | 1.79 | 1481 | 1.36 | 1.82 |
| 1321       | 2800 | 1317                            | 1.18 | 1.58       | 1346    | 1.24       | 1.66 | 1372       | 1.30 | 1.74       | 1399    | 1.34       | 1.80 | 1426       | 1.38 | 1.85       | 1451    | 1.41 | 1.89 | 1477 | 1.43 | 1.92 | 1503 | 1.45 | 1.95 |
| 1369       | 2900 | 1343                            | 1.28 | 1.72       | 1371    | 1.34       | 1.80 | 1397       | 1.40 | 1.88       | 1424    | 1.45       | 1.95 | 1450       | 1.48 | 1.99       | 1475    | 1.51 | 2.02 | 1500 | 1.53 | 2.05 | 1526 | 1.55 | 2.08 |



**BLOWER DATA - BELT DRIVE****HORIZONTAL****BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.**

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (heat section, economizer, etc.).

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.).

See page 16 for blower motors and drives and wet coil and options/accessory air resistance data.

| Air Volume |      | External Static - Pa (in. w.g.) |      |           |      |           |      |            |      |            |      |            |      |            |      |            |      |
|------------|------|---------------------------------|------|-----------|------|-----------|------|------------|------|------------|------|------------|------|------------|------|------------|------|
|            |      | 25 (0.10)                       |      | 50 (0.20) |      | 75 (0.30) |      | 100 (0.40) |      | 125 (0.50) |      | 150 (0.60) |      | 175 (0.70) |      | 200 (0.80) |      |
|            |      | Rev/min                         | BHP  | Rev/min   | BHP  | Rev/min   | BHP  | Rev/min    | BHP  | Rev/min    | BHP  | Rev/min    | BHP  | Rev/min    | BHP  | Rev/min    | BHP  |
| L/s        | cfm  |                                 |      |           |      |           |      |            |      |            |      |            |      |            |      |            |      |
| 897        | 1900 | 853                             | 0.31 | 886       | 0.34 | 919       | 0.37 | 952        | 0.41 | 986        | 0.45 | 1021       | 0.48 | 1056       | 0.51 | 1091       | 0.54 |
| 944        | 2000 | 883                             | 0.36 | 913       | 0.40 | 944       | 0.43 | 976        | 0.46 | 1009       | 0.50 | 1043       | 0.53 | 1078       | 0.57 | 1112       | 0.60 |
| 991        | 2100 | 906                             | 0.42 | 936       | 0.45 | 967       | 0.48 | 999        | 0.52 | 1033       | 0.56 | 1067       | 0.59 | 1101       | 0.63 | 1135       | 0.66 |
| 1038       | 2200 | 930                             | 0.48 | 960       | 0.51 | 991       | 0.54 | 1024       | 0.58 | 1058       | 0.62 | 1092       | 0.66 | 1126       | 0.69 | 1160       | 0.72 |
| 1085       | 2300 | 954                             | 0.54 | 985       | 0.57 | 1017      | 0.61 | 1051       | 0.65 | 1085       | 0.69 | 1119       | 0.72 | 1152       | 0.75 | 1186       | 0.78 |
| 1133       | 2400 | 981                             | 0.60 | 1013      | 0.64 | 1046      | 0.68 | 1079       | 0.72 | 1113       | 0.75 | 1146       | 0.78 | 1180       | 0.81 | 1213       | 0.84 |
| 1180       | 2500 | 1010                            | 0.68 | 1042      | 0.72 | 1075      | 0.75 | 1109       | 0.78 | 1142       | 0.81 | 1175       | 0.85 | 1207       | 0.88 | 1239       | 0.92 |
| 1227       | 2600 | 1040                            | 0.75 | 1073      | 0.78 | 1106      | 0.82 | 1139       | 0.85 | 1171       | 0.89 | 1203       | 0.92 | 1235       | 0.95 | 1266       | 0.99 |
| 1274       | 2700 | 1072                            | 0.82 | 1104      | 0.86 | 1137      | 0.90 | 1169       | 0.93 | 1201       | 0.96 | 1232       | 1.00 | 1263       | 1.04 | 1293       | 1.09 |
| 1321       | 2800 | 1105                            | 0.90 | 1137      | 0.93 | 1168      | 0.97 | 1200       | 1.01 | 1231       | 1.04 | 1261       | 1.09 | 1291       | 1.13 | 1321       | 1.19 |
| 1369       | 2900 | 1138                            | 0.98 | 1169      | 1.02 | 1200      | 1.06 | 1231       | 1.10 | 1261       | 1.14 | 1291       | 1.19 | 1321       | 1.24 | 1350       | 1.29 |

| Air Volume |      | External Static - Pa (in. w.g.) |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |
|------------|------|---------------------------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|
|            |      | 225 (0.90)                      |      | 250 (1.00) |      | 275 (1.10) |      | 300 (1.20) |      | 325 (1.30) |      | 350 (1.40) |      | 375 (1.50) |      | 400 (1.60) |      |
|            |      | Rev/min                         | BHP  | Rev/min    | BHP  | Rev/min    | BHP  | Rev/min    | BHP  | Rev/min    | BHP  | Rev/min    | BHP  | Rev/min    | BHP  | Rev/min    | BHP  |
| L/s        | cfm  |                                 |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |
| 897        | 1900 | 1126                            | 0.57 | 1163       | 0.60 | 1200       | 0.63 | 1237       | 0.66 | 1273       | 0.69 | 1306       | 0.72 | 1339       | 0.75 | 1371       | 0.78 |
| 944        | 2000 | 1148                            | 0.63 | 1183       | 0.66 | 1220       | 0.69 | 1257       | 0.72 | 1291       | 0.75 | 1323       | 0.78 | 1354       | 0.81 | 1385       | 0.84 |
| 991        | 2100 | 1170                            | 0.69 | 1206       | 0.72 | 1242       | 0.75 | 1277       | 0.78 | 1310       | 0.81 | 1340       | 0.84 | 1371       | 0.87 | 1401       | 0.90 |
| 1038       | 2200 | 1195                            | 0.75 | 1230       | 0.78 | 1265       | 0.81 | 1299       | 0.84 | 1330       | 0.88 | 1359       | 0.92 | 1388       | 0.95 | 1418       | 0.98 |
| 1085       | 2300 | 1220                            | 0.81 | 1254       | 0.84 | 1288       | 0.87 | 1320       | 0.92 | 1350       | 0.95 | 1378       | 1.00 | 1406       | 1.03 | 1435       | 1.06 |
| 1133       | 2400 | 1245                            | 0.88 | 1278       | 0.91 | 1311       | 0.95 | 1341       | 0.99 | 1370       | 1.04 | 1397       | 1.08 | 1425       | 1.12 | 1454       | 1.15 |
| 1180       | 2500 | 1271                            | 0.95 | 1303       | 0.99 | 1334       | 1.04 | 1363       | 1.08 | 1391       | 1.13 | 1418       | 1.17 | 1446       | 1.21 | 1474       | 1.24 |
| 1227       | 2600 | 1297                            | 1.04 | 1328       | 1.08 | 1357       | 1.13 | 1385       | 1.18 | 1412       | 1.22 | 1439       | 1.27 | 1467       | 1.30 | 1495       | 1.33 |
| 1274       | 2700 | 1323                            | 1.13 | 1353       | 1.18 | 1382       | 1.23 | 1409       | 1.28 | 1435       | 1.32 | 1462       | 1.36 | 1490       | 1.39 | 1517       | 1.42 |
| 1321       | 2800 | 1351                            | 1.23 | 1380       | 1.28 | 1407       | 1.33 | 1434       | 1.38 | 1460       | 1.42 | 1486       | 1.45 | 1513       | 1.48 | 1541       | 1.51 |
| 1369       | 2900 | 1379                            | 1.34 | 1407       | 1.39 | 1434       | 1.43 | 1460       | 1.48 | 1485       | 1.52 | 1511       | 1.55 | 1538       | 1.58 | 1565       | 1.60 |

