

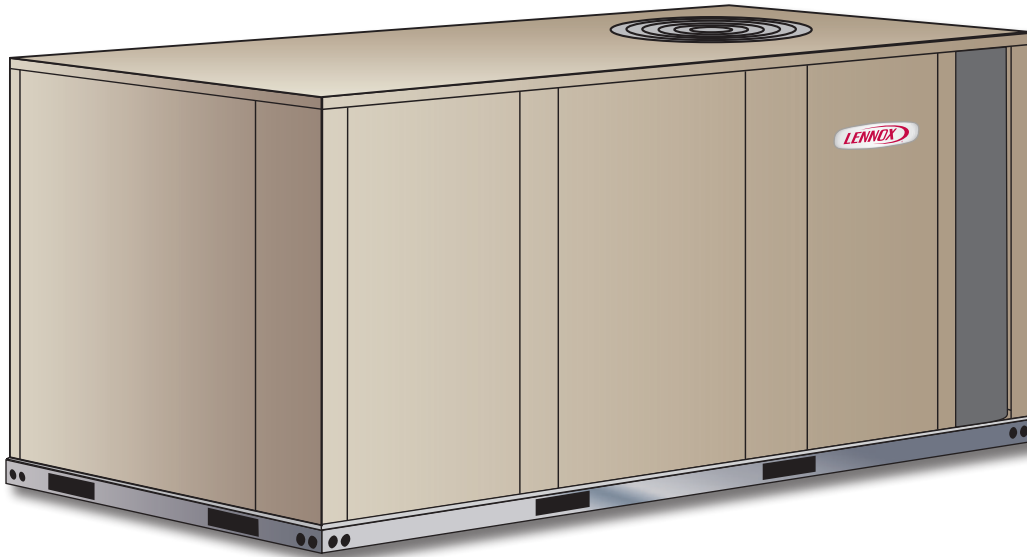


**COMMERCIAL
PRODUCT SPECIFICATIONS**

Bulletin No. 210995

February 2024

Supersedes all previous versions



**ASHRAE 90.1
COMPLIANT**

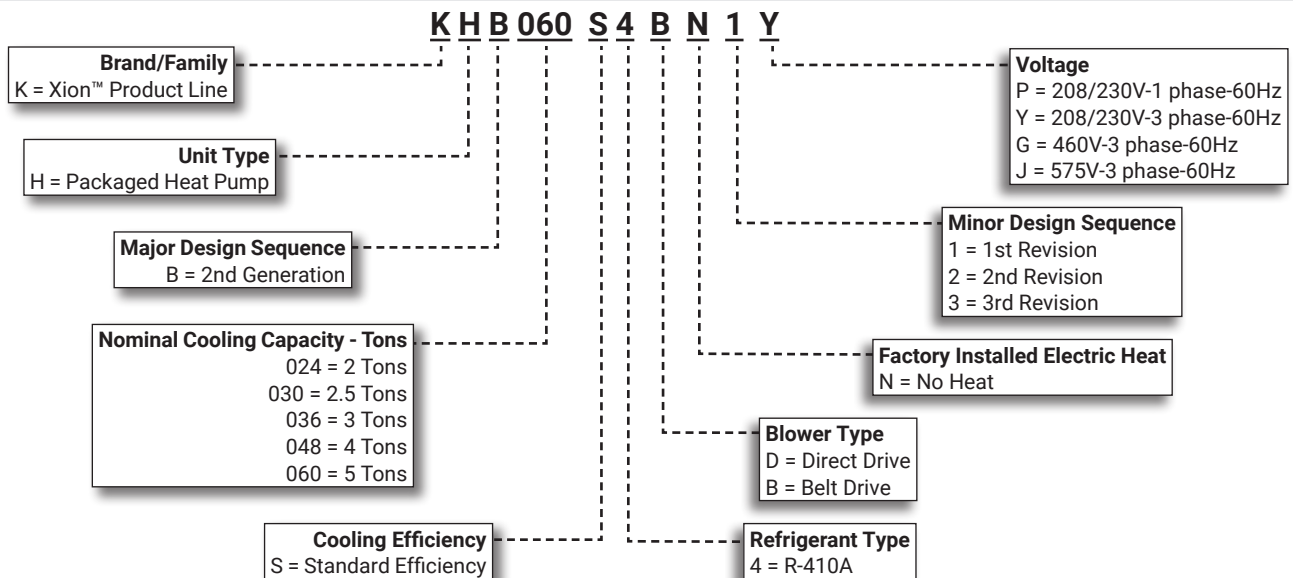
2 to 5 Tons

Net Cooling Capacity – 23,000 to 58,000 Btuh

Net Heating Capacity – 23,000 to 58,000 Btuh

Optional Electric Heat – 5 to 22.5 kW

MODEL NUMBER IDENTIFICATION

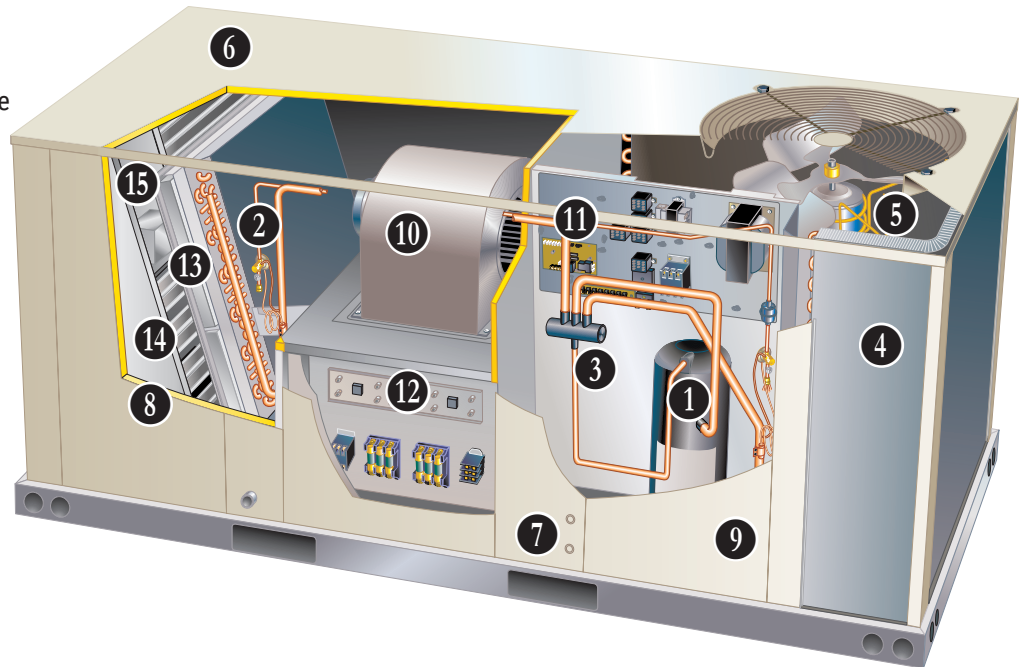


NOTE - This document applies to all KHB 2-5 Ton Xion™ products built on or after January 1st, 2023.

FEATURE HIGHLIGHTS

Xion™ rooftop units are engineered with the right technologies and options to meet standard efficiency requirements while delivering reliable performance and year-round comfort.

1. Scroll Compressor
2. Check/Thermal Expansion Valve
3. Reversing Valve
4. Copper Tube Outdoor Coil
5. Outdoor Coil Fan Motor
6. Heavy Gauge Steel Cabinet
7. Power Entry
8. Fully Insulated Cabinet
9. Hinged Access Panels (option)
10. Supply Air Blower
11. Unit Control
12. Electric Heat (option)
13. Air Filters
14. Economizer (option)
15. Power Exhaust Fans (option)



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APPROVALS AND WARRANTY

APPROVALS

- AHRI Standard 210/240 certified
- ETL and CSA listed
- CSA certified energy ratings
- Unit and components ETL, NEC and CEC bonded for grounding to meet safety standards for servicing
- All models are ASHRAE 90.1 compliant
- All models meet DOE 2023 energy efficiency standards
- ISO 9001 Registered Manufacturing Quality System

WARRANTY

- Compressors - Limited five years
- High Performance Economizers (optional) - Limited five years
- All other covered components - Limited one year

FEATURES AND BENEFITS

COOLING / HEATING SYSTEM

- Designed to maximize sensible and latent cooling performance at design conditions
- System can operate from 30°F to 125°F without any additional controls

R-410A Refrigerant

- Non-chlorine based
- 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 or during extended off cycles

High Pressure Switch

- Protects the system from high pressure conditions

2 Check/Thermal Expansion Valves

- Assures optimal performance throughout the application range.
- Removable element head

3 Reversing Valve

- 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 LED's furnished as an aid in troubleshooting

Filter/Drier

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

Indoor Coil Freeze Protection

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

4 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

Antimicrobial Condensate Drain Pan

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

5 Outdoor Fan Motor

- Thermal overload protected
- Totally enclosed
- Permanently lubricated sleeve bearing
- Shaft up
- Wire basket mount

Outdoor Coil Fan

- PVC coated fan guard furnished.

FEATURES AND BENEFITS

COOLING / HEATING SYSTEM (continued)

Required Selections

Cooling Capacity

- Specify nominal cooling capacity

Options/Accessories

Field Installed

Condensate Drain Trap

- Available in copper or PVC

Drain Pan Overflow Switch

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

Low Ambient Kit (0°F)

- Cycles the outdoor fan while allowing compressor operation in the cooling cycle
- Includes field installed pressure switch on the liquid line to determine when to operate the outdoor fan
- 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 0°F
- If liquid line pressure drops below 240 psig outdoor fan stops until main pressure switch has reset to 450 psig to resume normal cooling operation

CABINET

6 Construction

- Heavy-gauge steel panels
- Full perimeter heavy-gauge galvanized steel base rail
- Base rails have rigging holes
- Three sides of the base rail have 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

NOTE - Can be field converted to horizontal airflow configuration without any optional kits.

7 Power Entry

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

Exterior Panels

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

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 - Optional Economizers, Power Exhaust, Outdoor Air Dampers and Barometric Relief Dampers include a filler panel for proper cabinet fit.

Options/Accessories

Factory Installed

9 Hinged Access Panels

- Tool-Less Access
- Economizer/Filter section
- Heating/Blower section
- Compressor/Controls section
- Panel seals and quarter-turn latching handles 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

BLOWER

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

10 Motor

- Overload protected
- Ball bearings (belt drive)
- Sleeve bearings (direct drive)
- Multi-tap direct Drive motors are available on 024, 030, 036 and 048 models
- Single Speed belt drive motors are available on 036, 048 and 060 models 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

Required Selections

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

CONTROLS

11 Unit Control

- All control voltage is provided via a 24V (secondary) transformer with built-in circuit breaker protection
- Up to 2 heat / 1 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 10

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

Factory or Field Installed

Disconnect Switch up to 150 Amp

- Accessible from outside of unit
- Spring loaded weatherproof cover furnished

GFI Service Outlets (2)

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

Field Installed

12 Electric Heat

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

GFI Weatherproof Cover

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

FEATURES AND BENEFITS

INDOOR AIR QUALITY

- 13** Air Filters
- Disposable 2 inch MERV 4 filters furnished as standard

Options/Accessories

Field Installed

Healthy Climate® High Efficiency Air Filters

- Disposable MERV 8, MERV 13, or MERV16 (Minimum Efficiency Reporting Value based on ASHRAE 52.2) efficiency 2 inch pleated filters

Healthy Climate® High Efficiency Air Filters

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

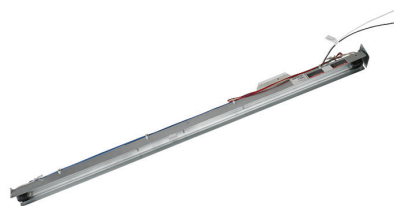
Replacement Filter Media Kit With Frame (060 Models)

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

Indoor Air Quality (CO₂) Sensors

- Monitors CO₂ levels
- Reports to the Unit Controller which adjusts economizer dampers as needed

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
 - 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)
 - Destroys the organism or controls its ability to reproduce
 - 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 110/230V-1ph power supply
- NOTE** - Step-down transformer may be ordered separately for 460V and 575V units.
- Approved by ETL

Needlepoint Bipolar Ionization (NPBI) Kit

- NPBI technology has been shown to effectively reduce harmful pathogens, pollutants, and odors

NOTE - Please visit www.sciencedirect.com for additional information.

- Brush-type ionizer introduces a high concentration of both positive and negative ions into the air stream
- These bipolar ions are then dispersed into the occupied space through the duct system proactively reducing the airborne contaminants
- Ions travel within the building air stream and attach to particles, pathogens, and gas molecules, making them larger and easier to capture in the filtration system
- UL 2998 certified for zero ozone emission

OPTIONS/ACCESSORIES

ECONOMIZER

Field Installed

14 Standard Economizer (Not for Title 24)

NOTE - Field Installed Economizer Does Not Include - Barometric Relief Dampers, Combination Outdoor Air/Exhaust Hood and Harness, these must be ordered separately.

- 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 CO₂ sensors
- Mixed Air Sensor is furnished for field installation in the rooftop unit
- 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 55°F when CO₂ is higher than the CO₂ 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 55°F.



Factory or Field Installed

High Performance Economizer

- Approved for California Title 24 building standards
- Low leakage dampers are Air Movement and Control Association International (AMCA) Class 1A Certified - Maximum 3 cfm per sq. ft. leakage at 1 in. w.g.
- ASHRAE 90.1 compliant
- Factory installed Economizer can be ordered with two exhaust options:
 - Barometric Relief Dampers
 - No Exhaust
- Linked damper action
- High torque 24-volt fully-modulating spring return damper motor
- Return air and outdoor air dampers
- Plug-in connections to unit
- Nylon bearings

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

- 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 CO₂ 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 field installed 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.

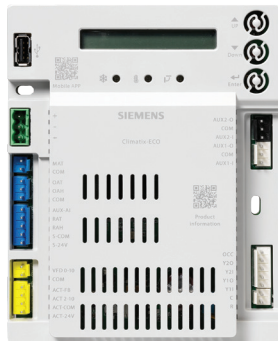
NOTE - Horizontal Barometric Dampers are required for horizontal Economizer applications and must be ordered separately.

OPTIONS/ACCESSORIES

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 - The Free Cooling setpoint for Title 24 applications must be set based on the Climate Zone where the system is installed. See Section 140.4 "Prescriptive Requirements for Space Conditioning Systems" of the California Energy Commission's 2013 Building Energy Efficiency Standards.

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

Field Installed

Single Enthalpy Temperature Control

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

NOTE - The factory installed economizer option comes preset for Single Enthalpy control but can be field converted to Single Sensible Temperature control by changing a parameter on the economizer control module.

Differential Enthalpy Control (Not for Title 24)

- Order one for factory installed economizer
- Order two for field installed economizer
 - One is field installed in the return air section
 - One 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.

OPTIONS/ACCESSORIES

EXHAUST

Field Installed

Horizontal Barometric Relief Dampers

- For use when unit is configured for horizontal applications with an economizer
- Allows relief of excess air
- Blade type dampers prevent blow back and outdoor air infiltration during off cycle
- Field installed in return air duct
- Exhaust hood with bird screen furnished

NOTE - Requires Horizontal Economizer Conversion Kit.

Horizontal Economizer Conversion Kit

- Insulated panel covers the bottom return air opening on the unit base to convert downflow Economizer to horizontal airflow

15 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.
- 16 in. diameter fan
- 4 fan blades
- 1/3 hp motor

NOTE - Not available for 024 and 030 models.

