PACKAGED HEAT PUMP

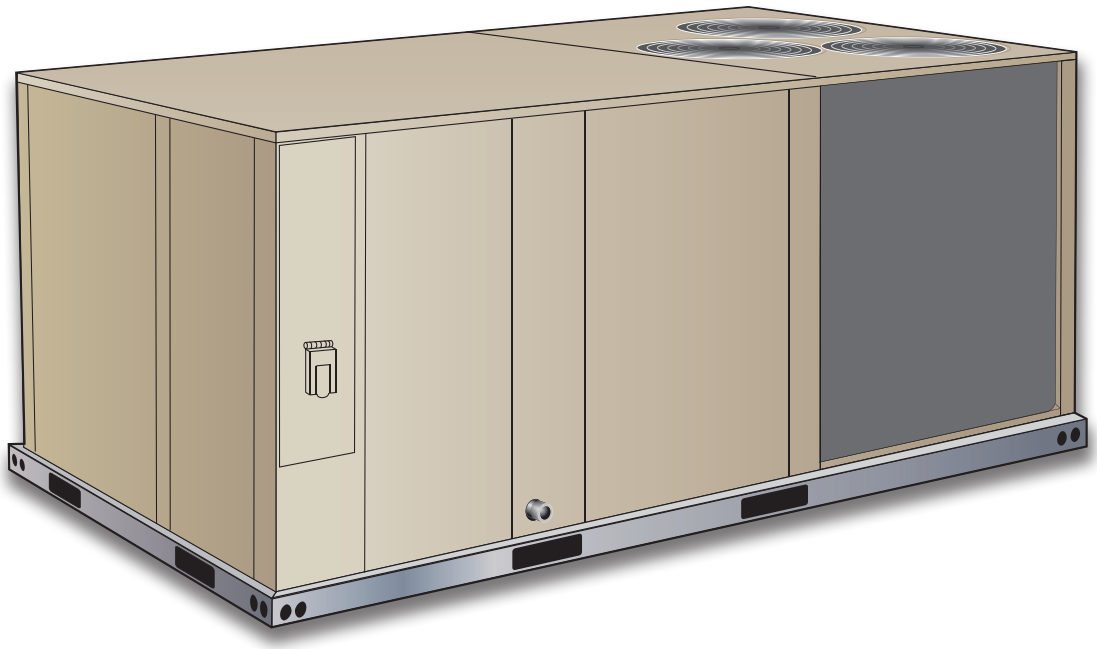
KHA/KHB

K-Series Rooftop Units
Standard and High Efficiency - 60 HZ

ALLIED™ Commercial

COMMERCIAL
PRODUCT SPECIFICATIONS

Bulletin No. 310551
May 2022
Supersedes September 2021 2021



ASHRAE 90.1 COMPLIANT

7.5 to 12.5 Tons
Net Cooling Capacity – 89,000 to 138,000 Btuh
Net Heating Capacity - 86,000 to 138,000 Btuh
Optional Electric Heat - 7.5 to 60 kW

MODEL NUMBER IDENTIFICATION

K H B 120 S 4 M N 1 Y

Brand/Family
K = K-Series

Unit Type
H = Packaged Heat Pump

Major Design Sequence
A = 1st Generation
B = 2nd Generation

Nominal Cooling Capacity - Tons
092 = 7.5 Tons
102 = 8.5 Tons
120 = 10 Tons
122 = 10 Tons
150 = 12.5 Tons

Cooling Efficiency
S = Standard Efficiency
H = High Efficiency

Refrigerant Type
4 = R-410A

Blower Type
B = Belt Drive
M = Single Zone VAV Supply Fan, Belt Drive
E = E-Direct™, Direct Drive ECM

Factory Installed Electric Heat
N = No Heat

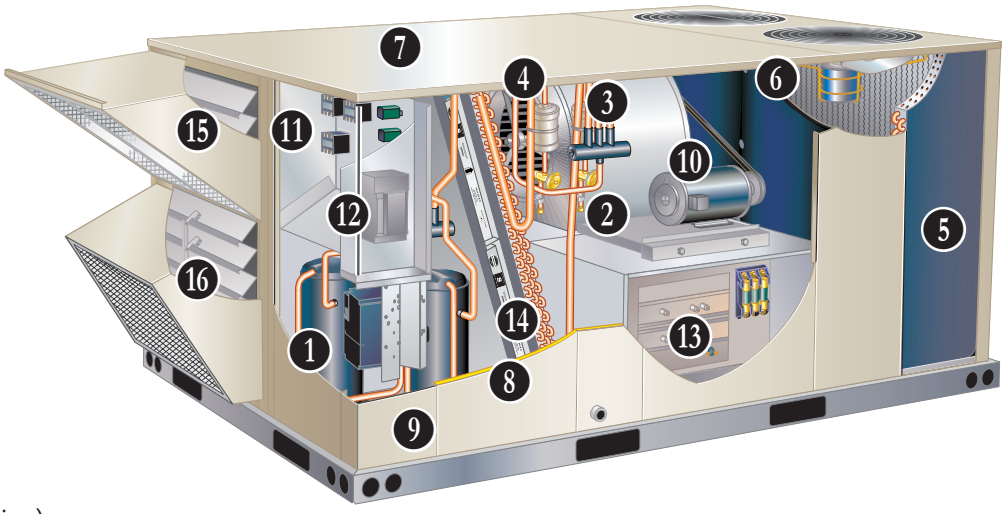
Minor Design Sequence
1 = 1st Revision
2 = 2nd Revision
3 = 3rd Revision

Voltage
Y = 208/230V-3 phase-60Hz
G = 460V-3 phase-60Hz
J = 575V-3 phase-60Hz

FEATURE HIGHLIGHTS

K Series rooftop units from Allied are the new standard for reliable, efficient rooftop units built for long-lasting performance that can significantly improve indoor environments.