## BLOWER DATA

### BELT DRIVE KIT SPECIFICATIONS

| Model No. | Motor kW (HP) |           | No. of Speeds | Drive Kits and Rev/Min Range |            |             |
|-----------|---------------|-----------|---------------|------------------------------|------------|-------------|
|           | Nominal       | Max       |               | A04                          | A08        | A09         |
| 072       | 1.5 (2)       | 1.7 (2.3) | 1             | 807 - 1117                   | 994 - 1326 | 1193 - 1524 |

NOTE - Using total air volume and system static pressure requirements determine from blower performance tables rev/min and motor kW required. Maximum usable kW of motors furnished are shown. If motors of comparable kW are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

### OPTIONS / ACCESSORIES AIR RESISTANCE

| Air Volume |      | Wet Indoor Coil |          | Economizer |          | Electric Heat |          | Filters |          |         |          |
|------------|------|-----------------|----------|------------|----------|---------------|----------|---------|----------|---------|----------|
|            |      |                 |          |            |          |               |          | MERV 8  |          | MERV 13 |          |
| L/s        | cfm  | Pa              | in. w.g. | Pa         | in. w.g. | Pa            | in. w.g. | Pa      | in. w.g. | Pa      | in. w.g. |
| 850        | 1800 | 7               | 0.04     | 12         | 0.05     | 37            | 0.15     | 12      | 0.05     | 17      | 0.07     |
| 945        | 2000 | 12              | 0.05     | 12         | 0.05     | 45            | 0.18     | 12      | 0.05     | 20      | 0.08     |
| 1040       | 2200 | 15              | 0.06     | 12         | 0.05     | 50            | 0.20     | 12      | 0.05     | 20      | 0.08     |
| 1130       | 2400 | 17              | 0.07     | 12         | 0.05     | 55            | 0.22     | 12      | 0.05     | 20      | 0.08     |
| 1225       | 2600 | 20              | 0.08     | 15         | 0.06     | 60            | 0.24     | 12      | 0.05     | 20      | 0.08     |
| 1320       | 2800 | 22              | 0.09     | 15         | 0.06     | 65            | 0.26     | 12      | 0.05     | 20      | 0.08     |
| 1415       | 3000 | 25              | 0.10     | 15         | 0.06     | 70            | 0.28     | 12      | 0.05     | 20      | 0.08     |

### POWER EXHAUST FAN PERFORMANCE

| Return Air System Static Pressure |          | Air Volume Exhausted |      |
|-----------------------------------|----------|----------------------|------|
| Pa                                | in. w.g. | L/s                  | cfm  |
| 0                                 | 0.00     | 944                  | 2000 |
| 12                                | 0.05     | 939                  | 1990 |
| 25                                | 0.10     | 908                  | 1924 |
| 37                                | 0.15     | 854                  | 1810 |
| 50                                | 0.20     | 785                  | 1664 |
| 62                                | 0.25     | 711                  | 1507 |
| 75                                | 0.30     | 637                  | 1350 |
| 87                                | 0.35     | 571                  | 1210 |

### CEILING DIFFUSERS AIR RESISTANCE

| Air Volume |      | RTD11-95S Step-Down Diffuser |          |                      |          |                       |          | FD11-95S Flush Diffuser |          |
|------------|------|------------------------------|----------|----------------------|----------|-----------------------|----------|-------------------------|----------|
|            |      | 2 Ends Open                  |          | 1 Side & 2 Ends Open |          | All Ends & Sides Open |          |                         |          |
| L/s        | cfm  | Pa                           | in. w.g. | Pa                   | in. w.g. | Pa                    | in. w.g. | Pa                      | in. w.g. |
| 850        | 1800 | 32                           | 0.13     | 27                   | 0.11     | 22                    | 0.09     | 22                      | 0.09     |
| 945        | 2000 | 37                           | 0.15     | 32                   | 0.13     | 27                    | 0.11     | 25                      | 0.10     |
| 1040       | 2200 | 45                           | 0.18     | 37                   | 0.15     | 30                    | 0.12     | 30                      | 0.12     |
| 1130       | 2400 | 52                           | 0.21     | 45                   | 0.18     | 37                    | 0.15     | 35                      | 0.14     |
| 1225       | 2600 | 60                           | 0.24     | 52                   | 0.21     | 45                    | 0.18     | 42                      | 0.17     |
| 1320       | 2800 | 67                           | 0.27     | 60                   | 0.24     | 52                    | 0.21     | 50                      | 0.20     |
| 1415       | 3000 | 80                           | 0.32     | 72                   | 0.29     | 62                    | 0.25     | 62                      | 0.25     |

### CEILING DIFFUSER AIR THROW DATA

| Air Volume |      | <sup>1</sup> Effective Throw |         |          |         |
|------------|------|------------------------------|---------|----------|---------|
| Model No.  |      | RTD11-95S                    |         | FD11-95S |         |
| 1225       | 2600 | 7 - 9                        | 24 - 29 | 6 - 7    | 19 - 24 |
| 1320       | 2800 | 8 - 9                        | 25 - 30 | 6 - 9    | 20 - 28 |
| 1415       | 3000 | 8 - 10                       | 27 - 33 | 6 - 9    | 21 - 29 |

<sup>1</sup> Effective throw based on terminal velocities of 23 m per minute ( 75 ft. per minute).