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

OUTDOOR AIR

Field Installed

Outdoor Air Dampers

- Downflow or Horizontal
- Single blade damper
- 0 to 25% (fixed) outdoor air adjustable
- Installs in unit
- Includes outdoor air hood
- Automatic model features fully modulating spring return damper motor with plug-in connection
- Manual model features a slide damper

NOTE - Maximum mixed air temperature in cooling mode is 100°F

ROOF CURBS

Field Installed

- 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
- Can also be fastened together with furnished hardware
- Available in 8, 14, 18, and 24 inch heights

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
- Uses interlocking tabs to fasten corners together. No tools required
- Hardware is furnished to connect upper curb with lower curb
- Available in 14 inch height

Adaptor Curbs (not shown)

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

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

CEILING DIFFUSERS

Field Installed

Ceiling Diffusers (Flush or Step-Down)

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

Transitions (Supply and Return)

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

OPTIONAL CONVENTIONAL TEMPERATURE CONTROL SYSTEMS

CS7500 Commercial 7-Day Programmable Thermostat



- Premium Universal Thermostat
- Full Color Touchscreen Interface
- Up To 4 Heat / 3 Cool
- Built-In Sensors For Temperature and Humidity
- Remote Sensors Options For Temperature, Discharge Air, Outdoor Air
- 5-2 or 7-Day Scheduling
- Smooth Setback Recovery
- Heat/Cool Auto-Changeover
- FDD, ASHRAE, IECC Compliant

CS3000 Commercial 5-2 Day Programmable Thermostat



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

BACnet Compatible Thermostat With Reheat



Description	Catalog No.
CS7500 Commercial 7-Day Programmable Thermostat	
CS7500 7-Day Thermostat	24K41
Sensors/	¹ Remote non-adjustable wall-mount 20k 47W36
Accessories	¹ Remote non-adjustable wall-mount 10k 47W37
	Remote non-adjustable discharge air (duct mount) 19L22
	Outdoor temperature sensor X2658
CS3000 5-2 Day Programmable Thermostat	
CS3000 5-2 Day Thermostat	11Y05
Sensor/	Remote non-adjustable wall mount 10k averaging 47W37
Accessories	Thermostat wall mounting plate X2659
BACnet 7-Day Programmable Thermostat	
BACnet	² 7-Day BACnet Thermostat 24C57
Controls	³ BACnet Module (factory or field) 16X70
⁴ BACnet	With Display 97W23
Room Sensors	Without Display 97W24
Universal Thermostat Guard with Lock (clear)	
Inside Dimensions (H x W x D)	5-7/8 x 8-3/8 x 3 in. 39P21

- 7-Day Programmable
- For units with or without Humiditrol®
- 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

¹ 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

² BACnet Thermostat (24C57) 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.

³ Not compatible with units equipped with Humiditrol® option.

⁴ Only compatible with BACnet Module (16X72).

OPTIONS / ACCESSORIES

Item	Catalog No.	Unit Model No.					
		KHB 024	KHB 030	KHB 036	KHB 048	KHB 060	
COOLING SYSTEM							
Condensate Drain Trap	PVC	22H54	X	X	X	X	X
	Copper	76W27	X	X	X	X	X
Drain Pan Overflow Switch		74W42	X	X	X	X	X
Low Ambient Kit		14D96	X	X	X	X	X
BLOWER - SUPPLY AIR							
Motors	Direct Drive - 0.25 hp (208/230V-1ph)	Factory	O	O			
	Direct Drive - 0.50 hp (208/230V-1ph, 208/230V-3ph, 460V-3ph, 575V-3ph)	Factory			O	O	
	Belt Drive - 1.5 hp (208/230V-1ph)	Factory					O
	Belt Drive - 1 hp (208/230V, 460V, 575V-3ph)	Factory			O	O	O
	Belt Drive - 2 hp (208/230V, 460V, 575V-3ph)	Factory					O
	Drive Kits See Blower Data Tables for selection	Kit A01 - 673-1010 rpm	Factory			O	
	Kit A02 - 745-1117 rpm	Factory				O	
	Kit A03 - 833-1250 rpm	Factory					O
	Kit A05 - 897-1346 rpm	Factory			O		
	Kit A06 - 1071-1429 rpm	Factory				O	
	Kit A07 - 1212-1548 rpm	Factory					O
CABINET							
Combination Coil/Hail Guards		13R98	X	X	X		
		13T03				X	X
Hinged Access Panels			O	O	O	O	O
CONTROLS							
NOTE - Also see Conventional Thermostat Control Systems on page 10 for Additional Options.							
Smoke Detector - Supply or Return (Power board and one sensor)		21Z11	X	X	X	X	X
Smoke Detector - Supply and Return (Power board and two sensors)		21Z12	X	X	X	X	X

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	Catalog No.	Unit Model No.				
		KHB 024	KHB 030	KHB 036	KHB 048	KHB 060
ECONOMIZER						
Standard Economizer With Outdoor Air Hood (Sensible Control) (Not for Title 24)						
High Performance Economizer (Includes Barometric Relief Dampers and Combination Outdoor Air/Exhaust Hood)	23T20	OX	OX	OX	OX	OX
Factory Installed Economizer - Enthalpy control is furnished as standard. Field programmable for Sensible Control without additional hardware						
Field Installed Economizer - Sensible Sensor is furnished as standard						
Barometric Relief Dampers, Combination Hood and Harness for Field Installed Economizer	23B17	X	X	X	X	X
Standard Economizer Controls (Not for Title 24)						
Single Enthalpy Control	21Z09	X	X	X	X	X
Differential Enthalpy Control (order 2)	21Z09	X	X	X	X	X
High Performance Economizer With Outdoor Air Hood (Sensible Control) (Approved for California Title 24 Building Standards / AMCA Class 1A Certified)						
High Performance Economizer (Includes Barometric Relief Dampers and Combination Outdoor Air/Exhaust Hood)	23G22	OX	OX	OX	OX	OX
High Performance Economizer - No Exhaust	Factory	O	O	O	O	O
High Performance Economizer Controls						
Single Enthalpy Control	23G26	X	X	X	X	X
Differential Enthalpy Control (order 1 for factory, order 2 for field) (Not for Title 24)	23G26	X	X	X	X	X
Economizer Accessories						
WLAN Stick (For High Performance Economizer only)	23K58	X	X	X	X	X
Horizontal Economizer Conversion Kit	17W45	X	X	X	X	X
POWER EXHAUST FAN						
Standard Static	208/230V-1 or 3ph	21Z13		X	X	X
<i>NOTE - Field installed Power Exhaust Fan requires "Barometric Relief Dampers for Power Exhaust Kit" for field installation. See below.</i>	460V-3ph	21Z14		X	X	X
	575V-3ph	21Z15		X	X	X
BAROMETRIC RELIEF						
¹ Barometric Relief Dampers for Power Exhaust Kit		21Z21		X	X	X
² Horizontal Barometric Relief Dampers With Exhaust Hood		19F01	X	X	X	X
OUTDOOR AIR						
Outdoor Air Dampers - Includes Outdoor Air Hood						
Motorized		15D17	X	X	X	X
Manual		15D18	X	X	X	X

¹ Required when Economizer is factory installed with field installed Power Exhaust Fan option.

² Required when Economizer is configured for horizontal airflow.

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	Catalog No.	Unit Model No.				
		KHB 024	KHB 030	KHB 036	KHB 048	KHB 060
ELECTRICAL						
Disconnect	See Electrical/Electric Heat Tables for selection	OX	OX	OX	OX	OX
Voltage 60 Hz	208/230V - 1 phase	O	O	O	O	O
	208/230V - 3 phase			O	O	O
	460V - 3 phase			O	O	O
	575V - 3 phase			O	O	O
GFI Service Outlets	15 amp non-powered, field-wired (208/230V, 460V only) 74M70	OX	OX	OX	OX	OX
	¹ 20 amp non-powered, field-wired (208/230V, 460V, 575V) 67E01	X	X	X	X	X
	¹ 20 amp non-powered, field-wired (575V) Factory	O	O	O	O	O
Weatherproof Cover for GFI	10C89	X	X	X	X	X
ELECTRIC HEAT						
5 kW	208/240V- 1ph 12F06	X	X			
7.5 kW	208/240V-1ph 14W32	X	X	X	X	X
	208/240V-3ph 14W35			X	X	X
	460V-3ph 14W39			X	X	X
	575V-3ph 14W43			X	X	X
10 kW	208/240V-1ph 30W26	X	X			
15 kW	208/230V-1ph 14W33			X	X	X
	208/240V-3ph 14W36			X	X	X
	460V-3ph 14W40			X	X	X
	575V-3ph 14W44			X	X	X
22.5 kW	208/240V-1ph 14W34					X
	208/240V-3ph 14W37					X
	460V-3ph 14W41					X
	575V-3ph 14W45					X

¹ Canada requires a minimum 20 amp circuit. Select 20 amp, non-powered, field wired GFI.

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	Catalog No.	Unit Model No.				
		KHB 024	KHB 030	KHB 036	KHB 048	KHB 060
INDOOR AIR QUALITY						
Air Filters						
Healthy Climate® High Efficiency Air Filters Order 4 per unit	MERV 8 (16 x 20 x 2)	54W20	X	X	X	
	MERV 13 (16 x 20 x 2)	52W37	X	X	X	
	MERV 16 (16 x 20 x 2)	22H13	X	X	X	
	MERV 8 (20 x 20 x 2)	54W21				X X
	MERV 13 (20 x 20 x 2)	52W39				X X
	MERV 16 (20 x 20 x 2)	21U40				X X
Indoor Air Quality (CO₂) Sensors						
Sensor - Wall-mount, off-white plastic cover with LCD display		77N39	X	X	X	X X
Sensor - Wall-mount, off-white plastic cover, no display		23V86	X	X	X	X X
Sensor - Wall-mount, black plastic case, no display, rated for plenum mounting		87N54	X	X	X	X X
CO ₂ Sensor Duct Mounting Kit - for downflow applications		85L43	X	X	X	X X
Aspiration Box - for duct mounting non-plenum rated CO ₂ sensor (77N39)		90N43	X	X	X	X X
Needlepoint Bipolar Ionization (NPBI)						
Needlepoint Bipolar Ionization Kit		22U14	X	X	X	X X
UVC Germicidal Lamps						
¹ Healthy Climate® UVC Light Kit (110/230V-1ph)		21A92	X	X	X	X X
Step-Down Transformers	460V primary, 230V secondary	10H20	X	X	X	X X
	575V primary, 230V secondary	10H21	X	X	X	X X
ROOF CURBS						
Hybrid Roof Curbs, Downflow						
8 in. height		11F50	X	X	X	X X
14 in. height		11F51	X	X	X	X X
18 in. height		11F52	X	X	X	X X
24 in. height		11F53	X	X	X	X X
Adjustable Pitch Curb, Downflow						
14 in. height		43W27	X	X	X	X X
CEILING DIFFUSERS						
Step-Down - Order one	RTD9-65S	13K60	X	X	X	X
	RTD11-95S	13K61				X
Flush - Order one	FD9-65S	13K55	X	X	X	X
	FD11-95S	13K56				X
Transitions (Supply and Return) - Order one	T1TRAN10AN1	17W53	X	X	X	X
	T1TRAN20N-1	17W54				X

¹ 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).

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

DIRECT DRIVE BLOWER

General Data		Nominal Tonnage	2 Ton	2.5 Ton	3 Ton	4 Ton
		Model No.	KHB024S4D	KHB030S4D	KHB036S4D	KHB048S4D
Efficiency Type			Standard	Standard	Standard	Standard
		Blower Type	Multi-Tap Direct Drive PSC	Multi-Tap Direct Drive PSC	Multi-Tap Direct Drive PSC	Multi-Tap Direct Drive PSC
Cooling Performance	Gross Cooling Capacity (Btuh)		23,700	29,700	36,300	48,700
	¹ Net Cooling Capacity (Btuh) 3ph		---	---	35,000	46,500
	¹ AHRI Rated Air Flow (cfm) 3ph		---	---	1200	1620
	¹ SEER (Btuh/Watt) 3ph		---	---	14.0	14.0
	¹ EER (Btuh/Watt) 3ph		---	---	11.5	11.4
	Total Unit Power (kW) 3ph		---	---	3.0	4.2
	¹ Net Cooling Capacity (Btuh) 1,3ph		22,600	27,600	34,600	46,000
	¹ AHRI Rated Air Flow (cfm) 1,3ph		900	1050	1250	1700
	¹ SEER2 (Btuh/Watt) 1,3ph		13.4	13.4	13.4	13.4
	¹ EER2 (Btuh/Watt) 1,3ph		10.6	10.6	10.6	10.6
Total Unit Power (kW) 1,3ph		2.1	2.7	3.3	4.4	
Heating Performance	¹ Total High Heating Capacity (Btuh) 3ph		---	---	36,600	47,500
	¹ AHRI Rated Air Flow (cfm) 3ph		---	---	1200	1620
	¹ HSPF (Region IV) 3ph		---	---	8.0	8.0
	¹ COP		---	---	3.64	3.72
	Total Unit Power (kW)		---	---	2.9	3.9
	¹ Total High Heating Capacity (Btuh) 1,3ph		23,000	28,400	35,000	47,500
	¹ HSPF2 (Region IV) 1,3ph		6.7	6.7	6.7	6.7
	¹ Total Low Heating Capacity (Btuh)		13,000	16,200	20,400	27,400
	¹ COP		2.28	2.30	2.32	2.40
	Total Unit Power (kW)		1.8	2.2	2.7	3.7
² Sound Rating Number (SRN) (dBA)			75	75	75	75
Refrigerant	Type		R-410A	R-410A	R-410A	R-410A
	Charge Furnished		12 lbs. 8 oz.	12 lbs. 0 oz.	12 lbs. 0 oz.	14 lbs. 7 oz.
Electric Heating Options - See page 13			5, 7.5, 10 kW	5, 7.5, 10 kW	7.5, 15 kW	7.5, 15 kW
Compressor Type (one per unit)			1-Stage Scroll	1-Stage Scroll	1-Stage Scroll	1-Stage Scroll
Outdoor Coil	Net face area - sq. ft.		15.6	15.6	15.6	19.3
	Tube diameter - in.		3/8	3/8	3/8	3/8
	Number of rows		2	2	2	2
	Fins / inch		20	20	20	20
Outdoor Coil Fan	Motor - (No.) HP		(1) 1/4	(1) 1/4	(1) 1/4	(1) 1/4
	Motor rpm		825	825	825	825
	Total Motor Input - watts		220	230	240	290
	Diameter - (No.) in. / No. of blades		(1) 24 - 3	(1) 24 - 3	(1) 24 - 3	(1) 24 - 3
	Total air volume - cfm		3300	3300	3300	3900
Indoor Coil	Net face area - sq. ft.		7.8	7.8	7.8	9.7
	Tube diameter - in.		3/8	3/8	3/8	3/8
	Number of rows		3	3	3	3
	Fins / inch		14	14	14	14
	Drain Connection (no.) and size - in.		(1) 1 NPT	(1) 1 NPT	(1) 1 NPT	(1) 1 NPT
	Expansion device type		Balanced Port Thermostatic Expansion Valve, removable power head			
Indoor Blower	Nominal Motor HP		0.25	0.25	0.5	0.5
	Wheel nom. diameter x width - in.		(1) 10 x 10	(1) 10 x 10	(1) 10 x 10	(1) 10 x 10
Filters	Type of Filter		MERV 4, Disposable			
	Number and size - in.		(4) 16 x 20 x 2			(4) 20 x 20 x 2
Electrical Characteristics - 60 Hz			208/230V 1 phase		208/230V 1 phase 208/230V, 460V & 575V 3 phase	208/230V 1 phase 208/230V, 460V & 575V 3 phase

NOTE - Shaded area indicates AHRI 2023 M1 Ratings. Does not include 575V-3ph models.