1. Scroll Compressors
2. Check/Thermal Expansion Valves
3. Reversing Valves
4. Filter/Driers
5. Copper Tube Outdoor Coil
6. Outdoor Coil Fan Motors
7. Heavy Gauge Steel Cabinet
8. Insulation
9. Hinged Access Panels (option)
10. Supply Air Blower
11. Unit Control
12. Disconnect Switch (option)
13. Electric Heat (option)
14. Air Filters
15. Economizer (option)
16. Barometric Relief Dampers (option)



CONTENTS

APPROVALS AND WARRANTY

APPROVALS

- AHRI Standard 340/360 certified
- ETL and CSA listed
- CSA certified energy ratings
- Unit and components ETL, NEC and CEC bonded for grounding to meet safety standards for servicing
- All models are ASHRAE 90.1-2010 energy efficiency compliant and meet or exceed requirements of Section 6.8
- Single Zone VAV Supply Fan equipped models meet California Code of Regulations, Title 24 and ASHRAE 90.1-2010 Section 6.4.3.10 requirements for staged airflow
- ISO 9001 Registered Manufacturing Quality System

WARRANTY

- Compressors - Limited five years
- Variable-Frequency Drive (VFD) (optional) - 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 in the cooling mode from 30°F to 125°F without any additional controls

R-410A Refrigerant
- Non-chlorine based
- Ozone friendly

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

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

2 Check/Thermal Expansion Valves
- Ensures optimal performance throughout the application range
- Removable element head

3 Reversing Valves
- 4-way interchange reversing valve rapidly changes the direction of refrigerant flow resulting in quick changeover from cooling to heating and vice versa

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

High Pressure Switches
- Protects the compressor from overload conditions
- Auto-reset

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

5 Coil Construction
- Copper tube construction
- Enhanced rippled-edge aluminum fins
- Flared shoulder tubing connections
- Silver soldered construction
- Factory leak tested
- Two independent formed outdoor coils allow separation for cleaning
- Cross-row circuiting of indoor coil with rifled copper tubing optimizes both sensible and latent cooling capacity

Condensate Drain Pan
- Plastic pan, sloped to meet drainage requirements of ASHRAE 62.1
- Side or bottom drain connections
- Reversible to allow connection at back of unit

6 Outdoor Coil Fan Motors
- High efficiency models have a variable speed (ECM) fan motor for energy efficient and quiet operation
- Standard efficiency models have a single speed PSC fan motor
- Thermal overload protected
- Totally enclosed
- Permanently lubricated sleeve bearing (standard efficiency)
- Permanently lubricated ball bearings (high efficiency)
- Shaft up
- Wire basket mount

Outdoor Coil Fans
- PVC coated fan guards furnished

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 indoor coil and losing capacity
- Designed for use in ambient temperatures no lower than 0°F
- Standard Efficiency Models - 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
- High Efficiency Models - If the liquid line pressure drops below 240 psig outdoor fan operates at 25% normal fan speed
- If pressure drops below 180 psig outdoor fan stops until pressure rises to 300 psig, then fan operates at 25% normal fan speed unless main pressure switch has reset to 450 psig to resume normal cooling operation and full fan speed operation

CABINET

7 Construction
- Heavy-gauge steel panels
- Two-layer enamel paint finish
- Full perimeter heavy-gauge galvanized steel base rail
- Base rails have rigging holes
- Three sides of the base rail have fork slots
- Raised edges around duct and power entry openings in the bottom of the unit for water protection

Airflow Choice
- Units are shipped in downflow (vertical) configuration
- Can be field converted to horizontal airflow with optional Horizontal Discharge Kit

Duct Flanges
- Provided for horizontal duct attachment

Power Entry
- Electrical lines can be routed through the unit base or through horizontal access knock-out

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
- Filter section
- Heating/blower section
- Compressor/controls section

Options/Accessories

Factory Installed

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

9 Hinged Access Panels
- Filter/Compressor section
- Controls section
- Heating/Blower section
- Panels seal and slotted, 3/4 in. hex bolt quarter-turn latches provide a tight air and water seal

Field Installed

Combination Coil/Hail Guards
- Heavy gauge steel frame
- Painted to match cabinet
- Expanded metal mesh protects outdoor coil

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

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

FEATURES AND BENEFITS

BLOWER

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

10 Belt Drive Blower System (All Models Except KHB122)

Motor

- Overload protected
- Ball bearings
- Available in several different sizes to maximize air performance

Supply Air Blower

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

E-Direct™ Blower System (KHB122 Models Only)

- High-efficiency
- Variable-speed ECM (electronically commutated) motor
- Ramps blower up or down to meet comfort needs
- Aerodynamically optimized impeller
- Backward curved blades
- Mounted directly onto the rotor
- Design combines the motor and electronics into one unit, eliminating the need for a variable-frequency drive
- Blower assembly slides out of unit for servicing
- Air inlet grill reduces indoor sound levels without affecting air performance

Required Selections

Select Belt Drive Constant Air Volume (CAV) or Single Zone VAV Supply Fan Supply Air Blower Option (All Models except KHB122)

NOTE - Constant Air Volume (CAV) option is only available with high efficiency models.