## ELECTRICAL / ELECTRIC HEAT DATA

|  |                                |     |  |
|--|--------------------------------|-----|--|
| <b>Model No.</b>                                   | <b>KHA072S4</b>                |     |  |
| <b><sup>1</sup> Voltage - 50hz with Neutral</b>    | <b>380/420V - 3 Ph</b>         |     |  |
| <b>Compressor</b>                                  | Rated Load Amps                | 9.7 |  |
|  | Locked Rotor Amps              | 64  |  |
| <b>Outdoor Fan Motor</b>                           | Full Load Amps                 | 1.5 |  |
| <b>Power Exhaust (1) 0.25 kW</b>                   | Full Load Amps                 | 1.3 |  |
| <b>Indoor Blower Motor</b>                         | kW                             | 1.5 |  |
|  | Full Load Amps                 | 3.6 |  |
| <b><sup>2</sup> Maximum Overcurrent Protection</b> | Unit Only                      | 25  |  |
|  | With (1) 0.25 kW Power Exhaust | 25  |  |
| <b><sup>3</sup> Minimum Circuit Ampacity</b>       | Unit Only                      | 18  |  |
|  | With (1) 0.25 kW Power Exhaust | 19  |  |

## ELECTRIC HEAT DATA

|  |  |                |    |             |
|--|--|----------------|----|-------------|
| <b>Electric Heat Voltage</b>                       |  |                |    | <b>420V</b> |
| <b><sup>2</sup> Maximum Overcurrent Protection</b> | Unit+  | <b>5.7 kW</b>  | 30 |             |
|  | <sup>4</sup> Electric Heat                               | <b>11.5 kW</b> | 40 |             |
|  |  | <b>17.2 kW</b> | 50 |             |
|  |  | <b>23 kW</b>   | 60 |             |
| <b><sup>3</sup> Minimum Circuit Ampacity</b>       | Unit+  | <b>5.7 kW</b>  | 28 |             |
|  | <sup>4</sup> Electric Heat                               | <b>11.5 kW</b> | 37 |             |
|  |  | <b>17.2 kW</b> | 47 |             |
|  |  | <b>23 kW</b>   | 57 |             |
| <b><sup>2</sup> Maximum Overcurrent Protection</b> | Unit+  | <b>5.7 kW</b>  | 35 |             |
|  | <sup>4</sup> Electric Heat and (1) 0.25 kW Power Exhaust | <b>11.5 kW</b> | 40 |             |
|  |  | <b>17.2 kW</b> | 50 |             |
|  |  | <b>23 kW</b>   | 60 |             |
| <b><sup>3</sup> Minimum Circuit Ampacity</b>       | Unit+  | <b>5.7 kW</b>  | 29 |             |
|  | <sup>4</sup> Electric Heat and (1) 0.25 kW Power Exhaust | <b>11.5 kW</b> | 39 |             |
|  |  | <b>17.2 kW</b> | 49 |             |
|  |  | <b>23 kW</b>   | 58 |             |

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

<sup>2</sup> Heating, Air Conditioning, Refrigeration type breaker or fuse.

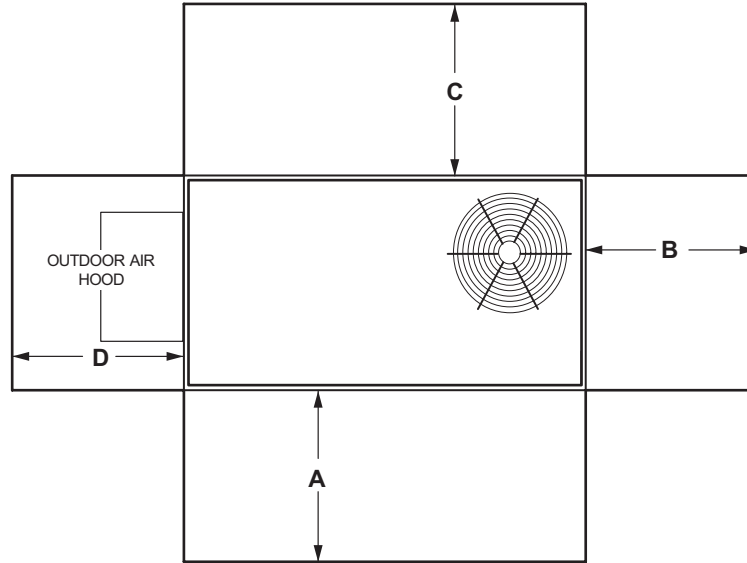
<sup>3</sup> Refer to local electrical code to determine wire, fuse and disconnect size requirements.

<sup>4</sup> Nominal kW based on 420V-3ph-50hz.

## ELECTRIC HEAT CAPACITIES

| Input Voltage | 5.7 kW      |          |             | 11.5 kW     |          |             | 17.2 kW     |          |             | 23 kW       |          |             |
|---------------|-------------|----------|-------------|-------------|----------|-------------|-------------|----------|-------------|-------------|----------|-------------|
|               | No of Steps | kW input | Btuh Output | No of Steps | kW input | Btuh Output | No of Steps | kW input | Btuh Output | No of Steps | kW input | Btuh Output |
| 380           | 1           | 4.7      | 16 100      | 1           | 9.4      | 32 100      | 1           | 14.1     | 48 200      | 1           | 18.8     | 64 200      |
| 400           | 1           | 5.2      | 17 800      | 1           | 10.4     | 35 500      | 1           | 15.6     | 53 300      | 1           | 20.9     | 71 400      |
| 420           | 1           | 5.7      | 19 500      | 1           | 11.5     | 39 300      | 1           | 17.2     | 58 800      | 1           | 23.0     | 78 500      |

## UNIT CLEARANCES



| <sup>1</sup> Unit Clearance        | A   |     | B   |     | C   |     | D   |     | Top Clearance |
|------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|---------------|
|                                    | mm  | in. | mm  | in. | mm  | in. | mm  | in. |               |
| <b>Service Clearance</b>           | 914 | 36  | 914 | 36  | 914 | 36  | 914 | 36  | Unobstructed  |
| <b>Minimum Operation Clearance</b> | 914 | 36  | 914 | 36  | 914 | 36  | 914 | 36  |               |

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

<sup>1</sup> Service Clearance - Required for removal of serviceable parts.

Minimum Operation Clearance - Required clearance for proper unit operation.

## OUTDOOR SOUND DATA

| <sup>1</sup> Unit Model No. | Octave Band Linear Sound Power Levels dBA, re 10 <sup>-12</sup> Watts - Center Frequency - Hz |     |     |      |      |      |      | <sup>1</sup> Sound Rating Number (SRN) (dBA) |
|-----------------------------|---|-----|-----|------|------|------|------|--|
|                             | 125   | 250 | 500 | 1000 | 2000 | 4000 | 8000 |  |
| <b>KHA072</b>               | 67  | 75  | 78  | 78   | 75   | 68   | 59   | 83   |

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

<sup>1</sup> Sound Rating Number according to ARI Standard 270-95 (includes pure tone penalty). "SRN" is the overall A-Weighted Sound Power Level, (LWA), dBA (100 Hz to 10,000 Hz).

## WEIGHT DATA

| Model Number   | Net  |      |      |      | Shipping |      |      |      |
|----------------|------|------|------|------|----------|------|------|------|
|                | Base |      | Max. |      | Base     |      | Max. |      |
|                | kg   | lbs. | kg   | lbs. | kg       | lbs. | kg   | lbs. |
| <b>KHA072S</b> | 340  | 750  | 391  | 862  | 367      | 810  | 422  | 931  |

Base Unit - The unit with NO OPTIONS.

Max. Unit - The unit with ALL OPTIONS Installed (Economizer, etc.)