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

¹AHRI Certified to AHRI Standard 210/240:

Cooling Ratings - 95°F outdoor air temperature and 80°F db/67°F wb entering indoor coil air.

High Temperature Heating Ratings - 47°F db/43°F wb outdoor air temperature and 70°F entering indoor coil air.

Low Temperature Heating Ratings - 17°F db/15°F wb outdoor air temperature and 70°F entering indoor coil air.

SPECIFICATIONS

BELT DRIVE BLOWER

General Data		Nominal Tonnage	3 Ton	4 Ton	5 Ton
		Model No.	KHB036S4B	KHB048S4B	KHB060S4B
		Efficiency Type	Standard	Standard	Standard
		Blower Type	Single Speed Belt Drive	Single Speed Belt Drive	Single Speed Belt Drive
Cooling Performance	Gross Cooling Capacity (Btuh)		36,300	48,700	60,600
	¹ Net Cooling Capacity (Btuh) 3ph		35,000	46,500	58,000
	¹ AHRI Rated Air Flow (cfm) 3ph		1200	1620	2020
	¹ SEER (Btuh/Watt) - 3ph		14.0	14.0	14.0
	¹ EER (Btuh/Watt) - 3ph		11.55	11.4	11.5
	Total Unit Power (kW) 3ph		3.0	4.2	5.0
	¹ Net Cooling Capacity (Btuh) 1,3ph		34,600	46,000	57,000
	¹ AHRI Rated Air Flow (cfm) 1,3ph		1250	1700	1900
	¹ SEER2 (Btuh/Watt) - 208/230V 1,3ph		13.4	13.4	13.4
	¹ EER2 (Btuh/Watt) - 208/230V 1,3ph		10.6	10.6	10.6
Total Unit Power (kW) 1,3ph		3.3	4.4	5.4	
Heating Performance	¹ Total High Heating Capacity (Btuh) 3ph		36,600	47,500	58,000
	¹ AHRI Rated Air Flow (cfm) 3ph		1200	1620	2020
	¹ HSPF (Region IV) 3ph		8.0	8.0	8.0
	¹ COP		3.64	3.72	3.72
	Total Unit Power - kW		2.9	3.9	4.5
	¹ Total High Heating Capacity (Btuh) 1,3ph		35,000	47,500	58,000
	¹ HSPF2 (Region IV) - 208/230V 1,3ph		6.7	6.7	6.7
	¹ Total Low Heating Capacity - Btuh		20,400	27,400	33,000
	¹ COP		2.32	2.40	2.38
	Total Unit Power - kW		2.7	3.7	4.2
² Sound Rating Number (SRN) (dBA)		75	80	80	
Refrigerant	Type	R-410A	R-410A	R-410A	
	Charge Furnished	12 lbs. 0 oz.	14 lbs. 7 oz.	16 lbs. 0 oz.	
Electric Heating Options - See page 13		7.5, 15 kW	7.5, 15 kW	7.5, 15, 22.5 kW	
Compressor Type (one per unit)		1-Stage Scroll	1-Stage Scroll	1-Stage Scroll	
Outdoor Coil	Net face area - sq. ft.	15.6	19.3	19.3	
	Tube diameter - in.	3/8	3/8	3/8	
	Number of rows	2	2	3	
	Fins / inch	20	20	20	
Outdoor Coil Fan	Motor - (No.) HP	(1) 1/4	(1) 1/4	(1) 1/3	
	Motor rpm	825	825	1075	
	Total Motor Input - watts	240	290	405	
	Diameter - (No.) in. / No. of blades	(1) 24 - 3	(1) 24 - 3	(1) 24 - 3	
	Total air volume - cfm	3300	3900	4300	
Indoor Coil	Net face area - sq. ft.	7.8	9.7	9.7	
	Tube diameter - in.	3/8	3/8	3/8	
	Number of rows	3	3	4	
	Fins / inch	14	14	14	
	Drain Connection (no.) and size - in.	(1) 1 NPT	(1) 1 NPT	(1) 1 NPT	
	Expansion device type	Balanced Port Thermostatic Expansion Valve, removable power head			
² Indoor Blower & Drive Selection	Nominal Motor HP	208/230V-1ph	---	1.5 hp	
	All others voltages		1 hp	1 hp, 2 hp	
	Maximum Usable	208/230V-1ph	---	1.7 hp	
	Motor HP	All other voltages	1.15 hp	1.15 hp, 2.3 hp	
	Available Drive Kits		A01	A02	
			673 - 1010 rpm	745 - 1117 rpm	
			A05	A06	
			897 - 1346 rpm	1071 - 1429 rpm	
			A07	A07	
			1212 - 1548 rpm	1212 - 1548 rpm	
	Wheel nominal diameter x width - in.	(1) 10 x 10	(1) 10 x 10	(1) 10 x 10	
Filters	Type of filter	MERV 4, Disposable			
	Number and size - in.	(4) 16 x 20 x 2	(4) 20 x 20 x 2		
Electrical Characteristics - 60 Hz		208/230V, 460V & 575V 3 phase	208/230V, 460V & 575V 3 phase	208/230V 1 phase 208/230V, 460V & 575V 3 phase	

NOTE - Shaded area indicates AHRI 2023 M1 Ratings. Does not include 575V-3ph models.

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

¹AHRI Certified to AHRI Standard 210/240:

Cooling Ratings - 95°F outdoor air temperature and 80°F db/67°F wb entering indoor coil air.

High Temperature Heating Ratings - 47°F db/43°F wb outdoor air temperature and 70°F entering indoor coil air.

Low Temperature Heating Ratings - 17°F db/15°F wb outdoor air temperature and 70°F entering indoor coil air.

² Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor hp required. Maximum usable hp of motors furnished are shown. In Canada, nominal motor hp is also maximum usable motor hp. If motors of comparable hp 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.

2 TON COOLING - KHB024S4

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		85°F					95°F					105°F					115°F				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb					Dry Bulb					Dry Bulb							
cfm	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	
63°F	640	22	1.36	0.71	0.87	1	20.3	1.55	0.72	0.89	1	18.6	1.78	0.73	0.91	1	16.6	2.03	0.75	0.95	1
	800	23.6	1.35	0.77	0.95	1	21.8	1.54	0.79	0.98	1	20	1.77	0.81	1	1	18.1	2.01	0.84	1	1
	960	24.9	1.33	0.83	1	1	23.2	1.52	0.85	1	1	21.4	1.75	0.88	1	1	19.5	2	0.92	1	1
67°F	640	23.7	1.35	0.55	0.69	0.83	21.9	1.54	0.55	0.7	0.85	20	1.76	0.54	0.71	0.88	18	2.02	0.54	0.73	0.91
	800	25.2	1.33	0.59	0.75	0.91	23.3	1.52	0.59	0.77	0.94	21.3	1.75	0.59	0.79	0.97	19.1	2	0.6	0.82	1
	960	26.3	1.31	0.63	0.81	0.99	24.3	1.51	0.63	0.83	1	22.2	1.73	0.64	0.86	1	19.9	1.99	0.65	0.9	1
71°F	640	25.5	1.33	0.4	0.54	0.67	23.6	1.52	0.39	0.54	0.68	21.7	1.74	0.38	0.54	0.69	19.5	1.99	0.36	0.54	0.71
	800	27	1.3	0.42	0.58	0.73	25.1	1.49	0.42	0.58	0.75	23	1.72	0.4	0.59	0.77	20.7	1.98	0.39	0.6	0.79
	960	28.1	1.28	0.44	0.62	0.79	26.1	1.48	0.43	0.63	0.81	23.9	1.71	0.43	0.64	0.84	21.4	1.96	0.42	0.65	0.88

2 TON HEATING - KHB024S4

Indoor Coil Air Volume 70°F Dry Bulb cfm	Air Temperature Entering Outdoor Coil									
	65°F		45°F		25°F		5°F		-15°F	
	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
	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW
640	30.6	1.73	23.2	1.65	15.6	1.57	10.2	1.42	5.1	1.06
800	31	1.6	23.7	1.52	16	1.44	10.7	1.29	5.6	0.94
960	31.4	1.52	24.1	1.44	16.4	1.36	11.1	1.22	6	0.86

2.5 TON COOLING - KHB030S4

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		85°F					95°F					105°F					115°F				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb					Dry Bulb					Dry Bulb							
cfm	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	
63°F	800	28	1.61	0.74	0.88	1	26.5	1.84	0.76	0.9	1	24.9	2.1	0.78	0.93	1	23.3	2.41	0.8	0.96	1
	1000	29.6	1.62	0.79	0.95	1	28.1	1.85	0.81	0.97	1	26.4	2.11	0.84	1	1	24.8	2.41	0.87	1	1
	1200	31	1.63	0.85	1	1	29.4	1.86	0.87	1	1	27.9	2.12	0.9	1	1	26.1	2.42	0.93	1	1
67°F	800	29.7	1.62	0.59	0.72	0.84	28.2	1.85	0.59	0.73	0.87	26.4	2.12	0.6	0.75	0.89	24.6	2.41	0.62	0.78	0.93
	1000	31.2	1.63	0.62	0.77	0.92	29.5	1.86	0.63	0.79	0.94	27.8	2.12	0.64	0.81	0.97	25.8	2.42	0.66	0.84	1
	1200	32.4	1.64	0.65	0.82	0.98	30.6	1.87	0.66	0.85	1	28.6	2.13	0.68	0.88	1	26.6	2.42	0.7	0.91	1
71°F	800	31.5	1.63	0.45	0.57	0.7	29.8	1.86	0.44	0.58	0.71	28.1	2.12	0.45	0.59	0.73	26.1	2.42	0.45	0.6	0.75
	1000	33.2	1.64	0.45	0.6	0.75	31.3	1.87	0.46	0.62	0.77	29.5	2.13	0.46	0.63	0.79	27.4	2.42	0.47	0.65	0.82
	1200	34.4	1.65	0.47	0.64	0.8	32.4	1.88	0.47	0.65	0.82	30.4	2.14	0.48	0.67	0.85	28.2	2.43	0.49	0.69	0.88

2.5 TON HEATING - KHB030S4

Indoor Coil Air Volume 70°F Dry Bulb cfm	Air Temperature Entering Outdoor Coil									
	65°F		45°F		25°F		5°F		-15°F	
	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
	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW
800	37.2	2.12	28.1	2.01	18.8	1.89	12.1	1.7	6.1	1.28
1000	37.8	1.96	28.7	1.85	19.3	1.74	12.7	1.55	6.6	1.12
1200	38.2	1.87	29.2	1.76	19.8	1.64	13.1	1.45	7.1	1.03

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.

3 TON COOLING - KHB036S4

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		85°F					95°F					105°F					115°F				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb		
cfm	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	
63°F	960	34.7	2.1	0.71	0.87	1	32.3	2.37	0.73	0.89	1	29.7	2.69	0.74	0.92	1	26.9	3.06	0.77	0.96	1
	1200	36.9	2.11	0.77	0.95	1	34.3	2.38	0.79	0.98	1	31.5	2.7	0.82	1	1	29	3.06	0.85	1	1
	1440	38.5	2.12	0.83	1	1	36.1	2.39	0.86	1	1	33.6	2.71	0.89	1	1	30.9	3.07	0.93	1	1
67°F	960	37.1	2.11	0.56	0.69	0.83	34.6	2.38	0.56	0.71	0.85	31.8	2.7	0.56	0.72	0.88	28.9	3.06	0.57	0.74	0.92
	1200	39.1	2.12	0.59	0.75	0.91	36.4	2.39	0.6	0.77	0.94	33.4	2.7	0.61	0.8	0.98	30.4	3.07	0.62	0.83	1
	1440	40.5	2.13	0.63	0.81	0.99	37.7	2.41	0.64	0.84	1	34.8	2.71	0.65	0.87	1	31.6	3.08	0.66	0.9	1
71°F	960	39.5	2.12	0.41	0.54	0.67	36.8	2.4	0.4	0.55	0.68	34.1	2.71	0.4	0.55	0.7	31	3.07	0.39	0.56	0.72
	1200	41.5	2.14	0.43	0.58	0.73	38.9	2.41	0.42	0.59	0.75	35.9	2.72	0.42	0.6	0.77	32.7	3.08	0.42	0.61	0.8
	1440	43.1	2.15	0.45	0.62	0.79	40.2	2.41	0.45	0.63	0.81	37.1	2.73	0.44	0.65	0.84	33.7	3.09	0.44	0.67	0.88

3 TON HEATING - KHB036S4

Indoor Coil Air Volume 70°F Dry Bulb cfm	Air Temperature Entering Outdoor Coil									
	65°F		45°F		25°F		5°F		-15°F	
	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
cfm	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW
960	45.2	2.61	34.5	2.45	23.3	2.28	15.4	2.03	7.7	1.52
1200	45.8	2.45	35.1	2.28	23.9	2.12	16	1.86	8.3	1.36
1440	46.4	2.35	35.6	2.18	24.5	2.02	16.5	1.77	8.9	1.26

4 TON COOLING - KHB048S4

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		85°F					95°F					105°F					115°F				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb		
cfm	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	
63°F	1280	46	2.86	0.71	0.86	1	42.2	3.25	0.71	0.88	1	38.2	3.69	0.72	0.91	1	33.9	4.21	0.74	0.95	1
	1600	49.1	2.87	0.77	0.95	1	45	3.26	0.79	0.98	1	41.1	3.71	0.81	1	1	37.1	4.23	0.83	1	1
	1920	51.9	2.88	0.84	1	1	48	3.27	0.86	1	1	44.2	3.73	0.88	1	1	40	4.26	0.93	1	1
67°F	1280	49.4	2.87	0.54	0.68	0.83	45.4	3.26	0.54	0.69	0.85	41.2	3.71	0.53	0.7	0.87	36.9	4.23	0.53	0.72	0.91
	1600	52.5	2.89	0.58	0.75	0.92	48.2	3.27	0.58	0.77	0.95	44	3.73	0.58	0.79	0.98	39.3	4.24	0.59	0.81	1
	1920	54.8	2.9	0.62	0.82	0.99	50.4	3.29	0.63	0.84	1	45.8	3.74	0.63	0.86	1	41	4.26	0.65	0.9	1
71°F	1280	53	2.88	0.39	0.53	0.66	48.8	3.27	0.38	0.53	0.67	44.6	3.73	0.36	0.52	0.68	40.1	4.25	0.34	0.52	0.7
	1600	56.1	2.9	0.42	0.58	0.73	51.7	3.29	0.4	0.58	0.75	47.4	3.75	0.39	0.58	0.77	42.4	4.27	0.37	0.59	0.79
	1920	58.4	2.92	0.44	0.62	0.8	53.9	3.31	0.43	0.63	0.82	49.1	3.76	0.42	0.63	0.84	43.9	4.29	0.4	0.65	0.88

4 TON HEATING - KHB048S4

Indoor Coil Air Volume 70°F Dry Bulb cfm	Air Temperature Entering Outdoor Coil									
	65°F		45°F		25°F		5°F		-15°F	
	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
cfm	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW
1280	60	3.34	46.3	3.19	32	3.04	21.6	2.76	10.6	2.06
1600	61.1	3.11	47.4	2.96	33.1	2.81	22.7	2.53	11.7	1.83
1920	61.9	2.96	48.2	2.81	34	2.66	23.5	2.37	12.6	1.67

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.