- Constant Air Volume (CAV) models supply a constant volume of air
- Single Zone VAV Supply Fan models stage the amount of airflow according to compressor stages, heating demand and ventilation demand
- Order blower motor horsepower and drive kit number required when base unit is ordered
- See Drive Kit Specifications Table

Or Select E-Direct™ (KHB122 Models Only)

CAV (Constant Air Volume) Operation (High Efficiency Models Only)

- Constant Air Volume (CAV) models supply a constant volume of air

Single Zone VAV Supply Fan Operation

- Units ordered with the Single Zone VAV Supply Fan option utilize a Variable Frequency Drive (VFD) to stage the supply air blower airflow
- The VFD alters the frequency and voltage of the power supply to the blower to control blower speed
- The supply air blower has two speeds:
  1. Low speed for part-load cooling operation. Note - Low speed is 66% of high speed.
  2. High speed for full load cooling and all heat modes.
- Full speed blower operation is set by adjusting the motor pulley to deliver the desired air volume
- Ventilation speed is selectable between high and low speed

NOTE - Part load airflow in cooling mode on Single Zone VAV Supply Fan units should not be set below 220 cfm/nominal full load ton to reduce the risk of evaporator coil freeze-up.

- VFD has an operational range of -40 to 125° F outdoor air ambient temperature

NOTE - Lower operating costs are obtained when the blower is operated on lower speeds

Single Zone VAV Supply Fan Sequence of Operation

- Ventilation speed is determined by the VENT SPEED switch setting on fan control board (LO or HI)
- Blower operates in low speed for mechanical cooling (Y1)
- Blower operates in high speed for any other mode (free cooling, mechanical cooling Y1+Y2, and heating)
- Economizer damper minimum position is fully closed in unoccupied mode
- In occupied mode, the economizer damper minimum position is determined by the setting of the two potentiometers on fan control board
  - LO SPD MIN POS potentiometer sets the minimum position when blower is operating at low speed
  - HI SPD MIN POS potentiometer sets the minimum position when blower is operating at high speed

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

BLOWER (continued)

Options/Accessories

Field Installed

VFD Manual Bypass Kit
- VFD Manual Bypass Control is available as a kit for units equipped with theSingle Zone VAV Supply Fan option
- VFD Manual Bypass Control is a manual bypass and is set by re-configuring the wiring on the unit

CONTROLS

11 Unit Control
- All control voltage is provided via a 24V (secondary) transformer with built-in circuit breaker protection
- Heat/Cool Staging - Capable of up to 2 heat / 2 cool staging with a third party DDC control system or thermostat
- Low Voltage Terminal Block - Provides screw terminal connections for thermostat or controller wiring
- Night Setback Mode - Saves energy by closing outdoor air dampers and operating supply fan on thermostat demand only

Defrost Control
- Provides a defrost cycle, if needed, every 30 or 60 or 90 minutes (adjustable) of compressor on" time at outdoor coil temperature below 35°F
- Temperature switch mounted on outdoor coil liquid line terminates defrost cycle

Fan Control (E-Direct™ Blower System Only)
- Provides variable speed control
- Blower speed can be independently set for both full load and part load applications
- Outdoor fan motor speed will vary depending on full or part load applications

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)

Thermostats
- Control system and thermostat options, see page 11

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

Phase Monitor
- Phase monitor located in the control compartment detects the phasing of incoming power
- If incoming power is out of phase or if any of the three phases are lost, an indicator LED on the phase monitor will turn red and the unit will not start
- In normal operation with correct incoming power phasing, the LED will be green

NOTE - Factory Installed on Units Equipped with the Single Zone VAV Supply Fan and E-Direct™ Option

Required Selections

Voltage Choice
- Specify when ordering base unit

Options/Accessories

Factory or Field Installed

12 Disconnect Switch
- Accessible from outside of unit
- Spring loaded weatherproof cover furnished

GFI Service Outlets (2)
- 115V ground fault circuit interrupter (GFCI) type
- Non-powered
- Field-wired

Field Installed

13 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

INDOOR AIR QUALITY

14 Air Filters
- Disposable 2-inch filters furnished as standard

INDOOR AIR QUALITY (continued)

Options/Accessories

Field Installed

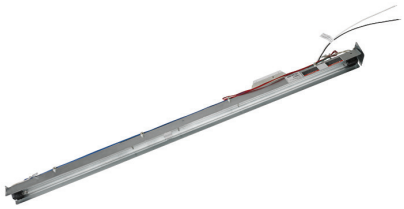
High Efficiency Air Filter

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

Replacement Filter Media Kit With Frame

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

UVC Germicidal Lamps



- Germicidal lamps emit ultra-violet (UV-C) energy, which has been proven to be effective in reducing microbes such as viruses, bacteria, yeasts, and molds
- This process either destroys the organism or controls its ability to reproduce
- UV-C energy greatly reduces the growth and proliferation of mold and other bioaerosols (bacteria and viruses) on illuminated surfaces (particularly coil and drain pan)
- Field installed in the blower/evaporator coil section
- Magnetic safety interlock terminates power when access panels are removed
- All necessary hardware for installation is included
- Lamps operate on 110/230V-1ph power supply

NOTE - Step-down transformer may be ordered separately for 460V and 575V units.