## OPTIONS / ACCESSORIES

|   | Shipping Weights |      |     |
|---|------------------|------|-----|
|   | kg               | lbs. |     |
| <b>ECONOMIZER</b>   |                  |      |     |
| <b>Economizer</b>   |                  |      |     |
| Economizer, Includes Outdoor Air Hood and Barometric Relief Dampers with Hood | 59               | 131  |     |
| <b>OUTDOOR AIR</b>  |                  |      |     |
| <b>Outdoor Air Dampers</b>  |                  |      |     |
| Motorized   | 18               | 40   |     |
| Manual  | 14               | 30   |     |
| <b>POWER EXHAUST</b>  |                  |      |     |
| Standard Static   | 16               | 35   |     |
| <b>ELECTRIC HEAT</b>  |                  |      |     |
| 5.7 kW  | 14               | 31   |     |
| 11.5 kW   | 14               | 31   |     |
| 17.2 kW   | 16               | 35   |     |
| 23 kW   | 16               | 35   |     |
| <b>ROOF CURBS</b>   |                  |      |     |
| <b>Hybrid Roof Curbs, Downflow</b>  |                  |      |     |
| 203 mm height   | 23               | 50   |     |
| 356 mm height   | 32               | 70   |     |
| 457 mm height   | 36               | 80   |     |
| 610 mm height   | 45               | 100  |     |
| <b>Hybrid Curbs, Full Perimeter, Downflow</b>                                 |                  |      |     |
| 203 mm height   | 26               | 57   |     |
| 356 mm height   | 27               | 60   |     |
| 457 mm height   | 41               | 91   |     |
| 610 mm height   | 52               | 114  |     |
| <b>Adjustable Pitch Curb, Downflow</b>  |                  |      |     |
| 356 mm height   | 51               | 113  |     |
| <b>CEILING DIFFUSERS</b>  |                  |      |     |
| Step-Down   | RTD11-95S        | 54   | 118 |
| Flush   | FD11-95S         | 54   | 118 |
| Transitions (Supply and Return)   | T1TRAN20N-1      | 10   | 21  |

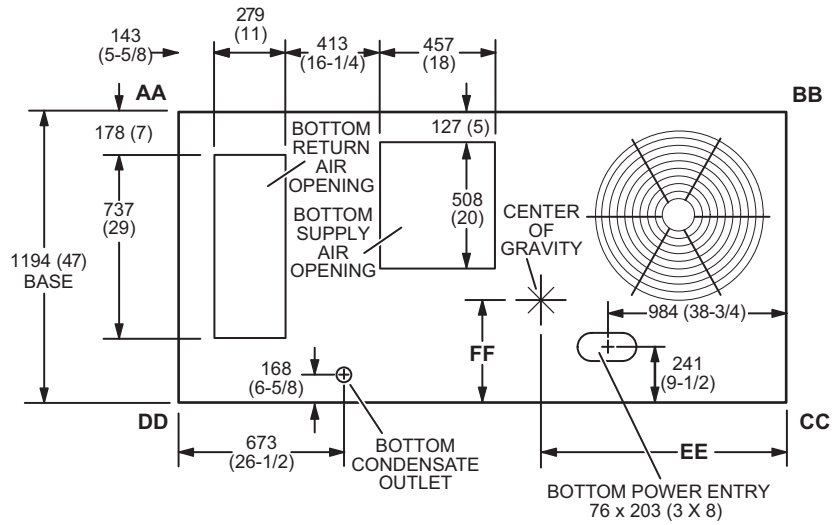
# DIMENSIONS

# UNIT

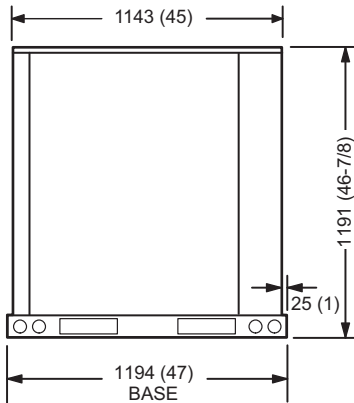
| Model No. | CORNER WEIGHTS |         |         |         |         |         |         |         | CENTER OF GRAVITY |        |        |        |    |     |     |     |      |        |      |        |     |        |     |        |
|-----------|----------------|---------|---------|---------|---------|---------|---------|---------|-------------------|--------|--------|--------|----|-----|-----|-----|------|--------|------|--------|-----|--------|-----|--------|
|           | AA             |         | BB      |         | CC      |         | DD      |         | EE                |        | FF     |        |    |     |     |     |      |        |      |        |     |        |     |        |
|           | Base           | Max.    | Base    | Max.    | Base    | Max.    | Base    | Max.    | Base              | Max.   | Base   | Max.   |    |     |     |     |      |        |      |        |     |        |     |        |
|           | kg lbs.        | kg lbs. | kg lbs. | kg lbs. | kg lbs. | kg lbs. | kg lbs. | kg lbs. | mm in.            | mm in. | mm in. | mm in. |    |     |     |     |      |        |      |        |     |        |     |        |
| 072       | 73             | 160     | 84      | 185     | 82      | 180     | 94      | 208     | 106               | 233    | 122    | 269    | 94 | 207 | 109 | 239 | 1174 | 46-1/4 | 1174 | 46-1/4 | 521 | 20-1/2 | 521 | 20-1/2 |

Base Unit - The unit with standard heat exchanger NO OPTIONS.

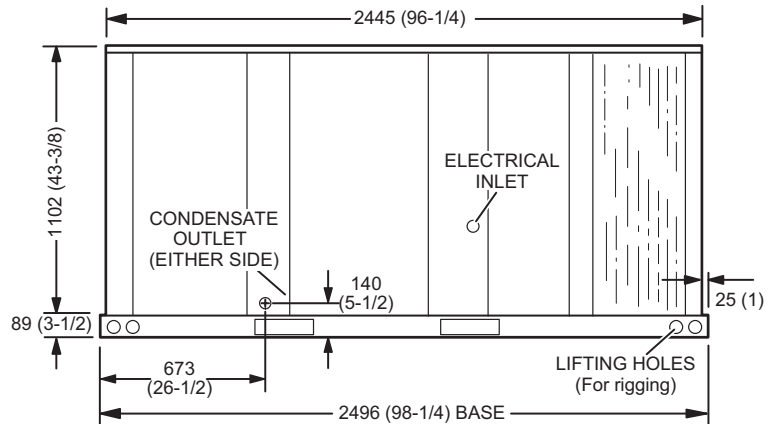
Max. Unit - The unit with ALL OPTIONS Installed (Economizer, etc.).