5 TON COOLING - KHB060S4

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		85°F					95°F					105°F					115°F				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb		
cfm	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	
63°F	1600	59.2	3.45	0.69	0.86	1	54.8	3.89	0.7	0.88	1	50.2	4.42	0.71	0.92	1	45.4	5.05	0.73	0.96	1
	2000	62.6	3.46	0.75	0.96	1	58.3	3.91	0.77	0.99	1	53.7	4.44	0.8	1	1	49.2	5.09	0.82	1	1
	2400	65.9	3.48	0.82	1	1	61.8	3.93	0.84	1	1	57.3	4.47	0.88	1	1	52.5	5.12	0.93	1	1
67°F	1600	63.7	3.47	0.53	0.67	0.81	59.1	3.92	0.53	0.68	0.83	54.3	4.45	0.53	0.69	0.87	49.3	5.09	0.54	0.71	0.92
	2000	67	3.49	0.57	0.73	0.91	62.4	3.94	0.58	0.75	0.94	57.3	4.47	0.58	0.77	0.99	51.7	5.11	0.59	0.8	1
	2400	69.7	3.5	0.61	0.8	1	64.6	3.95	0.61	0.82	1	59.4	4.49	0.63	0.86	1	53.5	5.12	0.64	0.9	1
71°F	1600	68.2	3.49	0.39	0.52	0.65	63.6	3.94	0.38	0.52	0.65	58.6	4.48	0.37	0.52	0.67	53.3	5.12	0.36	0.53	0.69
	2000	71.8	3.51	0.41	0.56	0.7	66.9	3.96	0.4	0.57	0.72	61.5	4.5	0.4	0.58	0.75	55.8	5.15	0.39	0.59	0.78
	2400	74.4	3.52	0.43	0.6	0.77	69.1	3.98	0.42	0.61	0.8	63.7	4.52	0.42	0.62	0.83	57.6	5.16	0.42	0.64	0.88

5 TON HEATING - KHB060S4

Indoor Coil Air Volume 70°F Dry Bulb cfm	Air Temperature Entering Outdoor Coil									
	65°F		45°F		25°F		5°F		-15°F	
	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
	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW
1600	71.6	3.92	55.2	3.68	38.4	3.43	25.3	3.08	12.8	2.31
2000	72.3	3.66	55.9	3.42	39	3.17	26	2.82	13.5	2.05
2400	73.5	3.5	57.1	3.26	40.2	3.02	27.2	2.66	14.7	1.89

BLOWER DATA**DIRECT DRIVE - 2 TON | 2.5 TON****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 (economizer, wet coil, etc.) See page 30.

2 - Any field installed accessories air resistance (electric heat, duct resistance, diffuser, etc.) See page 30.

External Static Pressure (in. w.g.)	Air Volume (cfm) at Various Blower Speeds					
	208 VOLTS			230 VOLTS		
	High	Medium	Low	High	Medium	Low
DOWNFLOW	KHB024S4D and KHB030S4D					
0.0	1199	928	838	1379	1085	877
0.1	1229	926	813	1409	1086	872
0.2	1206	928	782	1367	1094	850
0.3	1183	881	742	1350	1047	820
0.4	1159	843	686	1321	1009	783
0.5	1136	812	643	1282	981	762
0.6	1103	766	569	1242	921	705
0.7	1046	728	496	1195	888	625
0.8	953	648	432	1134	792	583
0.9	909	584	335	1037	738	492
1.0	783	465	247	926	592	411
HORIZONTAL	KHB024S4D and KHB030S4D					
0.0	1152	909	801	1325	1063	838
0.1	1152	893	770	1321	1048	826
0.2	1136	866	734	1288	1021	798
0.3	1104	826	697	1260	982	771
0.4	1072	787	643	1222	942	734
0.5	1041	747	589	1175	903	698
0.6	1009	707	534	1137	850	662
0.7	946	654	467	1081	797	588
0.8	861	588	396	1024	718	535
0.9	798	508	319	911	642	468
1.0	715	443	237	846	564	394

BLOWER DATA**DIRECT DRIVE - 3 TON****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 (economizer, wet coil, etc.) See page 30.

2 - Any field installed accessories air resistance (electric heat, duct resistance, diffuser, etc.) See page 30.

External Static Pressure (in. w.g.)	Air Volume (cfm) at Various Blower Speeds								
	208 VOLTS			230 VOLTS			460/575 VOLTS		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
DOWNFLOW									
	KHB036S4D								
0.0	1938	1552	1119	2167	1772	1317	2136	1716	1212
0.1	1992	1586	1128	2167	1780	1315	2104	1728	1208
0.2	1915	1592	1137	2100	1792	1307	2052	1684	1197
0.3	1865	1536	1083	2043	1735	1266	1994	1647	1172
0.4	1813	1495	1033	1986	1678	1204	1918	1597	1134
0.5	1762	1444	976	1909	1621	1164	1861	1534	1096
0.6	1694	1391	899	1814	1535	1082	1765	1485	1059
0.7	1609	1331	817	1718	1478	1000	1689	1410	996
0.8	1471	1220	730	1603	1364	918	1613	1335	920
0.9	1368	1066	522	1488	1250	755	1498	1235	848
1.0	1108	869	402	1259	1021	640	1345	1036	763
HORIZONTAL									
	KHB036S4D								
0.0	1862	1520	1070	2082	1736	1259	2085	1745	1247
0.1	1867	1530	1069	2031	1717	1246	2070	1744	1257
0.2	1804	1485	1067	1978	1672	1227	2016	1690	1225
0.3	1741	1440	1018	1907	1627	1190	1944	1643	1192
0.4	1677	1396	968	1837	1567	1128	1890	1596	1160
0.5	1614	1329	894	1749	1492	1066	1800	1533	1111
0.6	1550	1284	844	1660	1417	1016	1727	1455	1062
0.7	1455	1195	769	1554	1327	941	1655	1377	996
0.8	1329	1106	670	1448	1237	842	1511	1283	865
0.9	1202	927	496	1307	1087	718	1403	1190	784
1.0	1012	828	385	1150	973	613	1222	1002	670

BLOWER DATA

DIRECT DRIVE - 4 TON

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 (economizer, wet coil, etc.) See page 30.

2 - Any field installed accessories air resistance (electric heat, duct resistance, diffuser, etc.) See page 30.

External Static Pressure (in. w.g.)	Air Volume (cfm) at Various Blower Speeds								
	208 VOLTS			230 VOLTS			460/575 VOLTS		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
DOWNFLOW					KHB048S4D				
0.0	1951	1542	1098	2139	1542	1271	2139	1542	1271
0.1	1918	1526	1081	2105	1526	1261	2105	1526	1261
0.2	1877	1508	1062	2054	1508	1238	2054	1508	1238
0.3	1814	1448	1026	1986	1448	1196	1986	1448	1196
0.4	1752	1407	990	1918	1407	1154	1918	1407	1154
0.5	1689	1347	936	1826	1347	1099	1826	1347	1099
0.6	1605	1286	864	1735	1286	1043	1735	1286	1043
0.7	1500	1206	774	1644	1206	932	1644	1206	932
0.8	1375	1085	---	1461	1085	---	1461	1085	---
0.9	1202	---	---	---	---	---	---	---	---
1.0	---	---	---	---	---	---	---	---	---
HORIZONTAL					KHB048S4D				
0.0	1901	1506	1079	2072	1718	1249	2072	1718	1249
0.1	1855	1478	1069	2026	1686	1238	2026	1686	1238
0.2	1800	1458	1049	1969	1644	1206	1969	1644	1206
0.3	1744	1396	1012	1908	1601	1161	1908	1601	1161
0.4	1687	1346	936	1847	1530	1115	1847	1530	1115
0.5	1630	1296	886	1755	1460	1047	1755	1460	1047
0.6	1546	1222	811	1663	1403	1002	1663	1403	1002
0.7	1461	1147	735	1572	1290	910	1572	1290	910
0.8	1347	1073	660	1419	1205	820	1419	1205	820
0.9	1178	874	560	1296	1006	683	1296	1006	683
1.0	954	624	358	1129	---	496	1129	---	496

BLOWER DATA

BELT DRIVE - 3 TON

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 (economizer, wet coil, etc.).

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

See page 29 for blower motors and drives and page 30 for wet coil and options/accessory air resistance data.

DOWNFLOW

KHB036S4B

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
900	486	0.12	554	0.16	623	0.20	695	0.22	767	0.23	836	0.25	897	0.28	953	0.30
1000	508	0.15	576	0.19	643	0.22	713	0.24	783	0.26	848	0.28	907	0.30	961	0.33
1100	533	0.18	599	0.22	665	0.25	733	0.27	800	0.28	863	0.31	919	0.34	971	0.36
1200	560	0.21	625	0.25	689	0.28	755	0.30	820	0.32	879	0.34	932	0.37	983	0.40
1300	591	0.24	654	0.28	716	0.31	779	0.33	841	0.35	897	0.38	948	0.41	996	0.44
1400	631	0.26	690	0.30	748	0.34	807	0.36	864	0.39	916	0.42	964	0.46	1011	0.49
1500	676	0.28	729	0.33	782	0.36	835	0.40	887	0.43	935	0.47	981	0.50	1028	0.54

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
900	1004	0.33	1055	0.35	1106	0.37	1152	0.40	1193	0.43	1232	0.46	1269	0.49	1305	0.52
1000	1011	0.36	1062	0.38	1111	0.41	1157	0.43	1199	0.47	1238	0.50	1276	0.53	1311	0.56
1100	1020	0.39	1070	0.41	1118	0.44	1163	0.47	1206	0.51	1245	0.54	1282	0.58	1318	0.61
1200	1031	0.43	1079	0.45	1127	0.48	1171	0.52	1213	0.55	1252	0.59	1289	0.62	1324	0.66
1300	1044	0.47	1091	0.49	1137	0.53	1181	0.56	1221	0.60	1259	0.64	1296	0.68	1330	0.71
1400	1058	0.51	1105	0.54	1150	0.57	1191	0.61	1231	0.65	1268	0.69	1303	0.73	1337	0.77
1500	1074	0.56	1120	0.59	1163	0.63	1203	0.67	1241	0.71	1277	0.75	1312	0.79	1345	0.82

BLOWER DATA**BELT DRIVE - 3 TON****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 (economizer, wet coil, etc.).

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

See page 29 for blower motors and drives and page 30 for wet coil and options/accessory air resistance data.

HORIZONTAL**KHB036S4B**

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
900	485	0.11	554	0.14	627	0.16	703	0.18	780	0.21	841	0.23	888	0.27	935	0.30
1000	509	0.13	578	0.16	649	0.19	722	0.21	796	0.23	854	0.26	900	0.29	947	0.33
1100	537	0.16	605	0.19	674	0.21	744	0.24	813	0.26	868	0.29	913	0.33	959	0.36
1200	567	0.19	633	0.22	700	0.24	768	0.27	833	0.30	884	0.33	928	0.37	974	0.40
1300	599	0.22	664	0.25	729	0.28	793	0.30	853	0.33	902	0.37	945	0.41	990	0.44
1400	634	0.26	697	0.29	758	0.31	819	0.34	875	0.38	921	0.42	964	0.46	1008	0.49
1500	669	0.30	730	0.33	789	0.36	846	0.39	897	0.42	941	0.47	983	0.51	1028	0.54

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
900	986	0.32	1039	0.35	1090	0.37	1137	0.40	1177	0.43	1214	0.46	1248	0.49	1280	0.51
1000	997	0.35	1048	0.38	1098	0.41	114	0.44	1184	0.47	1221	0.50	1255	0.53	1287	0.56
1100	1008	0.39	1059	0.41	1107	0.44	1150	0.47	1191	0.51	1228	0.54	1263	0.57	1295	0.60
1200	1022	0.43	1071	0.45	1117	0.48	1160	0.52	1200	0.55	1237	0.59	1271	0.62	1303	0.66
1300	1037	0.47	1058	0.50	1130	0.53	1171	0.57	1210	0.60	1246	0.64	1280	0.68	1312	0.71
1400	1054	0.52	1100	0.54	1144	0.58	1183	0.62	1221	0.66	1256	0.70	1290	0.73	1321	0.77
1500	1073	0.57	1117	0.60	1159	0.64	1197	0.67	1234	0.71	1268	0.75	1301	0.79	1332	0.83

BLOWER DATA

BELT DRIVE -4 TON

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 (economizer, wet coil, etc.).

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

See page 29 for blower motors and drives and page 30 for wet coil and options/accessory air resistance data.

DOWNFLOW

KHB048S4B

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1200	527	0.18	584	0.21	643	0.25	702	0.28	779	0.30	860	0.30	927	0.31	973	0.34
1300	550	0.21	607	0.25	664	0.29	722	0.32	797	0.33	875	0.34	937	0.35	981	0.38
1400	574	0.25	630	0.29	687	0.32	744	0.35	817	0.37	890	0.38	949	0.39	991	0.42
1500	603	0.28	659	0.32	714	0.36	770	0.39	839	0.41	907	0.42	962	0.44	1002	0.47
1600	651	0.29	703	0.33	754	0.37	806	0.41	867	0.43	927	0.45	976	0.48	1014	0.51
1700	708	0.30	754	0.34	800	0.38	846	0.42	898	0.46	949	0.49	992	0.53	1028	0.57
1800	764	0.31	804	0.36	844	0.40	884	0.45	927	0.49	970	0.54	1008	0.58	1044	0.63
1900	812	0.34	847	0.39	881	0.44	916	0.49	953	0.54	990	0.59	1025	0.64	1061	0.69
2000	857	0.42	889	0.47	920	0.52	952	0.57	986	0.62	1020	0.68	1055	0.73	1091	0.77

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1200	1008	0.38	1047	0.42	1089	0.46	1133	0.49	1180	0.53	1224	0.56	1261	0.60	---	---
1300	1017	0.42	1055	0.46	1097	0.50	1139	0.53	1184	0.57	1228	0.60	1264	0.63	1295	0.67
1400	1026	0.46	1065	0.50	1106	0.54	1147	0.57	1191	0.61	1233	0.64	1269	0.68	1300	0.71
1500	1038	0.51	1076	0.55	1117	0.59	1157	0.62	1199	0.65	1240	0.69	1275	0.72	1305	0.76
1600	1050	0.56	1089	0.60	1129	0.64	1168	0.67	1209	0.71	1249	0.74	1282	0.78	1312	0.82
1700	1065	0.61	1103	0.65	1142	0.69	1181	0.73	1221	0.76	1259	0.80	1292	0.83	1320	0.88
1800	1081	0.67	1118	0.71	1156	0.75	1194	0.79	1234	0.82	1271	0.86	1302	0.90	1330	0.94
1900	1098	0.73	1135	0.77	1172	0.81	1209	0.85	1248	0.88	1284	0.92	1314	0.97	1341	1.01
2000	1128	0.82	1164	0.86	1201	0.89	1239	0.93	1276	0.97	1310	1.01	1336	1.06	1362	1.10

BLOWER DATA

BELT DRIVE - 4 TON

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 (economizer, wet coil, etc.).

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

See page 29 for blower motors and drives and page 30 for wet coil and options/accessory air resistance data.