- Approved by ETL

Indoor Air Quality (CO_2) Sensors

- Monitors CO_2 levels
- Reports to the Unit Controller which adjusts economizer dampers as needed

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

Factory or Field Installed

15 Economizer
(Standard and High Performance Common Features)

- Downflow or Horizontal with Outdoor Air Hood and Barometric Relief Dampers with Exhaust Hood
- 16 Barometric Relief Dampers allow relief of excess air
- Aluminum blade dampers prevent blow back and outdoor air infiltration during off cycle
- Bird screen furnished

NOTE - Optional Horizontal Low Profile Barometric Relief Dampers with Exhaust Hood are available for field installation in a reduced space.

- Occupied/Unoccupied mode with field furnished setback thermostat
- Demand Control Ventilation (DCV) ready using optional CO_2 sensors
- Mixed Air Sensor is furnished for field installation in the rooftop unit
- Sensor is factory installed when Economizers are factory installed
- Single sensible sensor is furnished with Economizer and enables economizer operation if the outdoor temperature is less than the setpoint of the control

Standard Economizer Features
(Not for Title 24)

- Gear-driven action
- Return air and outdoor air dampers
- Plug-in connections to unit
- Nylon bearings
- Neoprene seals
- 24-volt
- Fully-modulating spring return motor

Standard Economizer Control Module

- The 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.

High Performance Economizer Features

- 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 90.1-2010 compliant
- Gear-driven action
- High torque 24-volt fully-modulating spring return damper motor
- Return air and outdoor air dampers
- Plug-in connections to unit
- Stainless steel bearings
- Enhanced thermoplastic vulcanizate (TPV) seals
- Flexible stainless steel jamb seals minimize air leakage

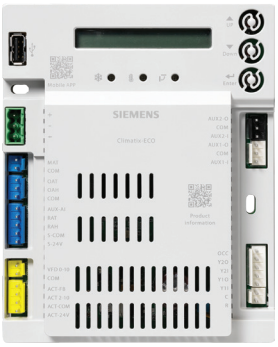
NOTE - High Performance Economizers are not approved for use with differential enthalpy controls in Title 24 applications.

NOTE - The Free Cooling setpoint for Title 24 applications must be set based on the Climate Zone where the system is installed. See Section 140.4 "Prescriptive Requirements for Space Conditioning Systems" of the California Energy Commission's 2013 Building Energy Efficiency Standards. Refer to Installation Instructions for complete setup information and menu parameters available.

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

Download on the App Store

ANDROID APP ON Google play

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 MS/TP 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.

Factory or Field Installed

Single Enthalpy Temperature Control

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

Field Installed

Differential Enthalpy Control (Not for Title 24)

- Order two Single Enthalpy Controls:
  - 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.

EXHAUST

Field Installed

Horizontal Low Profile Barometric Relief Dampers

- Replaces barometric relief dampers furnished with Economizer
- For use when unit is configured for horizontal applications in a reduced space requiring an economizer
- Allows relief of excess air
- Aluminum blade dampers prevent blow back and outdoor air infiltration during off cycle
- Field installed in return air duct
- Exhaust hood with bird screen furnished

NOTE - Requires Horizontal Discharge Kit.

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
- 20 in. diameter fan
- 5 blades
- 1/3 hp motor

NOTE - Requires Economizer with Outdoor Air Hood and Barometric Relief Dampers.

OPTIONS / ACCESSORIES

OUTDOOR AIR

Factory or Field Installed

Outdoor Air Damper - Downflow or Horizontal With Air Hood

- Linked mechanical dampers
- 0 to 25% (fixed) outdoor air adjustable
- Installs in unit
- Includes outdoor air hood
- Automatic model features fully modulating spring return damper motor with plug-in connection
- Manual model features a slide damper
- Maximum mixed air temperature in cooling mode: 100°F

ROOF CURBS

Field Installed

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

Hybrid Roof Curbs, Downflow

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

Adjustable Pitch Curb

- Fully adjustable pitch curbs (3/4 in. per foot in any direction) provide a level platform for rooftop units allowing flexible installations on roofs with uneven or sloped angles
- 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

Bacnet Compatible Thermostat With Reheat Function

- 7-Day Programmable
- For units with or without Dehumidification option
- BTL listed MS/TP ensures compatibility with any BACnet system
- Built-in control programs for conventional and heat pump applications
- Conventional systems up to 3-stage heat and 3-stage cool
- Heat pumps with 1 or 2 compressors and up to 2-stage auxiliary heat
- On-board temperature and humidity sensor
- Multiple configurable inputs and outputs enable advanced control strategies
- Set-up Wizard enables rapid system configuration
- No special tools required for installation or commissioning
- Seven-day (2, 4 or 6 event) occupancy scheduling per day
- Backlit 5-inch LCD touchscreen

Description		Model No.	Catalog No.
BACnet Controls	[1] 7-Day BACnet Thermostat	- - -	**Y8241**
	[2] BACnet Module (factory or field)	K0CTRL31B-2	**16X71**
[3] BACnet Room Sensors	With Display	K0SNSR01FF1	**97W23**
	Without Display	K0SNSR00FF1	**97W24**

[1] BACnet Thermostat (Y8241) will control units with and without Dehumidification option. If there is a mix of units equipped with and without Dehumidification on the same site, this thermostat can be used for all units if suitable.