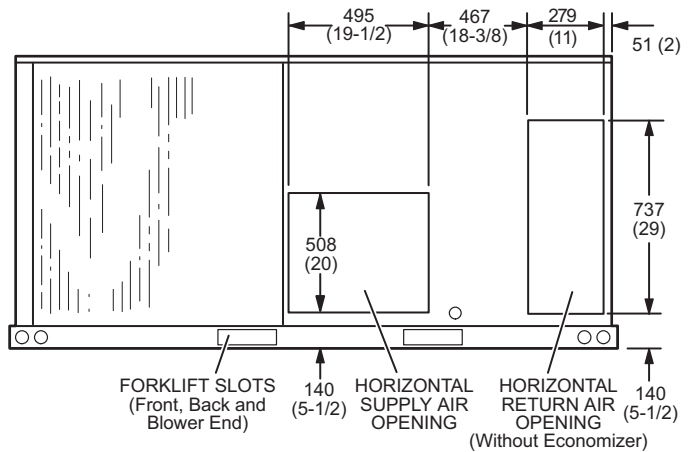
**TOP VIEW (Base)**



**END VIEW**



**SIDE VIEW**

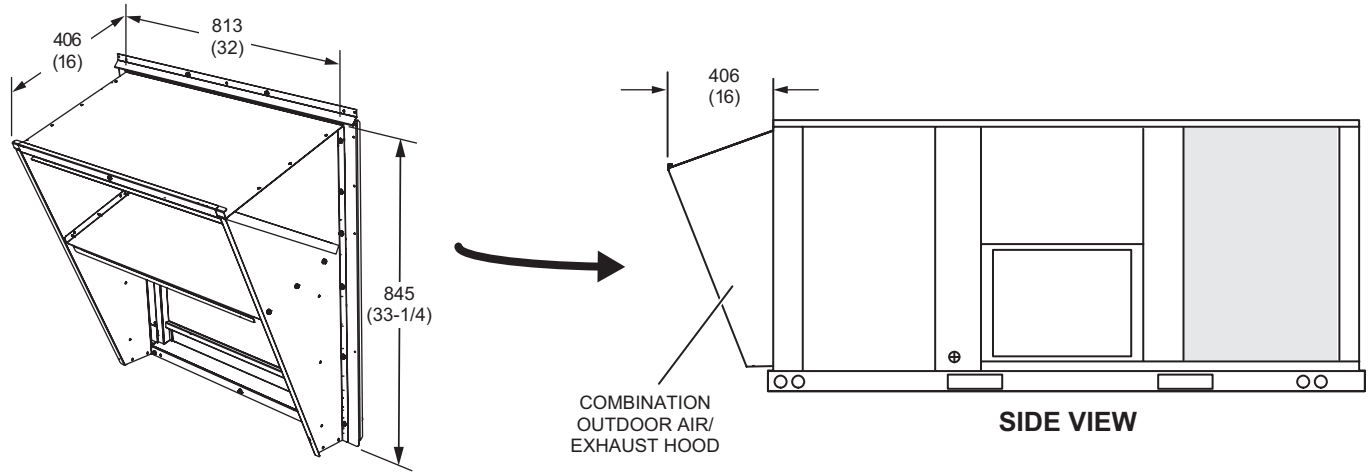


**BACK VIEW**

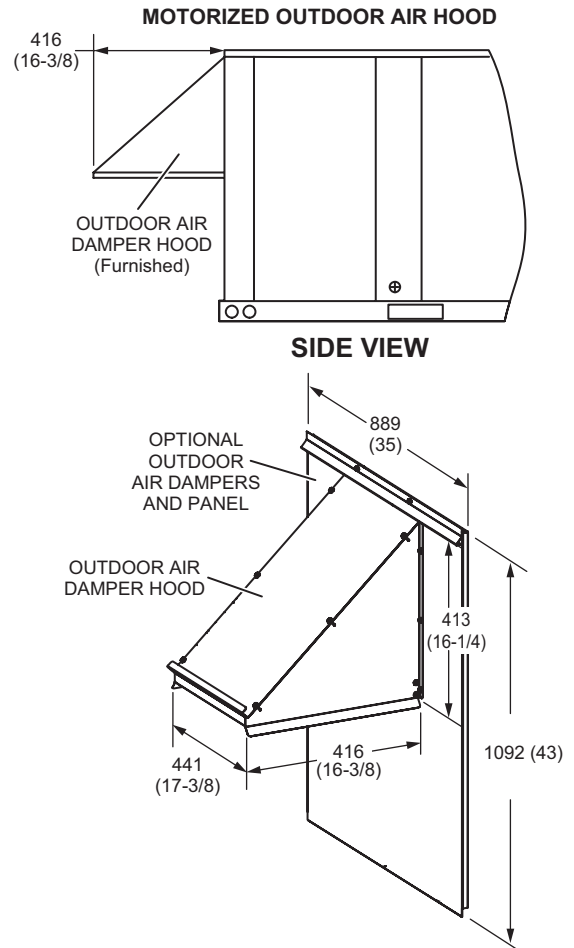
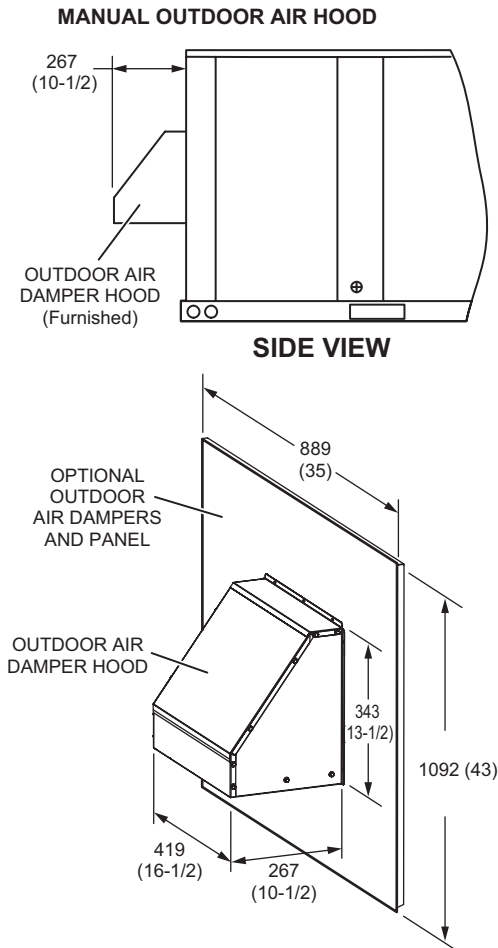