HORIZONTAL

KHB048S4B

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1200	528	0.17	581	0.20	641	0.23	706	0.25	782	0.27	859	0.29	924	0.31	974	0.34
1300	556	0.21	609	0.24	669	0.26	731	0.29	804	0.31	877	0.33	938	0.35	985	0.38
1400	592	0.24	645	0.27	702	0.30	763	0.32	830	0.35	898	0.37	953	0.39	997	0.43
1500	641	0.26	692	0.29	746	0.33	801	0.36	862	0.38	921	0.41	970	0.44	1011	0.48
1600	696	0.28	743	0.32	792	0.35	842	0.39	894	0.42	945	0.45	988	0.49	1027	0.53
1700	750	0.31	792	0.35	836	0.39	880	0.43	924	0.47	968	0.51	1007	0.55	1043	0.59
1800	799	0.35	837	0.39	875	0.43	913	0.48	952	0.52	990	0.56	1026	0.61	1061	0.65
1900	840	0.40	873	0.45	907	0.49	941	0.54	976	0.58	1011	0.63	1045	0.67	1080	0.72
2000	883	0.48	913	0.53	944	0.57	976	0.62	1009	0.67	1043	0.71	1078	0.76	1112	0.8

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1200	1014	0.38	1052	0.42	1093	0.45	1135	0.48	1176	0.51	1217	0.54	1257	0.58	1296	0.61
1300	1023	0.42	1061	0.46	1102	0.50	1143	0.53	1184	0.56	1224	0.59	1263	0.62	1302	0.66
1400	1035	0.47	1073	0.51	1112	0.54	1153	0.57	1193	0.61	1232	0.64	1271	0.67	1309	0.71
1500	1048	0.52	1086	0.56	1125	0.59	1164	0.63	1204	0.66	1243	0.69	1280	0.73	1317	0.77
1600	1063	0.57	1100	0.61	1139	0.65	1178	0.68	1216	0.71	1254	0.75	1291	0.79	1326	0.83
1700	1079	0.63	1116	0.67	1154	0.71	1192	0.74	1230	0.78	1267	0.81	1302	0.85	1337	0.89
1800	1097	0.69	1133	0.73	1171	0.77	1209	0.80	1246	0.84	1281	0.88	1315	0.92	1349	0.96
1900	1116	0.76	1152	0.80	1189	0.84	1226	0.87	1262	0.91	1296	0.95	1329	0.99	1361	1.03
2000	1148	0.84	1183	0.88	1220	0.92	1257	0.96	1291	1.00	1323	1.04	1354	1.08	1385	1.12

BLOWER DATA

BELT DRIVE - 5 TON

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 (economizer, wet coil, etc.).

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

See page 29 for blower motors and drives and page 30 for wet coil and options/accessory air resistance data.

DOWNFLOW

KHB060S4B

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1500	615	0.29	671	0.33	726	0.36	782	0.41	850	0.41	917	0.42	970	0.44	1009	0.47
1600	665	0.30	716	0.34	768	0.38	819	0.44	879	0.44	937	0.46	985	0.49	1022	0.52
1700	723	0.31	768	0.35	814	0.39	860	0.47	910	0.47	959	0.50	1001	0.54	1037	0.58
1800	779	0.32	818	0.37	857	0.41	897	0.50	939	0.50	980	0.55	1018	0.59	1054	0.64
1900	826	0.36	859	0.41	894	0.45	928	0.56	964	0.56	1000	0.61	1036	0.66	1072	0.70
2000	857	0.42	889	0.47	920	0.52	952	0.62	986	0.62	1020	0.68	1055	0.73	1091	0.77
2100	878	0.49	909	0.54	940	0.59	973	0.70	1006	0.70	1041	0.75	1076	0.80	1112	0.85
2200	897	0.55	929	0.61	961	0.66	994	0.78	1028	0.78	1063	0.83	1099	0.89	1134	0.93
2300	918	0.62	950	0.68	983	0.74	1017	0.86	1052	0.86	1087	0.92	1122	0.97	1157	1.02
2400	941	0.70	974	0.77	1008	0.83	1042	0.96	1077	0.96	1111	1.01	1146	1.06	1181	1.11

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1500	1045	0.52	1085	0.56	1125	0.60	1165	0.63	1208	0.66	1248	0.69	1281	0.73	1311	0.77
1600	1059	0.57	1098	0.61	1138	0.65	1177	0.68	1218	0.71	1257	0.75	1290	0.79	1319	0.83
1700	1074	0.62	1113	0.66	1152	0.70	1190	0.74	1231	0.77	1268	0.80	1299	0.84	1328	0.89
1800	1091	0.68	1129	0.72	1167	0.76	1205	0.80	1244	0.83	1280	0.87	1310	0.91	1338	0.95
1900	1109	0.75	1146	0.79	1183	0.82	1221	0.86	1260	0.90	1294	0.94	1323	0.98	1349	1.02
2000	1128	0.82	1164	0.86	1201	0.89	1239	0.93	1276	0.97	1310	1.01	1336	1.06	1362	1.10
2100	1148	0.89	1185	0.93	1221	0.97	1258	1.01	1294	1.05	1325	1.09	1351	1.14	1376	1.19
2200	1170	0.97	1206	1.01	1242	1.05	1277	1.09	1311	1.14	1341	1.18	1365	1.23	1390	1.28
2300	1193	1.06	1228	1.09	1262	1.14	1295	1.19	1327	1.24	1355	1.29	1380	1.33	1406	1.37
2400	1216	1.15	1250	1.19	1282	1.24	1313	1.30	1343	1.36	1371	1.40	1396	1.44	1423	1.48

BLOWER DATA

BELT DRIVE - 5 TON

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 (economizer, wet coil, etc.).

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

See page 29 for blower motors and drives and page 30 for wet coil and options/accessory air resistance data.

HORIZONTAL

KHB060S4B

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1500	656	0.26	706	0.30	760	0.33	814	0.36	874	0.39	931	0.41	979	0.45	1019	0.48
1600	712	0.29	758	0.32	807	0.36	855	0.39	906	0.43	955	0.46	997	0.50	1035	0.54
1700	766	0.32	808	0.36	850	0.40	892	0.44	936	0.47	978	0.51	1016	0.56	1052	0.60
1800	814	0.36	851	0.40	888	0.44	925	0.49	963	0.53	1000	0.57	1035	0.62	1071	0.66
1900	853	0.41	886	0.46	919	0.50	952	0.55	986	0.60	1021	0.64	1056	0.69	1091	0.73
2000	883	0.48	913	0.53	944	0.57	976	0.62	1009	0.67	1043	0.71	1078	0.76	1112	0.80
2100	906	0.56	936	0.60	967	0.65	999	0.70	1033	0.75	1067	0.79	1101	0.84	1135	0.88
2200	930	0.64	960	0.68	991	0.73	1024	0.78	1058	0.83	1092	0.88	1126	0.92	1160	0.96
2300	954	0.72	985	0.77	1017	0.82	1051	0.87	1085	0.92	1119	0.96	1152	1.00	1186	1.04
2400	981	0.81	1013	0.86	1046	0.91	1079	0.96	1113	1.00	1180	1.05	1180	1.09	1213	1.13

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1500	1056	0.53	1094	0.57	1133	0.60	1172	0.63	1212	0.67	1250	0.70	1288	0.74	1324	0.77
1600	1071	0.58	1109	0.62	1147	0.66	1186	0.69	1225	0.72	1263	0.76	1299	0.80	1334	0.83
1700	1088	0.64	1126	0.68	1164	0.72	1202	0.75	1240	0.78	1276	0.82	1311	0.86	1345	0.90
1800	1107	0.70	1143	0.74	1181	0.78	1219	0.81	1256	0.85	1290	0.89	1324	0.93	1357	0.97
1900	1126	0.77	1163	0.81	1200	0.85	1237	0.88	1273	0.92	1306	0.96	1339	1.00	1371	1.04
2000	1148	0.84	1183	0.88	1220	0.92	1257	0.96	1291	1.00	1323	1.04	1354	1.08	1385	1.12
2100	1170	0.92	1206	0.96	1242	1.00	1277	1.04	1310	1.08	1340	1.13	1370	1.17	1401	1.21
2200	1195	1.00	1230	1.04	1265	1.08	1299	1.13	1330	1.18	1359	1.23	1388	1.27	1418	1.31
2300	1220	1.08	1254	1.13	1288	1.17	1320	1.23	1350	1.28	1378	1.34	1406	1.38	1435	1.42
2400	1245	1.18	1278	1.22	1311	1.28	1341	1.33	1370	1.40	1397	1.45	1425	1.50	1454	1.54

BLOWER DATA

BELT DRIVE KIT SPECIFICATIONS

Model No.	Motor HP		No. of Speeds	Drive Kits and RPM Range					
	Nominal	Maximum		A01	A02	A03	A05	A06	A07
036	1	1.15	1	673-1010	---	---	897-1346	---	---
048	1	1.15	1	---	745-1117	---	---	1071-1429	---
060	1	1.15	1	---	---	833-1250	---	---	1212-1548
	1.5	1.7	1	---	---	833-1250	---	---	1212-1548
	2	2.3	1	---	---	833-1250	---	---	1212-1548

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

OPTIONS / ACCESSORIES AIR RESISTANCE - in. w.g.

Air Volume cfm	Wet Indoor Coil		Economizer	Electric Heat	Filters		
	024, 030, 036, 048	060			MERV 8	MERV 13	MERV 16
800	0.01	0.01	0.04	0.01	0.04	0.05	0.04
1000	0.02	0.01	0.04	0.03	0.04	0.07	0.05
1200	0.02	0.01	0.04	0.06	0.04	0.07	0.05
1400	0.03	0.02	0.04	0.09	0.04	0.07	0.06
1600	0.04	0.03	0.04	0.12	0.04	0.07	0.08
1800	0.05	0.04	0.05	0.15	0.05	0.07	0.09
2000	0.06	0.05	0.05	0.18	0.05	0.08	0.10
2200	0.08	0.06	0.05	0.20	0.05	0.08	0.11
2400	0.09	0.07	0.05	0.22	0.05	0.08	0.12

MINIMUM AIR VOLUME REQUIRED FOR ELECTRIC HEAT

Size	kW Size	Minimum CFM		
		Direct Drive	Belt Drive Downflow	Belt Drive Horizontal
All Models	5	600	N/A	N/A
	7.5	600	1,050	1200
	10	600	N/A	N/A
	15	1100	1250	1350
	22.5	1600	1750	1800

BLOWER DATA

CEILING DIFFUSERS AIR RESISTANCE (in. w.g.)

Air Volume cfm	RTD9-65S Step-Down Diffuser			FD9-65S Flush Diffuser	RTD11-95S Step-Down Diffuser			FD11-95S Flush Diffuser
	2 Ends Open	1 Side & 2 Ends Open	All Ends & Sides Open		2 Ends Open	1 Side & 2 Ends Open	All Ends & Sides Open	
800	0.15	0.13	0.11	0.11	---	---	---	---
1000	0.19	0.16	0.14	0.14	---	---	---	---
1200	0.25	0.20	0.17	0.17	---	---	---	---
1400	0.33	0.26	0.20	0.20	---	---	---	---
1600	0.43	0.32	0.20	0.24	---	---	---	---
1800	0.56	0.40	0.30	0.30	0.13	0.11	0.09	0.09
2000	0.73	0.50	0.36	0.36	0.15	0.13	0.11	0.10
2200	0.95	0.63	0.44	0.44	0.18	0.15	0.12	0.12
2400	---	---	---	---	0.21	0.18	0.15	0.14

CEILING DIFFUSER AIR THROW DATA

Air Volume - cfm	1 Effective Throw - ft.	
	Model No.	FD9-65S
800	10 - 17	14 - 18
1000	10 - 17	15 - 20
1200	11 - 18	16 - 22
1400	12 - 19	17 - 24
1600	12 - 20	18 - 25
1800	13 - 21	20 - 28
2000	14 - 23	21 - 29
2200	16 - 25	22 - 30

¹ Effective throw based on terminal velocities of 75 ft. per minute.

POWER EXHAUST FAN PERFORMANCE

Return Air System Static Pressure - in. w.g.	Air Volume Exhausted cfm
0.00	2000
0.05	1990
0.10	1924
0.15	1810
0.20	1664
0.25	1507
0.30	1350
0.35	1210

ELECTRICAL/ELECTRIC HEAT DATA

Model No.		KHB024S4D	KHB030S4D
¹ Voltage - 60Hz		208/230V - 1 Ph	208/230V - 1 Ph
Compressor (Non-Inverter)	Rated Load Amps	9.8	12.7
	Locked Rotor Amps	47	64
Outdoor Fan Motors (1)	Full Load Amps (1 Non-ECM)	1.7	1.7
Service Outlet 115V GFI (amps)		15	15
Indoor Blower Motor	Horsepower	0.25	0.25
	Type	Direct	Direct
	Full Load Amps	1.8	1.8
² Maximum Overcurrent Protection (MOCP)	Unit Only	25	30
³ Minimum Circuit Ampacity (MCA)	Unit Only	16	20

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	208V	240V
² Maximum Overcurrent Protection (MOCP)	Unit + Electric Heat	5 kW	40	45	50	50
		7.5 kW	50	60	60	60
		10 kW	70	70	70	80
³ Minimum Circuit Ampacity (MCA)	Unit + Electric Heat	5 kW	39	42	42	46
		7.5 kW	50	55	54	59
		10 kW	61	68	65	72

ELECTRICAL ACCESSORIES

Disconnect	Standard Access - 0-10 kW	20W15	20W15	20W15	20W15
	Hinged Access - 0-10 kW	20W21	20W21	20W21	20W21

Disconnects - 20W15 - 80A
20W21 - 150A

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

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

² HACR type breaker or fuse.

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

ELECTRICAL/ELECTRIC HEAT

Model No.		KHB036S4D			
¹ Voltage - 60Hz		208/230V - 1 Ph	208/230V - 3 Ph	460V - 3 Ph	575V - 3 Ph
Compressor (Non-Inverter)	Rated Load Amps	15.3	8.7	4	3.6
	Locked Rotor Amps	70	70	31	27
Outdoor Fan Motors (1)	Full Load Amps (1 Non-ECM)	1.7	1.7	1.1	0.7
Power Exhaust (1) 0.33 HP	Full Load Amps (total)	2.4	2.4	1.3	1
Service Outlet 115V GFI (amps)		15	15	15	20
Indoor Blower Motor	Horsepower	0.5	0.5	0.5	0.5
	Type	Direct	Direct	Direct	Direct
	Full Load Amps	3.9	3.9	2	2
² Maximum Overcurrent Protection (MOCP)	Unit Only	40	25	15	15
	with (1) 0.33 HP Power Exhaust	40	25	15	15
³ Minimum Circuit Ampacity (MCA)	Unit Only	25	17	9	8
	with (1) 0.33 HP Power Exhaust	28	19	10	9

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	208V	240V	480V	600V
² Maximum Overcurrent Protection (MOCP)	Unit + 7.5 kW	Electric Heat	60	70	40	40	20	20
	15 kW		100	110	60	70	35	30
³ Minimum Circuit Ampacity	Unit + 7.5 kW	Electric Heat	59	64	37	40	20	17
	15 kW		93	103	56	62	31	26
² Maximum Overcurrent Protection (MOCP)	Unit + 7.5 kW	Electric Heat + Power Exhaust	70	70	40	45	25	20
	15 kW		100	110	60	70	35	30
³ Minimum Circuit Ampacity (MCA)	Unit + 7.5 kW	Electric Heat + Power Exhaust	61	67	39	42	21	18
	15 kW		95	106	58	64	32	27

ELECTRICAL ACCESSORIES

Disconnect		Standard Access - 0-7.5 kW	20W15	20W15	20W15	20W15
		15 kW	20W16	20W15	20W15	20W15
		Hinged Access - 0-7.5 kW	20W21	20W21	20W21	20W21
		15 kW	20W22	20W21	20W21	20W21

Disconnects - 20W15 - 80A
20W21 - 150A

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

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

² HACR type breaker or fuse.