[2] Not compatible with units equipped with Dehumidification option.

[3] Only compatible with BACnet Module (16X71).

OPTIONS / ACCESSORIES

Item Description		Catalog Number	Unit Model No KHA KHB 092	KHA KHB 102	KHA - - - 120	KHB 122	KHA - - - 150
COOLING SYSTEM							
Condensate Drain Trap	PVC	**22H54**	X	X	X	X	X
	Copper	**76W27**	X	X	X	X	X
Corrosion Protection		Factory	O	O	O	O	O
Drain Pan Overflow Switch		**74W42**	X	X	X	X	X
Efficiency		Standard	O	O	O		O
		High	O	O		O	
Low Ambient Kit	Standard Efficiency	**54W16**	X	X	X		X
	High Efficiency	**14N31**	X	X		X	
Refrigerant Type		R-410A	O	O	O	O	O
BLOWER - SUPPLY AIR							
Blower Option	CAV (Constant Air Volume)	Factory	[1] O	[1] O			[1] O
	Single Zone VAV Supply Fan	Factory	O	O	O		O
	E-Direct™ (Direct Drive) Single Zone VAV Supply Fan	Factory				O	
Blower Motors	Belt Drive - 2 hp	Factory	O	O	O		O
	Belt Drive - 3 hp	Factory	O	O	O		O
	Belt Drive - 5 hp	Factory	O	O	O		O
VFD Manual Bypass Kit (for Single Zone VAV Supply Fan equipped units only)		**90W53**	X	X	X		X
Drive Kits	Kit #1 590-890 rpm	Factory	O	O	O		O
See Blower Data Tables for selection	Kit #2 800-1105 rpm	Factory	O	O	O		O
	Kit #3 795-1195 rpm	Factory	O	O	O		O
	Kit #4 730-970 rpm	Factory	O	O	O		O
	Kit #5 940-1200 rpm	Factory	O	O	O		O
	Kit #6 1015-1300 rpm	Factory	O	O	O		O
	Kit #10 900-1135 rpm	Factory	O	O	O		O
	Kit #11 1040-1315 rpm	Factory	O	O	O		O
	Kit #12 1125-1425 rpm	Factory	O	O	O		O
CABINET							
Combination Coil/Hail Guards	Standard Efficiency	**13T24**	X	X	X		
		13T25					X
	High Efficiency	**14Y77**	X	X			
		13T06				X	
Hinged Access Panels		Factory	O	O	O	O	O
Horizontal Discharge Kit		**51W25**	X	X	X	X	X
Return Air Adaptor Plate (for LC/LG/LH and TC/TG/TH unit replacement)		**54W96**	X	X	X	X	X
CONTROLS							
NOTE - Also see Conventional Thermostat Control Systems on page 11 for Additional Options.							
Commercial Controls							
Smoke Detector - Supply or Return (Power board and one sensor)		**11K76**	X	X	X	X	X
Smoke Detector - Supply and Return (Power board and two sensors)		**11K80**	X	X	X	X	X

[1] KHB High Efficiency Models Only.

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

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

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X = Field Installed

OPTIONS / ACCESSORIES

Item Description		Catalog Number	Unit Model No KHA KHB 092	KHA KHB 102	KHA - - - 120	KHB 122	KHA - - - 150
INDOOR AIR QUALITY							
High Efficiency Air Filters	MERV 8	**50W61**	X	X	X	X	X
20 x 25 x 2 (Order 4 per unit)	MERV 13	**52W41**	X	X	X	X	X
Replacement Media Filter With Metal Mesh Frame (includes non-pleated filter media)		**Y3063**	X	X	X	X	X
Indoor Air Quality (CO_2) 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		**87N53**	X	X	X	X	X
Sensor - Black plastic case with LCD display, rated for plenum mounting		**87N52**	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 sensors (**87N53** or **77N39**)		**90N43**	X	X	X	X	X
Needlepoint Bipolar Ionization (NPBI)							
Needlepoint Bipolar Ionization Kit		**22U15**	X	X	X	X	X
UVC Germicidal Lamps							
[1] UVC Light Kit (110/230V-1ph)		**21A93**	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
ELECTRICAL							
Voltage 60 Hz	208/230V - 3 phase	Factory	O	O	O	O	O
	460V - 3 phase	Factory	O	O	O	O	O
	575V - 3 phase	Factory	O	O	O	O	O
Disconnect Switch - See Electrical/Electric Heat tables for selection	80 amp	**54W56**	OX	OX	OX	OX	OX
	150 amp	**54W57**	OX	OX	OX	OX	OX
GFI Service Outlets	15 amp non-powered, field-wired (208/230V, 460V only)	**74M70**	OX	OX	OX	OX	OX
	20 amp non-powered, field-wired (575V only)	**67E01**	X	X	X	X	X
Weatherproof Cover for GFI		**10C89**	X	X	X	X	X
ELECTRIC HEAT- BELT DRIVE UNITS							
7.5 kW	208/230V-3ph	**56W38**	OX	OX			
	460V-3ph	**56W39**	OX	OX			
	575V-3ph	**56W40**	OX	OX			
15 kW	208/230V-3ph	**56W41**	OX	OX	OX		OX
	460V-3ph	**56W42**	OX	OX	OX		OX
	575V-3ph	**56W43**	OX	OX	OX		OX
22.5 kW	208/230V-3ph	**56W44**	OX	OX	OX		OX
	460V-3ph	**56W45**	OX	OX	OX		OX
	575V-3ph	**56W46**	OX	OX	OX		OX
30 kW	208/230V-3ph	**56W47**	OX	OX	OX		OX
	460V-3ph	**56W48**	OX	OX	OX		OX
	575V-3ph	**56W49**	OX	OX	OX		OX
45 kW	208/230V-3ph	**56W50**	OX	OX	OX		OX
	460V-3ph	**56W51**	OX	OX	OX		OX
	575V-3ph	**56W52**	OX	OX	OX		OX
60 kW	208/230V-3ph	**55W02**			OX		OX
	460V-3ph	**55W03**			OX		OX
	575V-3ph	**55W04**			OX		OX