**COMBINATION OUTDOOR AIR HOOD DETAIL FOR OPTIONAL ECONOMIZER AND BAROMETRIC RELIEF DAMPERS - DOWNFLOW APPLICATIONS**

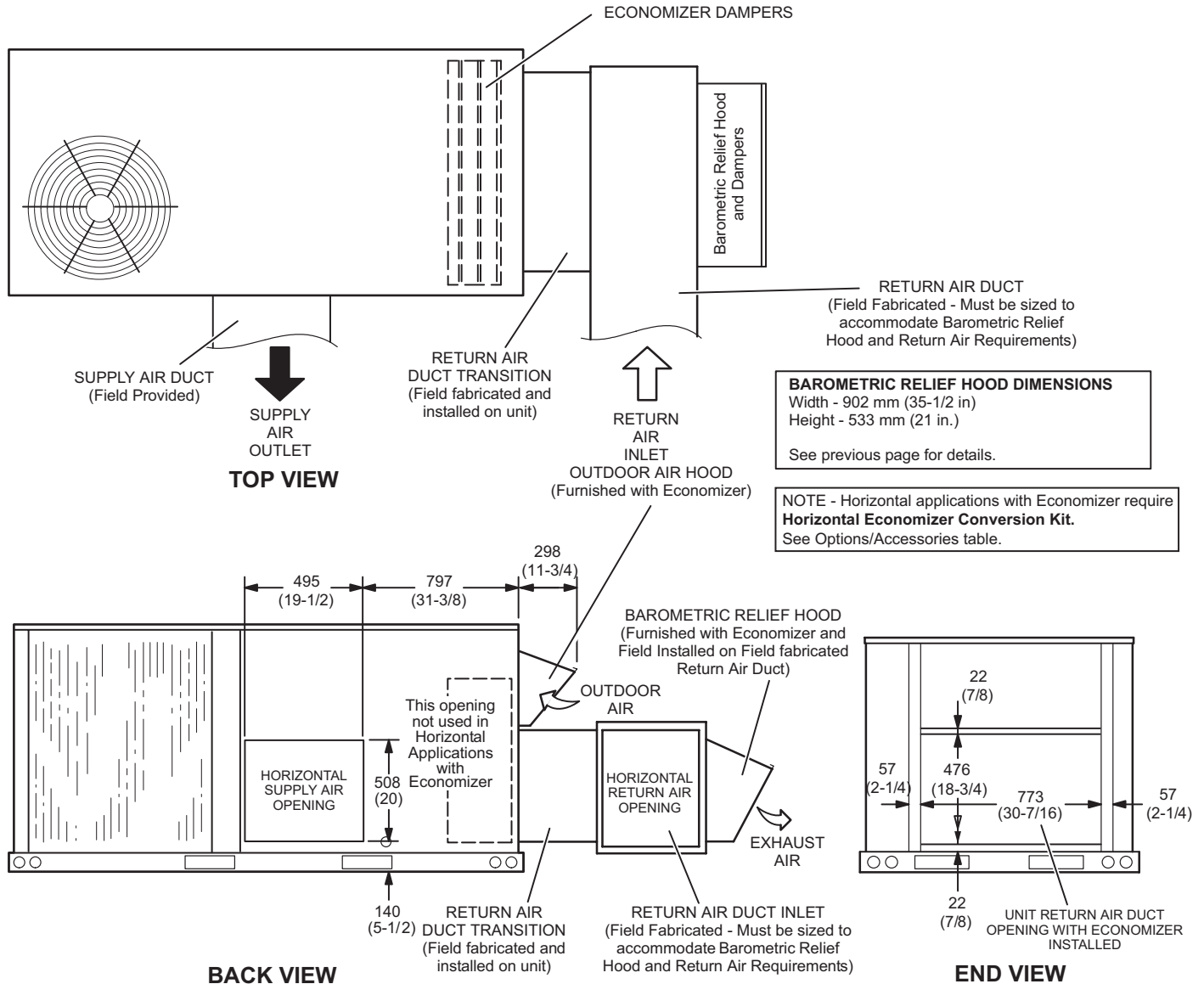
- Furnished with Factory Installed Standard Economizer
- Optional for Field Installed Standard Economizer - Order Separately
- Furnished with Factory and Field Installed High Performance Economizer