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

ELECTRICAL/ELECTRIC HEAT DATA
DIRECT DRIVE - 4 TON

Model No.		KHB048S4D			
¹ Voltage - 60Hz		208/230V - 1 Ph	208/230V - 3 Ph	460V - 3 Ph	575V - 3 Ph
Compressor (Non-Inverter)	Rated Load Amps	20	11	5.5	4.7
	Locked Rotor Amps	99	86	37	34
Outdoor Fan Motors (1)	Full Load Amps (1 Non-ECM)	1.7	1.7	1.1	0.7
Power Exhaust (1) 0.33 HP	Full Load Amps (total)	2.4	2.4	1.3	1
Service Outlet 115V GFI (amps)		15	15	15	20
Indoor Blower Motor	Horsepower	0.5	0.5	0.5	0.5
	Type	Direct	Direct	Direct	Direct
	Full Load Amps	3.9	3.9	2	2
² Maximum Overcurrent Protection (MOCP)	Unit Only	50	30	15	15
	with (1) 0.33 HP Power Exhaust	50	30	15	15
³ Minimum Circuit Ampacity (MCA)	Unit Only	31	20	10	9
	with (1) 0.33 HP Power Exhaust	33	22	12	10

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	208V	240V	480V	600V
² Maximum Overcurrent Protection (MOCP)	Unit + 7.5 kW	7.5 kW	70	80	45	45	25	20
	Electric Heat + 15 kW	15 kW	100	110	60	70	35	30
³ Minimum Circuit Ampacity	Unit + 7.5 kW	7.5 kW	65	70	39	42	22	18
	Electric Heat + 15 kW	15 kW	99	109	59	65	33	27
² Maximum Overcurrent Protection (MOCP)	Unit + 7.5 kW	7.5 kW	80	80	45	50	25	20
	Electric Heat + 15 kW	15 kW	110	125	70	70	35	30
³ Minimum Circuit Ampacity (MCA)	Unit + 7.5 kW	7.5 kW	67	73	42	45	23	19
	Electric Heat + 15 kW	15 kW	101	112	61	67	34	28

ELECTRICAL ACCESSORIES

Disconnect	Standard Access - 0-7.5 kW	15 kW	22A20	22A20	22A20	22A20
		Hinged Access - 0-7.5 kW	15 kW	22A21	22A20	22A20
			22A23	22A23	22A23	22A23
			22A24	22A23	22A23	22A23

Disconnects - 20W15 - 80A
20W21 - 150A

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

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

² HACR type breaker or fuse.

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

ELECTRICAL/ELECTRIC HEAT DATA
BELT DRIVE - 3 TON
Model No.
KHB036S4B

¹ Voltage - 60Hz		208/230V - 3 Ph	460V - 3 Ph	575V - 3 Ph
Compressor (Non-Inverter)	Rated Load Amps	8.7	4	3.6
	Locked Rotor Amps	70	31	27
Outdoor Fan Motors (1)	Full Load Amps (1 Non-ECM)	1.7	1.1	0.7
Power Exhaust (1) 0.33 HP	Full Load Amps (total)	2.4	1.3	1
Service Outlet 115V GFI (amps)		15	15	20
Indoor Blower Motor	Horsepower	1	1	1
	Type	Belt	Belt	Belt
	Full Load Amps	4.6	2.1	1.7
² Maximum Overcurrent Protection (MOCP)	Unit Only	25	15	15
	with (1) 0.33 HP Power Exhaust	25	15	15
³ Minimum Circuit Ampacity (MCA)	Unit Only	18	9	7
	with (1) 0.33 HP Power Exhaust	20	10	8

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	480V	600V
² Maximum Overcurrent Protection (MOCP)	Unit + 7.5 kW		40	40	20	20
	Electric Heat 15 kW		60	70	35	25
³ Minimum Circuit Ampacity (MCA)	Unit + 7.5 kW		37	40	20	16
	Electric Heat 15 kW		57	63	31	25
² Maximum Overcurrent Protection (MOCP)	Unit + 7.5 kW		40	45	25	20
	Electric Heat + Power Exhaust 15 kW		60	70	35	30
³ Minimum Circuit Ampacity (MCA)	Unit + 7.5 kW		40	43	21	17
	Electric Heat + Power Exhaust 15 kW		59	65	33	26

ELECTRICAL ACCESSORIES

Disconnect	Standard Access - 0-7.5 kW	20W15	20W15	20W15
			15 kW	20W15
	Hinged Access - 0-7.5 kW	20W21	20W21	20W21
	15 kW	20W21	20W21	20W21

Disconnects - 20W15 - 80A
20W21 - 150A

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

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

² HACR type breaker or fuse.

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

ELECTRICAL/ELECTRIC HEAT DATA
BELT DRIVE - 4 TON
Model No.
KHB048S4B

¹ Voltage - 60Hz		208/230V - 3 Ph	460V - 3 Ph	575V - 3 Ph
Compressor (Non-Inverter)	Rated Load Amps	11	5.5	4.7
	Locked Rotor Amps	86	37	34
Outdoor Fan Motors (1)	Full Load Amps (1 Non-ECM)	1.7	1.1	0.7
Power Exhaust (1) 0.33 HP	Full Load Amps (total)	2.4	1.3	1
Service Outlet 115V GFI (amps)		15	15	20
Indoor Blower Motor	Horsepower	1	1	1
	Type	Belt	Belt	Belt
	Full Load Amps	4.6	2.1	1.7
² Maximum Overcurrent Protection (MOCP)	Unit Only	30	15	15
	with (1) 0.33 HP Power Exhaust	30	15	15
³ Minimum Circuit Ampacity (MCA)	Unit Only	21	11	9
	with (1) 0.33 HP Power Exhaust	23	12	10

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	480V	600V
² Maximum Overcurrent Protection (MOCP)	Unit + 7.5 kW		45	45	25	20
	Electric Heat 15 kW		60	70	35	30
³ Minimum Circuit Ampacity (MCA)	Unit + 7.5 kW		40	43	22	18
	Electric Heat 15 kW		60	66	33	27
² Maximum Overcurrent Protection (MOCP)	Unit + 7.5 kW		45	50	25	20
	Electric Heat + Power Exhaust 15 kW		70	70	35	30
³ Minimum Circuit Ampacity (MCA)	Unit + 7.5 kW		42	46	23	19
	Electric Heat + Power Exhaust 15 kW		62	68	34	28

ELECTRICAL ACCESSORIES

Disconnect	Standard Access - 0-7.5 kW	22A20	22A20	22A20
		15 kW	22A20	22A20
	Hinged Access - 0-7.5 kW	22A23	22A23	22A23
		15 kW	22A23	22A23

**Disconnects - 20W15 - 80A
20W21 - 150A**

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

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

² HACR type breaker or fuse.

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

ELECTRICAL/ELECTRIC HEAT DATA

BELT

Model No.		KHB060S4B						
¹ Voltage - 60Hz		208/230V - 1 Ph	208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph	
Compressor (Non-Inverter)	Rated Load Amps	22.1	13.5		8		5	
	Locked Rotor Amps	125	109		59		40	
Outdoor Fan Motors (1)	Full Load Amps (1 Non-ECM)	2.4	2.4		1.3		1	
Power Exhaust (1) 0.33 HP	Full Load Amps (total)	2.4	2.4		1.3		1	
Service Outlet 115V GFI (amps)		15	15		15		20	
Indoor Blower Motor	Horsepower	1.5	1	2	1	2	1	2
	Type	Belt	Belt	Belt	Belt	Belt	Belt	Belt
	Full Load Amps	11	4.6	7.5	2.1	3.4	1.7	2.7
² Maximum Overcurrent Protection (MOCP)	Unit Only	60	35	40	20	20	15	15
	with (1) 0.33 HP Power Exhaust	60	35	40	20	20	15	15
³ Minimum Circuit Ampacity	Unit Only	42	24	27	14	15	9	10
	with (1) 0.33 HP Power Exhaust	44	27	30	15	16	10	11

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	208V	240V	208V	240V	480V	480V	600V	600V
² Maximum Overcurrent Protection (MOCP)	Unit + Electric Heat	7.5 kW	90	90	50	50	50	50	30	30	20	20
		15 kW	110	125	70	70	70	80	40	40	30	30
		22.5 kW	150	175	90	100	90	100	50	50	40	40
³ Minimum Circuit Ampacity (MCA)	Unit + Electric Heat	7.5 kW	75	81	44	47	47	50	25	26	18	19
		15 kW	109	120	63	69	66	72	36	38	27	28
		22.5 kW	143	159	83	92	86	95	48	49	37	38
² Maximum Overcurrent Protection (MOCP)	Unit + Electric Heat + Power Exhaust	7.5 kW	90	90	50	50	50	60	30	30	20	20
		15 kW	125	125	70	80	70	80	40	40	30	30
		22.5 kW	150	175	90	100	90	100	50	50	40	40
³ Minimum Circuit Ampacity (MCA)	Unit + Electric Heat + Power Exhaust	7.5 kW	78	83	46	49	49	52	26	28	19	20
		15 kW	112	122	66	72	69	75	38	39	28	29
		22.5 kW	145	161	85	94	88	97	49	50	38	39

ELECTRICAL ACCESSORIES

Disconnect	Standard Access - 0-7.5 kW	15 kW	22A20	22A20	22A20	22A20	22A20
		22.5 kW	22A21	22A20	22A20	22A20	22A20
			N/A	22A21	22A21	22A20	22A20
	Hinged Access - 0-7.5 kW	15 kW	22A23	22A23	22A23	22A23	22A23
		22.5 kW	22A24	22A23	22A23	22A23	22A23
			N/A	22A24	22A24	22A23	22A23

Disconnects - 20W15 - 80A
20W21 - 150A

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

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

² HACR type breaker or fuse.

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

ELECTRIC HEAT CAPACITIES

Input Voltage	5 kW			7.5 kW			10 kW		
	No of Stages	kW input	Btuh Output	No of Stages	kW input	Btuh Output	No of Stages	kW input	Btuh Output
208	1	3.8	12,800	1	5.6	19,200	1	7.5	25,600
220	1	4.2	14,300	1	6.3	21,500	1	8.4	28,700
230	1	4.6	15,700	1	6.9	23,500	1	9.2	31,400
240	1	5.0	17,100	1	7.5	25,600	1	10.0	34,200
440	---	---	---	1	6.3	21,500	---	---	---
460	---	---	---	1	6.9	23,500	---	---	---
480	---	---	---	1	7.5	25,600	---	---	---
550	---	---	---	1	6.3	21,500	---	---	---
575	---	---	---	1	6.9	23,500	---	---	---
600	---	---	---	1	7.5	25,600	---	---	---
Input Voltage	15 kW			22.5 kW					
	No of Stages	kW input	Btuh Output	No of Stages	kW input	Btuh Output			
208	1	11.2	38,400	1	16.9	57,700			
220	1	12.6	43,000	1	18.9	64,500			
230	1	13.8	47,000	1	20.7	70,700			
240	1	15.0	51,200	1	22.5	76,800			
440	1	12.6	43,000	1	18.9	64,500			
460	1	13.8	47,000	1	20.7	70,700			
480	1	15.0	51,200	1	22.5	76,800			
550	1	12.6	43,000	1	18.9	64,500			
575	1	13.8	47,000	1	20.7	70,700			
600	1	15.0	51,200	1	22.5	76,800			

FIELD WIRING NOTES

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

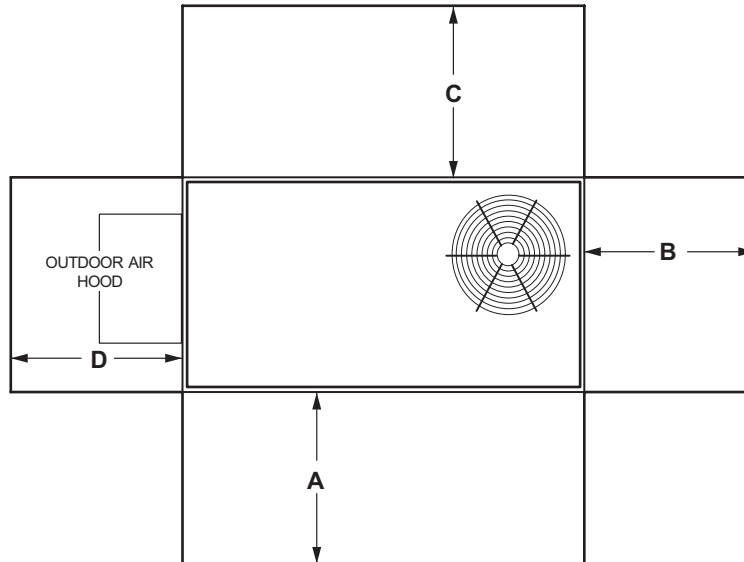
OUTDOOR SOUND DATA

¹ Unit Model No.	Octave Band Sound Power Levels dBA, re 10 ⁻¹² Watts - Center Frequency - Hz							¹ Sound Rating Number (dBA)
	125	250	500	1000	2000	4000	8000	
KHB024S KHB030S KHB036S	62	67	72	69	66	61	56	75
KHB048S	61	67	70	70	68	63	56	75
KHB060S	69	72	75	74	70	65	55	80

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

¹ Sound Rating Number according to AHRI Standard 270-95 (includes pure tone penalty). Sound Rating Number is the overall A-Weighted Sound Power Level, (LWA), dBA (100 Hz to 10,000 Hz).

UNIT CLEARANCES



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

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

¹ Service Clearance - Required for removal of serviceable parts.

Minimum Operation Clearance - Required clearance for proper unit operation.

WEIGHT DATA

Model Number	Net				Shipping			
	Base		Max.		Base		Max.	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
KHB024S	566	257	664	301	607	275	705	320
KHB030S	566	257	664	301	607	275	705	320
KHB036S	566	257	664	301	607	275	705	320
KHB048S	641	291	767	348	682	309	808	367
KHB060S	686	311	792	359	727	330	833	378

Base Unit - The unit with NO OPTIONS.