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

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

O = Configure To Order (Factory Installed)

X = Field Installed

OPTIONS / ACCESSORIES

Item Description		Catalog Number	Unit Model No KHA KHB 092	KHA KHB 102	KHA - - - 120	KHB 122	KHA - - - 150
ELECTRIC HEAT- DIRECT DRIVE UNITS							
15 kW	208/230V-3ph	**10U99**				X	
	460V-3ph	**10X01**				X	
	575V-3ph	**10X02**				X	
22.5 kW	208/230V-3ph	**10X03**				X	
	460V-3ph	**10X04**				X	
	575V-3ph	**10X05**				X	
30 kW	208/230V-3ph	**10X06**				X	
	460V-3ph	**10X07**				X	
	575V-3ph	**10X08**				X	
45 kW	208/230V-3ph	**10X09**				X	
	460V-3ph	**10X11**				X	
	575V-3ph	**10X12**				X	
60 kW	208/230V-3ph	**10X13**				X	
	460V-3ph	**10X14**				X	
	575V-3ph	**10X15**				X	
ECONOMIZER							
Standard Economizer (Not for Title 24)							
Standard Economizer with Single Temperature Control Downflow or Horizontal Applications - Includes Barometric Relief Dampers and Air Hoods		**13U45**	OX	OX	OX	OX	OX
Standard Economizer Controls (Not for Title 24)							
Single Enthalpy Control		**21Z09**	OX	OX	OX	OX	OX
Differential Enthalpy Control (order 2)		**21Z09**	X	X	X	X	X
High Performance Economizer (Approved for California Title 24 Building Standards / AMCA Class 1A Certified)							
High Performance Economizer with Single Temperature Control Downflow or Horizontal Applications - Includes Barometric Relief Dampers and Air Hoods		**23G23**	OX	OX	OX	OX	OX
High Performance Economizer Controls (Not for Title 24)							
Single Enthalpy Control		**23G26**	OX	OX	OX	OX	OX
Differential Enthalpy Control (order 2)		**23G26**	X	X	X	X	X
Horizontal Low Profile Barometric Relief Dampers With Exhaust Hood							
Horizontal Low Profile Barometric Relief Dampers With Exhaust Hood		**53K04**	X	X	X	X	X
OUTDOOR AIR							
Outdoor Air Dampers with Outdoor Air Hood							
Motorized		**14G28**	OX	OX	OX	OX	OX
Manual		**14G29**	OX	OX	OX	OX	OX
POWER EXHAUST							
Standard Static	208/230V-3ph	**53W44**	X	X	X	X	X
	460V-3ph	**53W45**	X	X	X	X	X
	575V-3ph	**53W46**	X	X	X	X	X

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

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

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OPTIONS / ACCESSORIES

Item Description		Catalog Number	Unit Model No KHA KHB 092	KHA KHB 102	KHA - - - 120	KHB 122	KHA - - - 150
ROOF CURBS							
Hybrid Roof Curbs, Downflow							
8 in. height	C1CURB70B-1	**11F54**	X	X	X	X	X
14 in. height	C1CURB71B-1	**11F55**	X	X	X	X	X
18 in. height	C1CURB72B-1	**11F56**	X	X	X	X	X
24 in. height	C1CURB73B-1	**11F57**	X	X	X	X	X
Adjustable Pitch Curb, Downflow							
14 in. height	C1CURB55B-1	**54W50**	X	X	X	X	X
CEILING DIFFUSERS							
Step-Down - Order one	RTD11-95S	**13K61**	X				
	RTD11-135S	**13K62**		X	X	X	
	RTD11-185S	**13K63**					X
Flush - Order one	FD11-95S	**13K56**	X				
	FD11-135S	**13K57**		X	X	X	
	FD11-185S	**13K58**					X
Transitions (Supply and Return) - Order one	C1DIFF30B-1	**12X65**	X				
	C1DIFF31B-1	**12X66**		X	X	X	
	C1DIFF32B-1	**12X67**					X