**OUTDOOR AIR DAMPER HOOD DETAIL (Downflow or Horizontal Applications)**

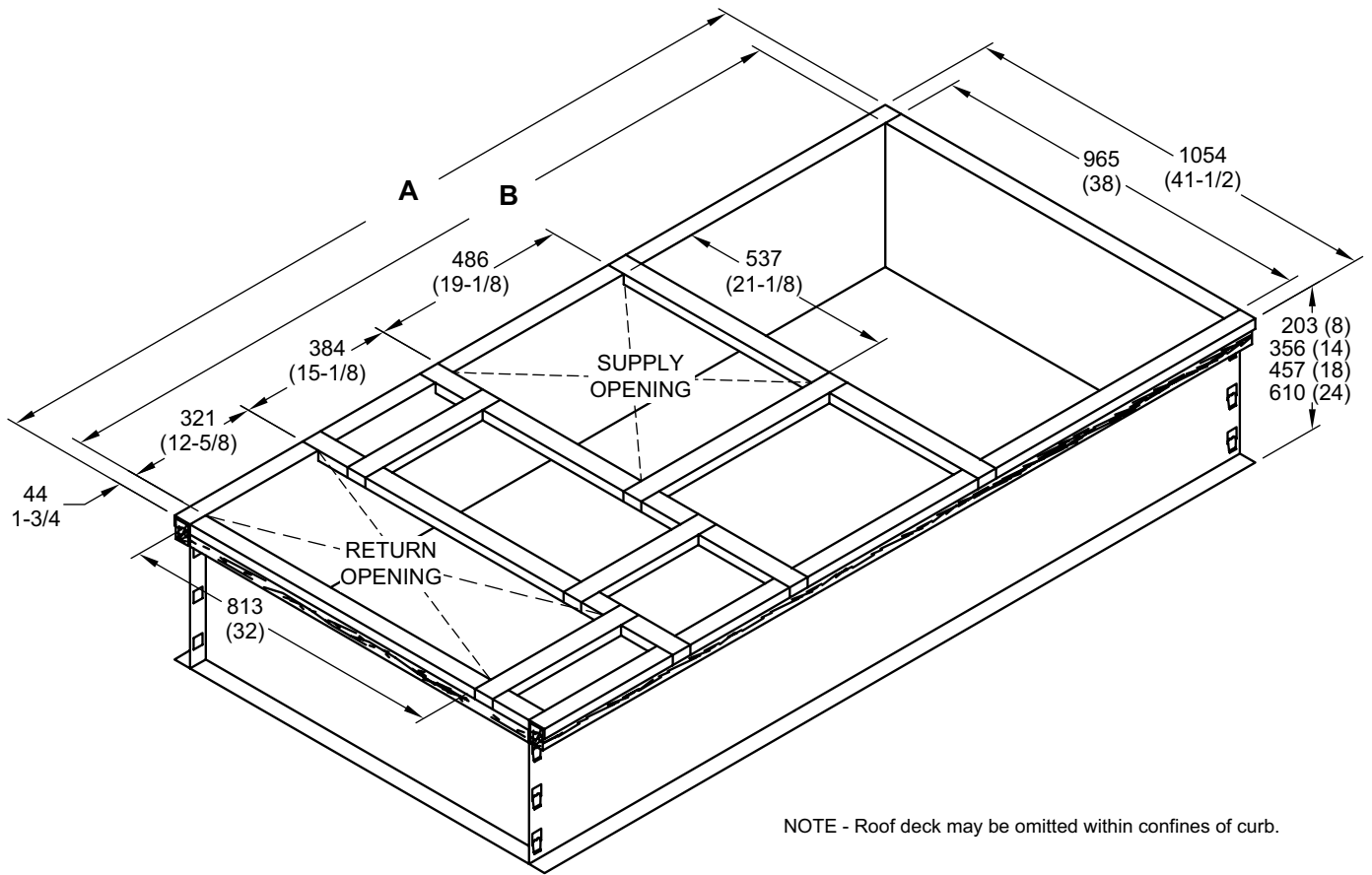


**OUTDOOR AIR HOOD DETAIL WITH OPTIONAL ECONOMIZER AND BAROMETRIC RELIEF DAMPERS  
(Horizontal Applications)**

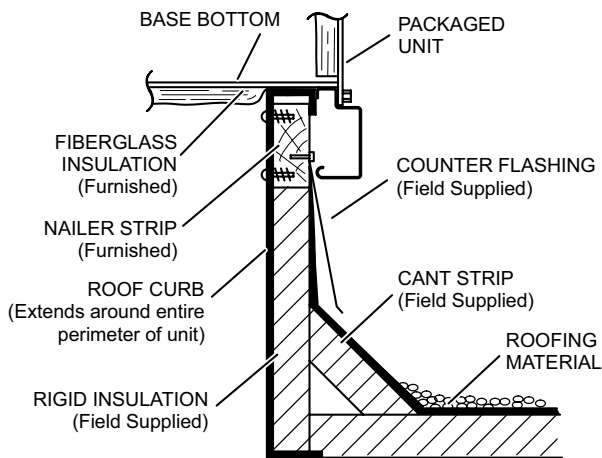


**NOTE - Return Air Duct and Transition must be supported.**

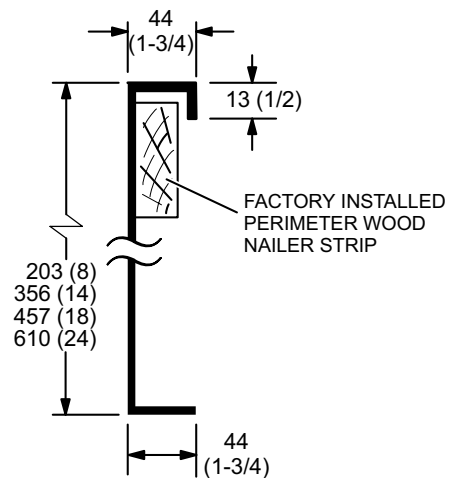
**HYBRID ROOF CURBS - DOUBLE DUCT OPENING - STANDARD AND FULL PERIMETER**



**TYPICAL FLASHING DETAIL FOR ROOF CURB**



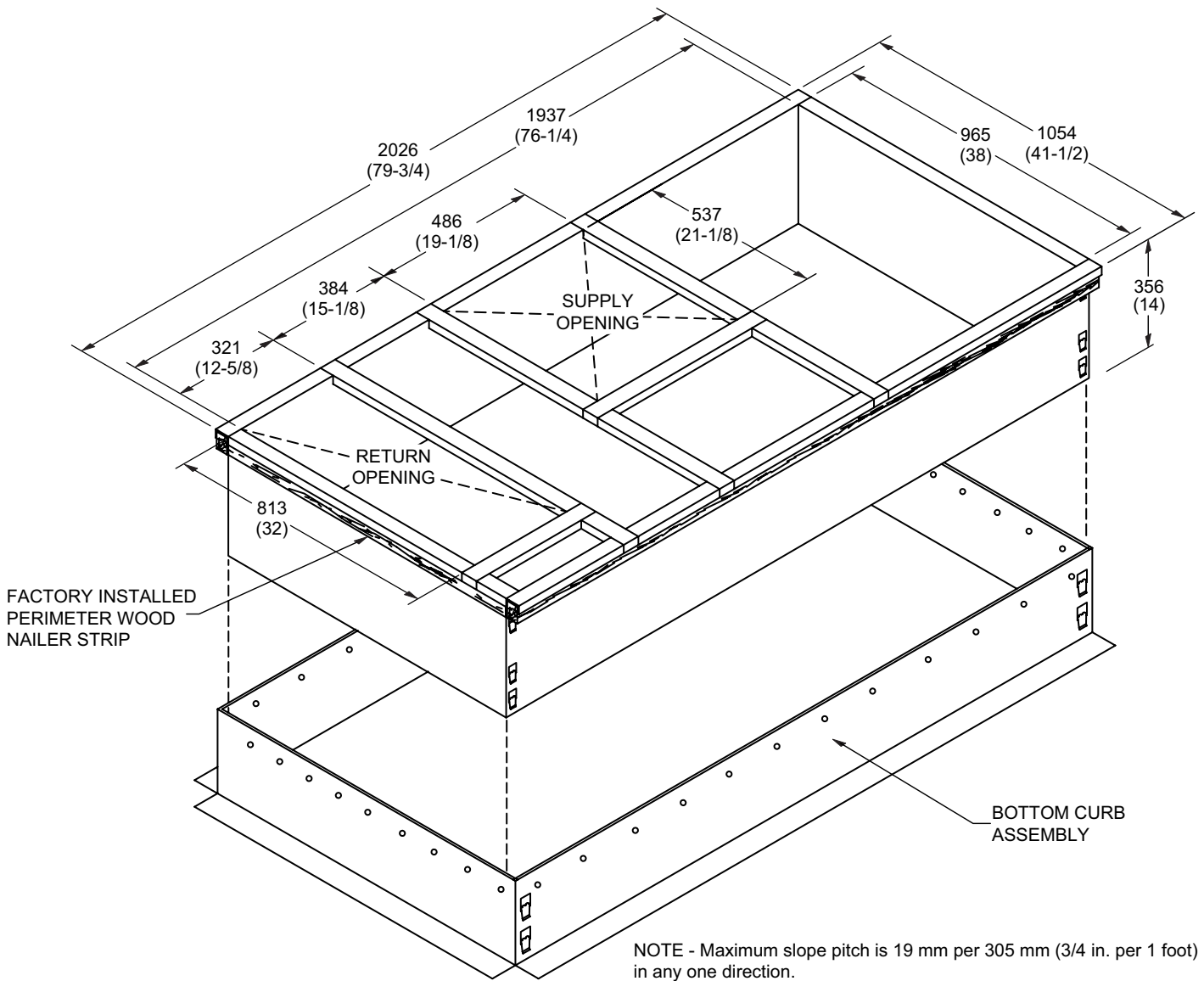
**DETAIL ROOF CURB**



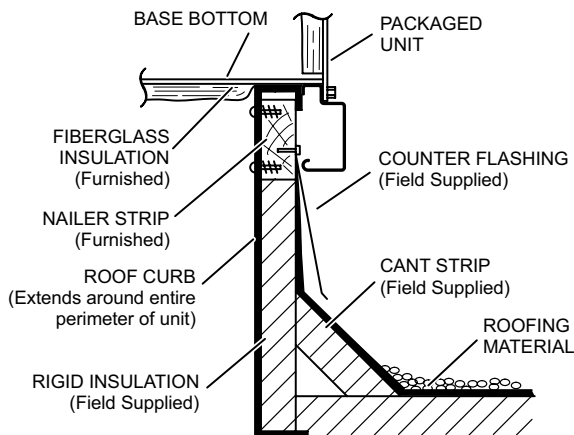
| Model No.                   | A    |        | B    |        |
|-----------------------------|------|--------|------|--------|
|                             | mm   | in.    | mm   | in.    |
| Standard - <sup>1</sup> 072 | 2026 | 79-3/4 | 1937 | 76-1/4 |
| Full Perimeter - 072        | 2356 | 92-3/4 | 2267 | 89-1/4 |

<sup>1</sup> 072 models can be used on smaller 2026 mm (79-3/4 in.) roof curbs (not full perimeter) with 400 mm (15-3/4 in.) overhang at condenser end of unit. See dimension drawing on page 25.