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

OPTIONS / ACCESSORIES

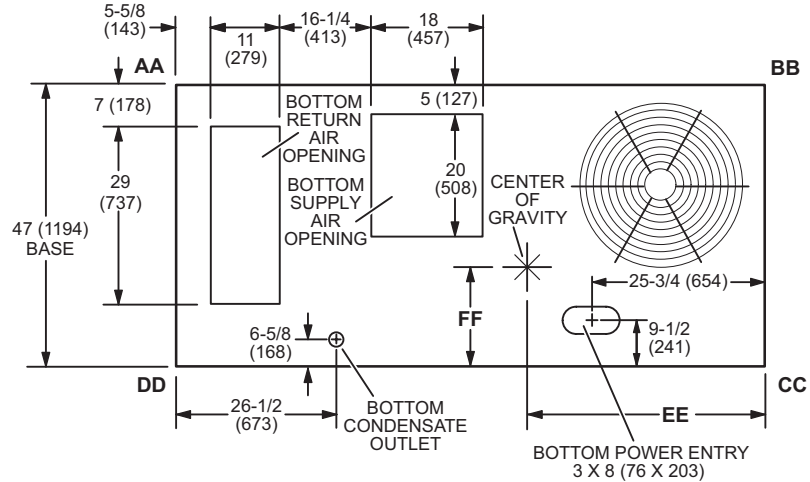
	Shipping Weights		
	lbs.	kg	
ECONOMIZER / OUTDOOR AIR / POWER EXHAUST			
Economizer			
Standard Economizer only	125	57	
Standard Economizer with Barometric Relief Dampers and Combination Hood	148	67	
Barometric Relief Dampers, Combination Hood and Harness for Standard Economizer	23	10	
High Performance Economizer - Includes Barometric Relief Dampers and Combination Hood	131	59	
Outdoor Air Dampers			
Motorized	40	18	
Manual	30	14	
Power Exhaust	35	16	
ELECTRIC HEAT			
5 kW	31	14	
7.5 kW	31	14	
10 kW	31	14	
15 kW	31	14	
22.5 kW	35	16	
COIL/HAIL GUARDS			
All models	30	14	
ROOF CURBS			
Hybrid Roof Curbs, Downflow			
8 in. height	86	39	
14 in. height	108	49	
18 in. height	125	57	
24 in. height	147	67	
Adjustable Pitch Curb, Downflow			
14 in. height	147	67	
CEILING DIFFUSERS			
Step-Down	RTD9-65S	80	36
	RTD11-95S	118	54
Flush	FD9-65S	80	36
	FD11-95S	118	54
Transitions (Supply and Return)	T1TRAN10AN1	22	10
	T1TRAN20N-1	21	10

DIMENSIONS

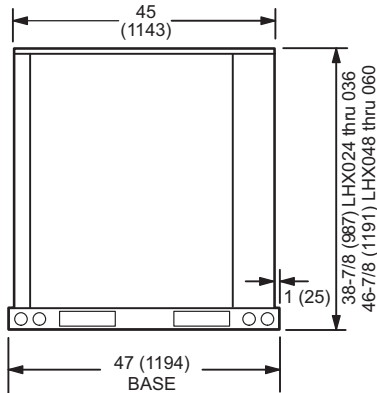
UNIT

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.	Base	Max.	Base	Max.	Base	Max.	Base	Max.	Base	Max.		
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
024S	119	54	140	64	149	67	153	69	165	75	170	77	133	60	201	91	38	965	43-3/4	1111	22-1/4	565	22-1/4	565
030S	119	54	140	64	149	67	153	69	165	75	170	77	133	60	201	91	38	965	43-3/4	1111	22-1/4	565	22-1/4	565
036S	119	54	140	64	149	67	153	70	165	75	170	77	133	60	201	91	38	965	43-3/4	1111	22-1/4	565	22-1/4	565
048S	128	58	153	69	159	72	177	80	197	89	239	109	158	72	198	90	38	965	39	991	21	533	20	508
060S	137	62	158	72	170	77	175	79	210	95	236	107	169	77	223	101	38	965	41	1041	21	533	20	508

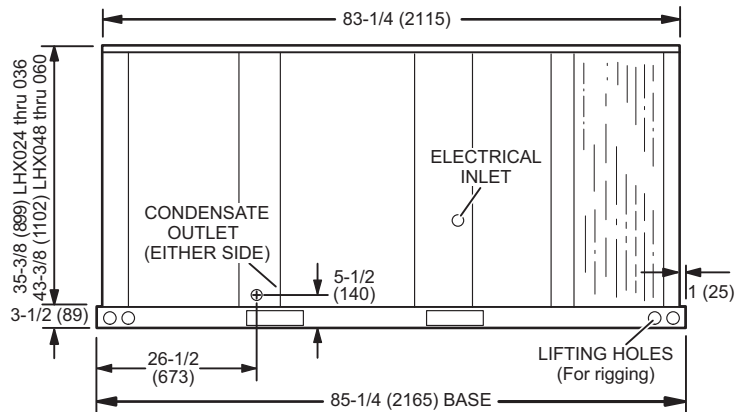
Base Unit - The unit with standard heat exchanger NO OPTIONS.
 Max. Unit - The unit with ALL OPTIONS Installed (Economizer, etc.).



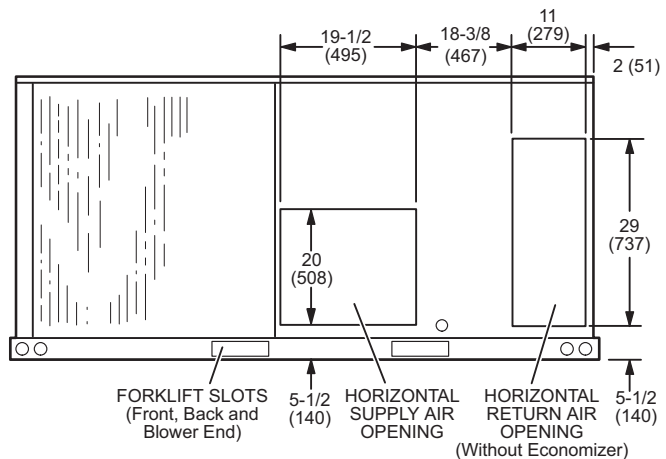
TOP VIEW (Base)



END VIEW



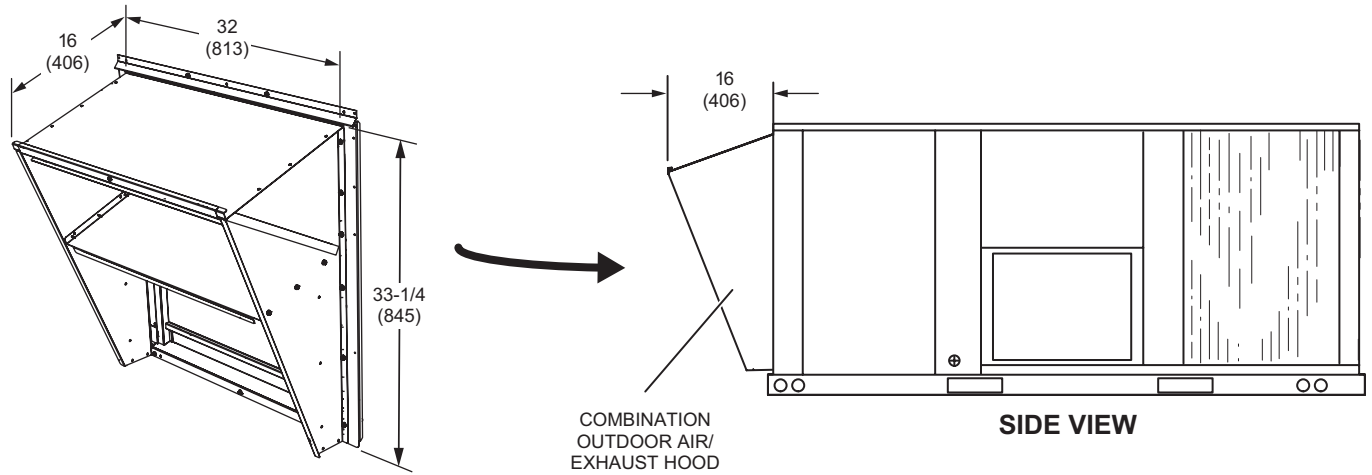
SIDE VIEW



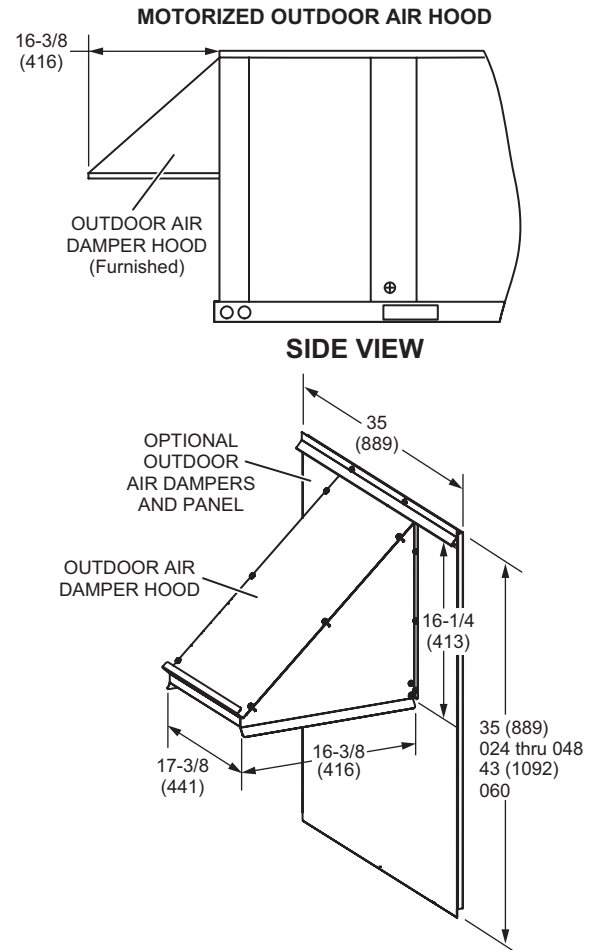
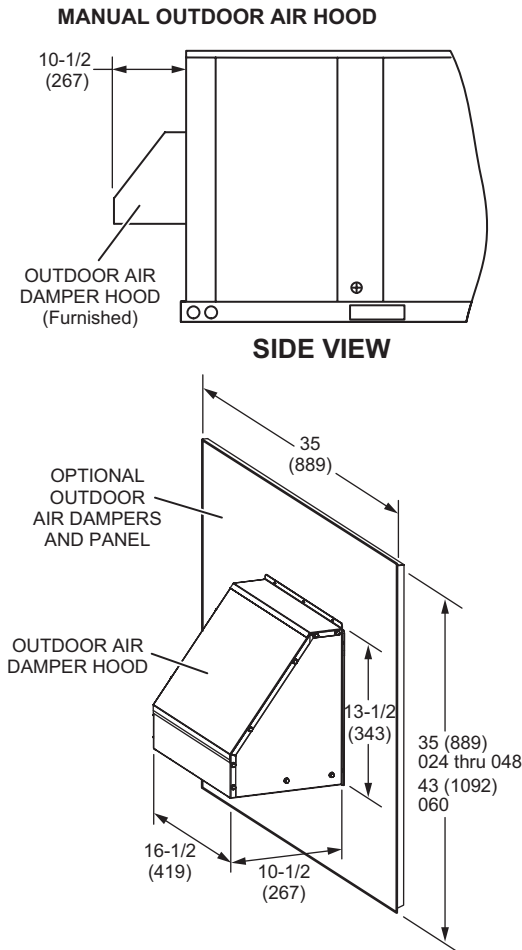
BACK VIEW

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

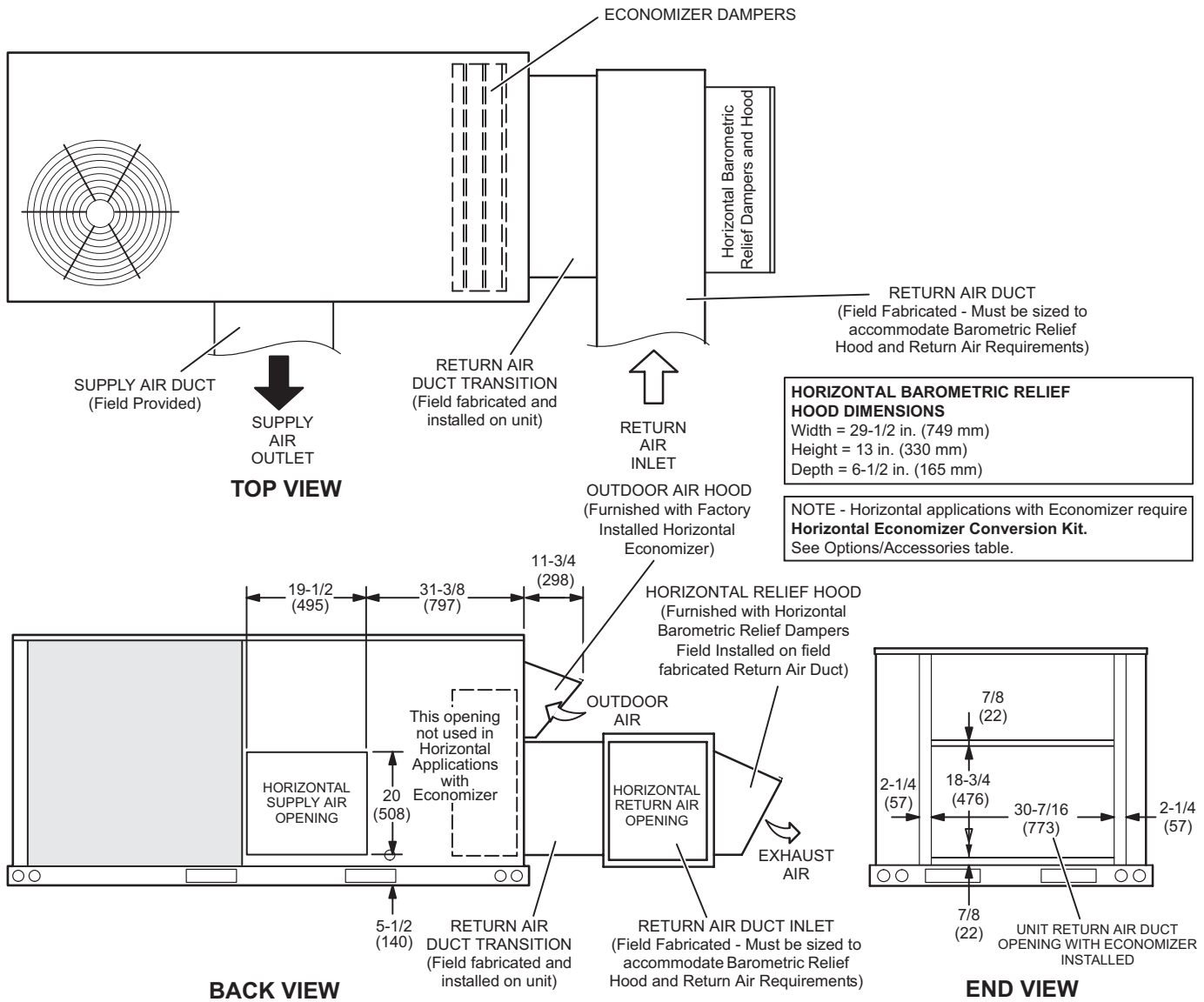


OUTDOOR AIR DAMPER HOOD DETAIL (Downflow or Horizontal Applications)



DIMENSIONS - ACCESSORIES

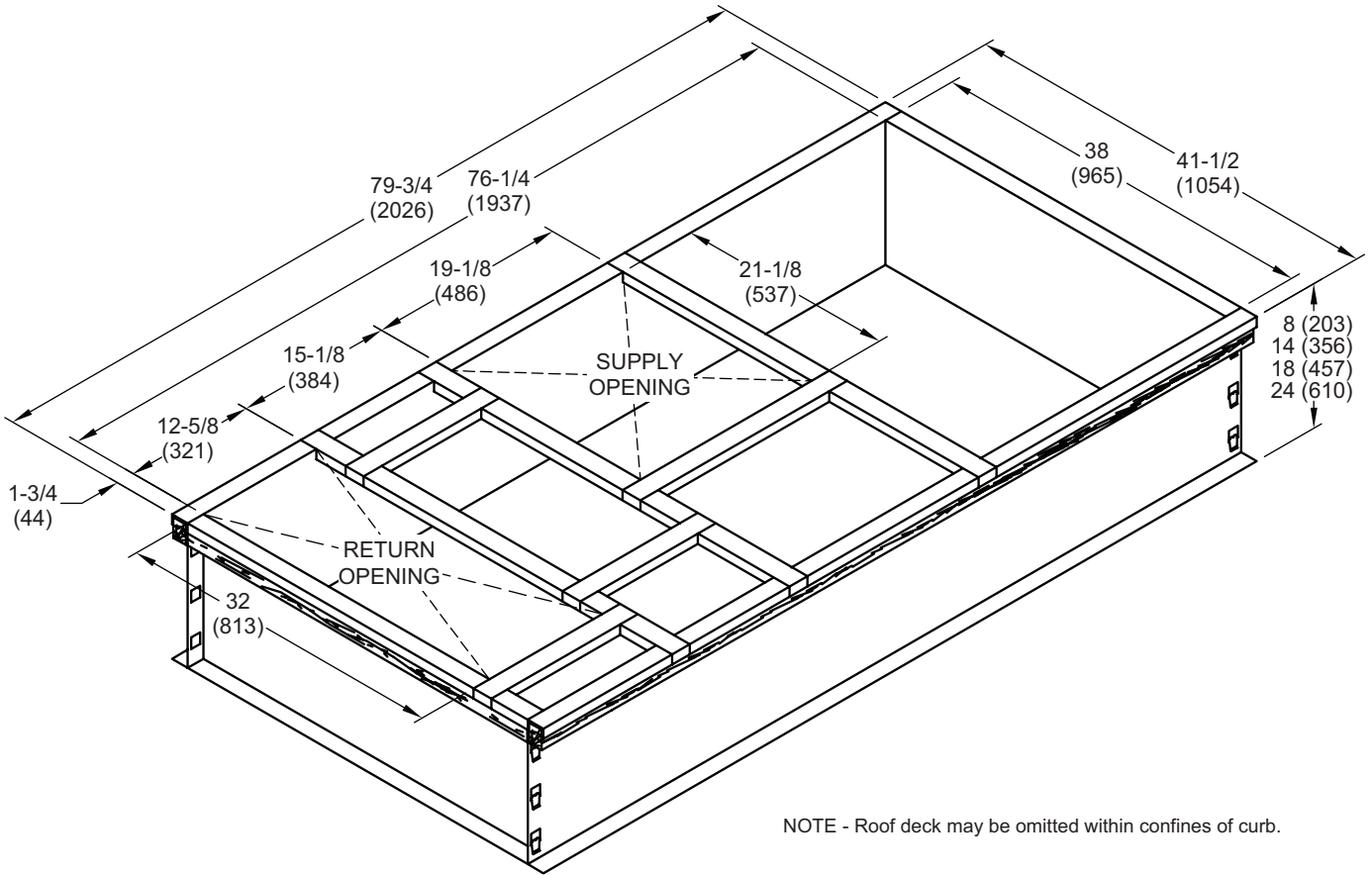
HORIZONTAL ECONOMIZER APPLICATIONS - OUTDOOR AIR HOOD DETAIL WITH OPTIONAL ECONOMIZER DAMPERS AND OPTIONAL HORIZONTAL BAROMETRIC RELIEF DAMPERS AND HOOD