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

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

O = Configure To Order (Factory Installed)

X = Field Installed

SPECIFICATIONS — STANDARD EFFICIENCY

General Data	**Nominal Tonnage**	**7.5 Ton**	**8.5 Ton**	**10 Ton**	**12.5 Ton**
	Model Number	**KHA092S4M**	**KHA102S4M**	**KHA120S4M**	**KHA150S4M**
	Efficiency Type	**Standard**	**Standard**	**Standard**	**Standard**
	Blower Type	Single Zone VAV Supply Fan	Single Zone VAV Supply Fan	Single Zone VAV Supply Fan	Single Zone VAV Supply Fan
Cooling Performance	Gross Cooling Capacity - Btuh	91,600	103,400	121,500	144,300
	[1] Net Cooling Capacity - Btuh	89,000	100,000	118,000	138,000
	AHRI Rated Air Flow - cfm	3000	3400	3600	4500
	Total Unit Power - kW	8.1	9.1	10.7	13.0
	[1] EER (Btuh/Watt)	11	11	11.0	10.6
	[1] IEER (Btuh/Watt)	12.5	12.5	12.5	12.0
	Refrigerant Type	R-410A	R-410A	R-410A	R-410A
	Refrigerant Charge Furnished Circuit 1	12 lbs. 8 oz.	13 lbs. 8 oz.	15 lbs. 0 oz.	22 lbs. 0 oz.
	Refrigerant Charge Furnished Circuit 2	12 lbs. 0 oz.	13 lbs. 0 oz.	15 lbs. 0 oz.	23 lbs. 0 oz.
Heating Performance	[1] Total High Heat Capacity - Btuh	89,000	100,000	115,000	138,000
	Total Unit Power - kW	7.9	8.9	10.3	12.6
	[1] C.O.P.	3.3	3.3	3.30	3.20
	[1] Total Low Heat Capacity - Btuh	53,000	55,000	70,000	82,000
	Total Unit Power (kW)	6.9	7.2	9.9	11.7
	[1] C.O.P.	2.25	2.25	2.07	2.05
Electric Heat Available - See page 13		7.5, 15, 22.5, 30 & 45 kW		15, 22.5, 30, 45 & 60 kW	
Compressor Type (number)		Scroll (2)	Scroll (2)	Scroll (2)	Scroll (2)
Outdoor Coils	Net face area (total) - sq. ft.	28.8	28.8	28.8	40.8
	Tube diameter - in.	3/8	3/8	3/8	3/8
	Number of rows	2	2	3	3
	Fins per inch	20	20	20	20
Outdoor Coil Fans	Motor - (No.) horsepower	(2) 1/3 PSC	(2) 1/2 PSC	(2) 1/2 PSC	(3) 1/3 PSC
	Motor rpm	1075	1075	1075	1075
	Total Motor watts	665	775	806	1150
	Diameter - (No.) in.	(2) 24	(2) 24	(2) 24	(3) 24
	Number of blades	3	3	3	3
	Total Air volume - cfm	8200	8600	8800	11,000
Indoor Coils	Net face area (total) - sq. ft.	12.8	12.8	12.8	12.8
	Tube diameter - in.	3/8	3/8	3/8	3/8
	Number of rows	3	4	4	4
	Fins per inch	14	14	14	14
	Drain connection - Number and size	(1) 1 in. NPT coupling			
	Expansion device type	Balance port TXV, removable head			
[2] **Indoor Blower and Drive Selection**	Nominal motor output	2 hp, 3 hp, 5 hp			
	Maximum usable motor output (US Only)	2.3 hp, 3.45 hp, 5.75 hp			
	Motor - Drive kit number	2 hp [3] **Kit 1** 590-890 rpm **Kit 2** 800-1105 rpm **Kit 3** 795-1195 rpm 3 hp **Kit 4** 730-970 rpm **Kit 5** 940-1200 rpm **Kit 6** 1015-1300 rpm 5 hp **Kit 10** 900-1135 rpm **Kit 11** 1040-1315 rpm **Kit 12** 1125-1425 rpm			
	Blower wheel nominal diameter x width - in.	(1) 15 X 15	(1) 15 X 15	(1) 15 X 15	(1) 15 X 15
Filters	Type of filter	Disposable			
	Number and size - in.	(4) 20 x 25 x 2			
Electrical characteristics		208/230V, 460V or 575V - 60 hertz - 3 phase			

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

[1] AHRI Certified to AHRI Standard 340/360:
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 output required. Maximum usable output of motors furnished are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

[4] Standard motor and drive kit furnished with unit.

NOTE – Units equipped with Single Zone VAV Supply Fan option are limited to a motor service factor of 1.0.