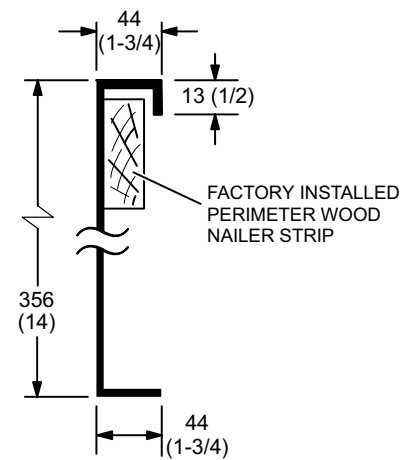
**ADJUSTABLE PITCH CURBS - DOUBLE DUCT OPENING**



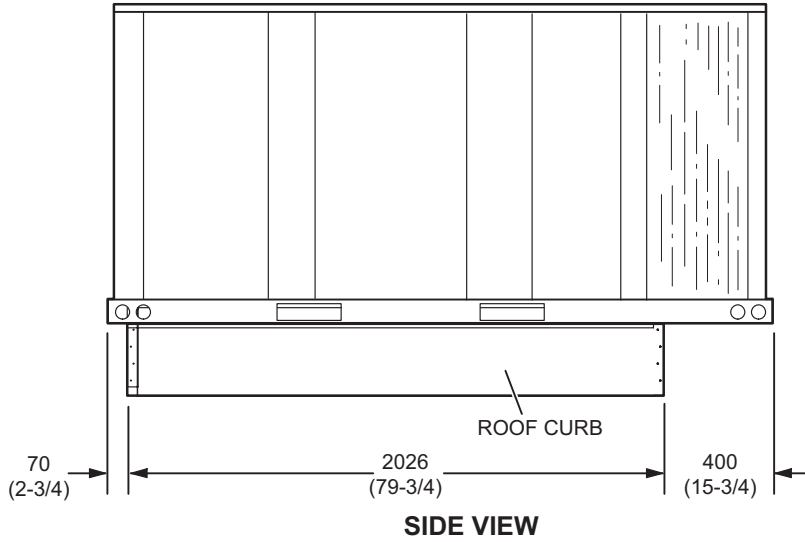
**TYPICAL FLASHING DETAIL FOR ROOF CURB**



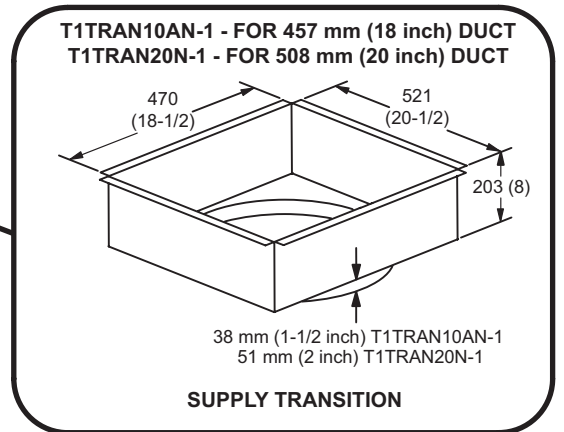
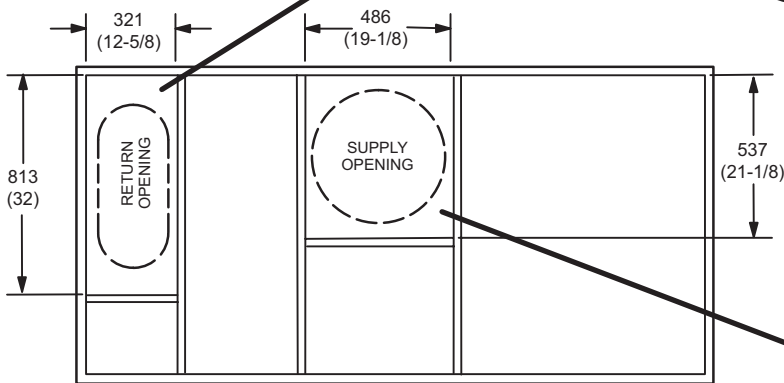
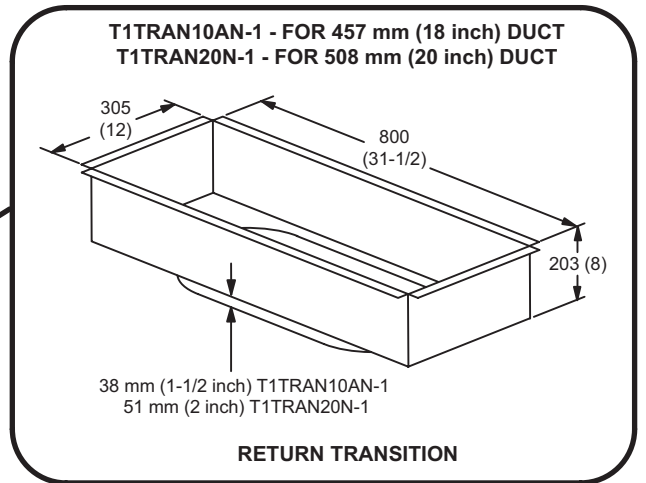
**DETAIL ROOF CURB**



**072 MODELS - SHOWING OVERHANG ON SMALLER 2026 MM LENGTH ROOF CURBS  
(Not Full Perimeter)**

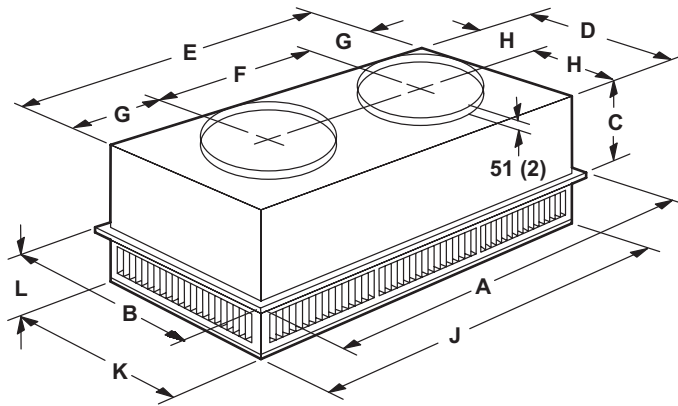


**TRANSITIONS**

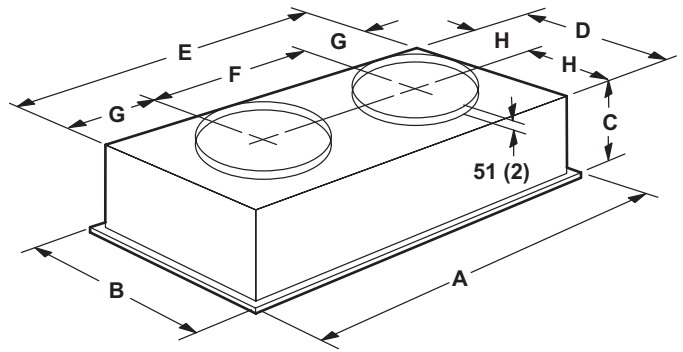


**COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS**

**STEP-DOWN CEILING DIFFUSER**



**FLUSH CEILING DIFFUSER**



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

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





## REVISIONS

| Sections            | Description of Change           |
|---------------------|---------------------------------|
| Options/Accessories | Economizer information updated. |



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