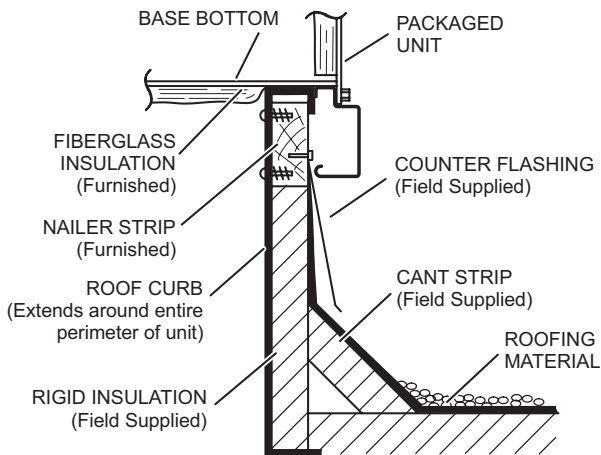
NOTE - Return Air Duct and Transition must be supported.

DIMENSIONS - ACCESSORIES

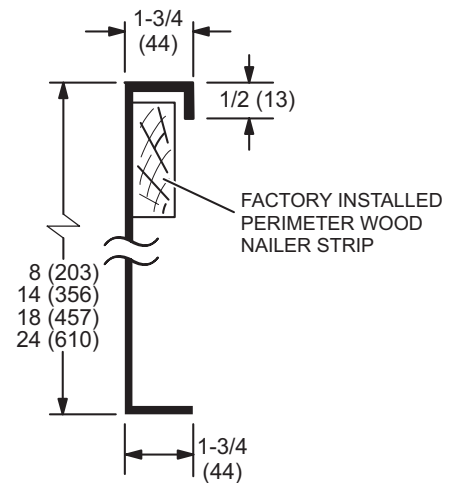
HYBRID ROOF CURBS - DOUBLE DUCT OPENING



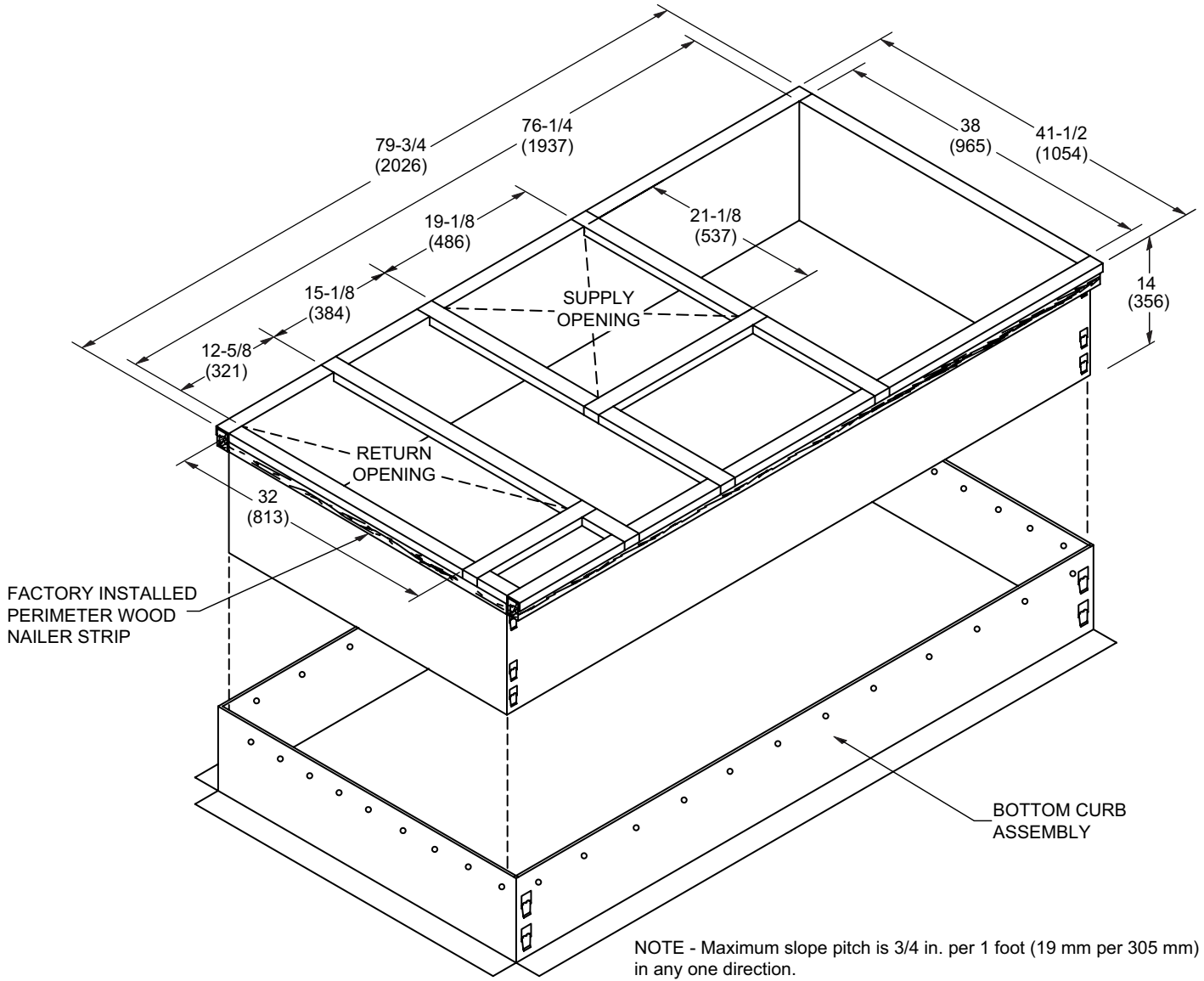
TYPICAL FLASHING DETAIL FOR ROOF CURB



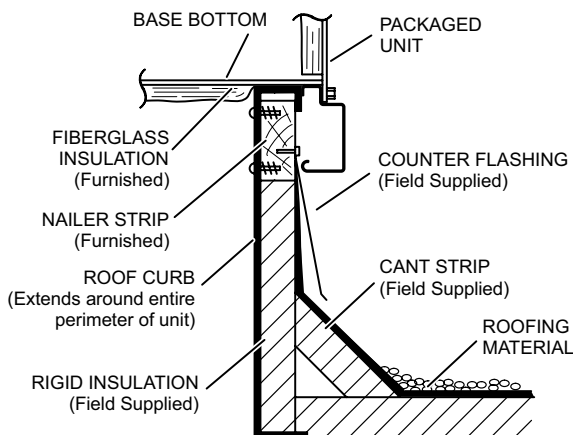
DETAIL ROOF CURB



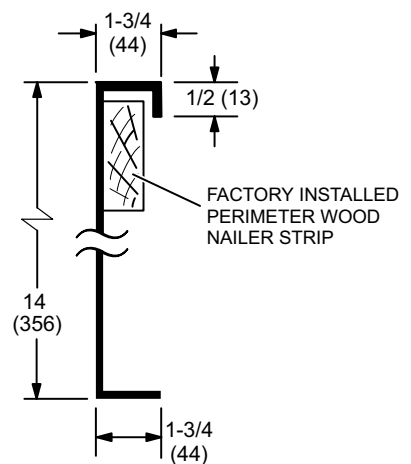
ADJUSTABLE PITCH CURBS - DOUBLE DUCT OPENING



TYPICAL FLASHING DETAIL FOR ROOF CURB

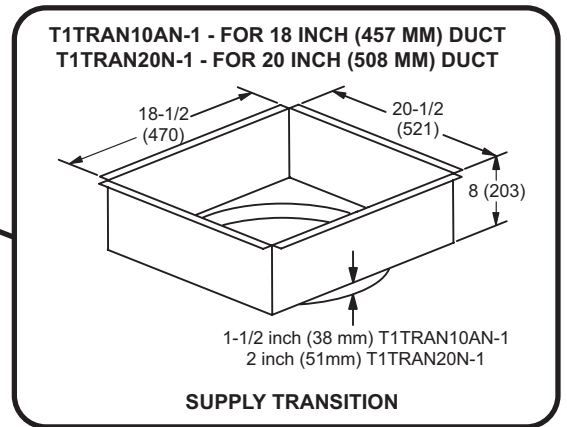
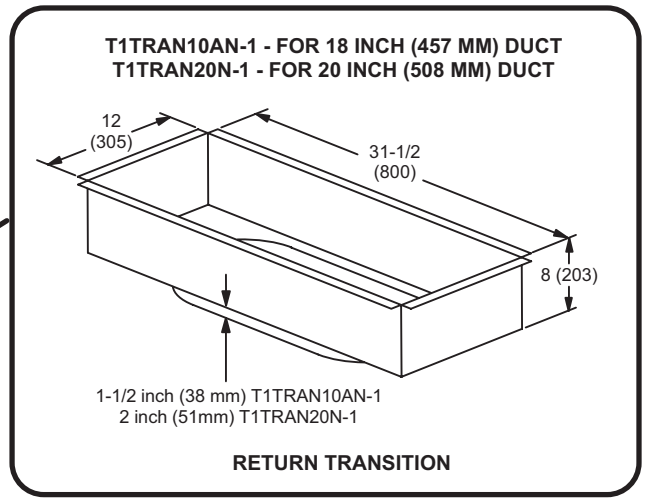
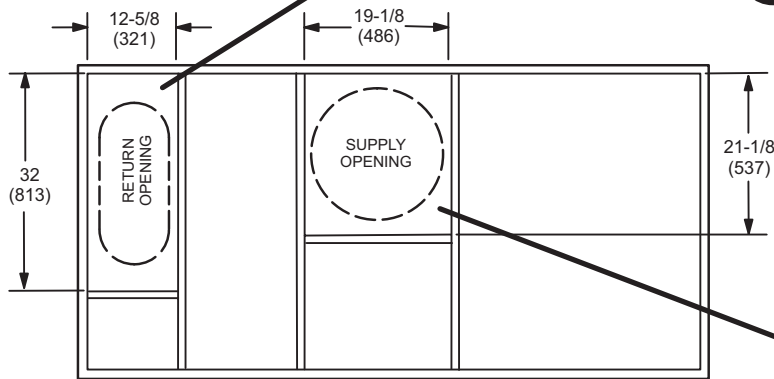


DETAIL ROOF CURB



DIMENSIONS - ACCESSORIES

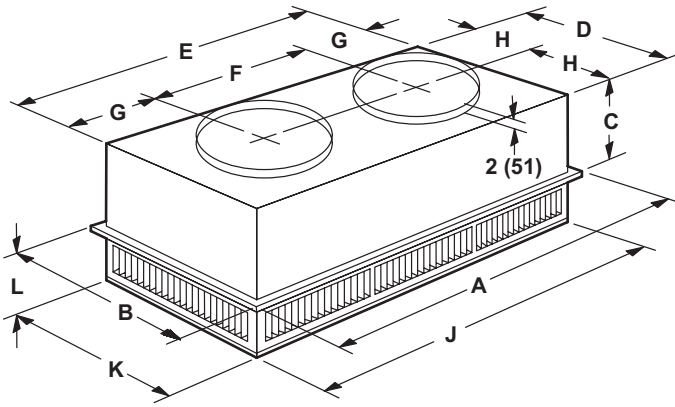
TRANSITIONS



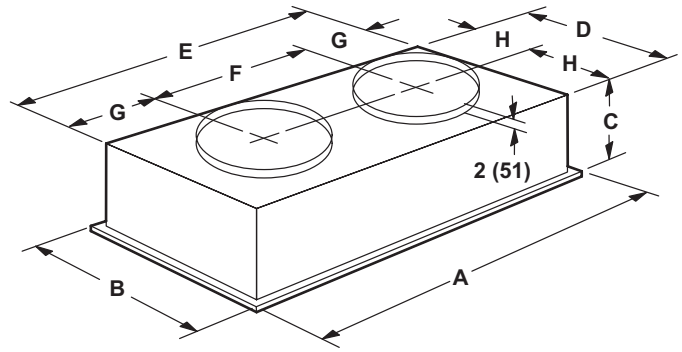
DIMENSIONS - ACCESSORIES

COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

STEP-DOWN CEILING DIFFUSER



FLUSH CEILING DIFFUSER



Model Number		RTD9-65S	RTD11-95S
A	in.	47-5/8	47-5/8
	mm	1159	1159
B	in.	23-5/8	29-5/8
	mm	600	752
C	in.	11-3/8	14-3/8
	mm	289	365
D	in.	21-1/2	27-1/2
	mm	546	699
E	in.	45-1/2	45-1/2
	mm	1156	1158
F	in.	22-1/2	22-1/2
	mm	572	572
G	in.	11-1/2	11-1/2
	mm	292	292
H	in.	10-3/4	13-3/4
	mm	273	349
J	in.	45-1/2	45-1/2
	mm	1156	1156
K	in.	21-1/2	27-1/2
	mm	546	699
L	in.	7-1/8	8-1/8
	mm	181	206
Duct Size	in.	18 round	20 round
	mm	457 round	508 round

Model Number		FD9-65S	FD11-95S
A	in.	47-5/8	47-5/8
	mm	1159	1159
B	in.	23-5/8	29-5/8
	mm	600	752
C	in.	13-1/2	16-5/8
	mm	343	422
D	in.	21	27
	mm	533	686
E	in.	45	45
	mm	1143	1143
F	in.	22-1/2	22-1/2
	mm	572	572
G	in.	11-1/4	11-1/4
	mm	286	286
H	in.	10-1/2	13-1/2
	mm	267	343
Duct Size	in.	18 round	20 round
	mm	457 round	508 round

REVISIONS

Sections	Description of Change
Specifications	Updated 3-phase AHRI ratings for 2023 M1 standard.



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