General Data		7.5 Ton KHB092H4B	7.5 Ton KHB092H4M	8.5 Ton KHB102H4M	10 Ton KHB122H4E
	Nominal Tonnage / Model Number / Efficiency Type	High	High	High	High
	Blower Type	CAV (Constant Air Volume)	Single Zone VAV Supply Fan	Single Zone VAV Supply Fan	Single Zone VAV Supply Fan + E-Direct™ (Direct Drive)
Cooling Performance	Gross Cooling Capacity - Btuh	91,600	91,600	103,400	121,000
	[1] Net Cooling Capacity - Btuh	89,000	89,000	100,000	118,000
	AHRI Rated Air Flow - cfm	3,000	3,000	3,400	3600
	Total Unit Power - kW	7.3	7.3	8.3	9.6
	[1] EER (Btuh/Watt)	12.1	12.1	12.0	12.3
	[1] IEER (Btuh/Watt)	12.9	14.2	14.3	14.8
	Refrigerant Type	R-410A	R-410A	R-410A	R-410A
	Refrigerant Charge Furnished Circuit 1	13 lbs. 8 oz.	13 lbs. 8 oz.	13 lbs. 8 oz.	19 lbs. 8 oz.
	Circuit 2	13 lbs. 8 oz.	13 lbs. 8 oz.	13 lbs. 0 oz.	20 lbs. 8 oz.
Heating Performance	[1] Total High Heat Capacity - Btuh	86,000	86,000	96,000	116,000
	Total Unit Power - kW	7.0	7.0	8.0	9.5
	[1] C.O.P.	3.60	3.60	3.50	3.60
	[1] Total Low Heat Capacity - Btuh	51,000	51,000	53,000	65,000
	Total Unit Power (kW)	6.6	6.6	6.9	8.5
	[1] C.O.P.	2.25	2.25	2.25	2.25
Electric Heat Available - See page 13		7.5, 15, 22.5, 30 & 45 kW			15, 22.5, 30 & 45 kW
Compressor Type (number)		Scroll (2)	Scroll (2)	Scroll (2)	Scroll (2)
Outdoor Coils	Net face area (total) - sq. ft.	25.9	25.9	25.9	40.4
	Tube diameter - in.	3/8	3/8	3/8	3/8
	Number of rows	3	3	3	3
	Fins per inch	20	20	20	20
Outdoor Coil Fans	Motor - (No.) horsepower	(2) 1/3 ECM	(2) 1/3 ECM	(2) 1/3 ECM	(3) 1/3 ECM
	Motor rpm	530-950	530-950	650-1010	530-950
	Total Motor watts	140-620	140-620	220-700	180-800
	Diameter - (No.) in.	(2) 24	(2) 24	(2) 24	(3) 24
	Number of blades	3	3	3	3
	Total Air volume - cfm	3600-7000	3600-7000	4600-7500	5500-10,600
Indoor Coils	Net face area (total) - sq. ft.	12.8	12.8	12.8	12.8
	Tube diameter - in.	3/8	3/8	3/8	3/8
	Number of rows	4	4	4	4
	Fins per inch	14	14	14	14
	Drain connection - Number and size	(1) 1 in. NPT coupling			
	Expansion device type	Balance port TXV, removable head			
[2] Indoor Blower and Drive Selection	Nominal motor output	2 hp, 3 hp, 5 hp			3.75 hp (ECM)
	Maximum usable motor output (US Only)	2.3 hp, 3.45 hp, 5.75 hp			- - -
	Motor - Drive kit number	2 hp [3] **Kit 1** 590-890 rpm **Kit 2** 800-1105 rpm **Kit 3** 795-1195 rpm		3 hp **Kit 4** 730-970 rpm **Kit 5** 940-1200 rpm **Kit 6** 1015-1300 rpm	- - -
		5 hp **Kit 10** 900-1135 rpm **Kit 11** 1040-1315 rpm **Kit 12** 1125-1425 rpm			
	Blower wheel nominal diameter x width - in.	(1) 15 X 15	(1) 15 X 15	(1) 15 X 15	(1) 22 x 19
Filters	Type of filter	Disposable			
	Number and size - in.	(4) 20 x 25 x 2			
Electrical characteristics		208/230V, 460V or 575V - 60 hertz - 3 phase			

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

[1] AHRI Certified to AHRI Standard 340/360:
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 output required. Maximum usable output of motors furnished are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

[4] Standard motor and drive kit furnished with unit.

NOTE – Units equipped with Single Zone VAV Supply Fan option are limited to a motor service factor of 1.0.

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

7.5 TON COOLING STANDARD EFFICIENCY KHA092S4M (1ST STAGE) - SINGLE ZONE VAV SUPPLY FAN SUPPLY AIR BLOWER

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		65°F					75°F					85°F					95°F				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) 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	1680	44.1	2.13	0.57	0.69	0.81	41.7	2.42	0.57	0.69	0.83	39.2	2.74	0.58	0.7	0.85	36.5	3.11	0.58	0.72	0.87
	2100	47.5	2.14	0.6	0.74	0.89	44.9	2.43	0.61	0.76	0.91	42.2	2.75	0.61	0.77	0.94	39.2	3.11	0.62	0.8	0.97
	2520	50.1	2.15	0.64	0.8	0.96	47.2	2.43	0.65	0.82	0.98	44.3	2.75	0.66	0.85	1	41.2	3.12	0.67	0.87	1
67°F	1680	47.1	2.14	0.46	0.55	0.65	44.6	2.43	0.46	0.55	0.65	42	2.75	0.46	0.55	0.66	39.2	3.12	0.45	0.56	0.68
	2100	50.6	2.15	0.48	0.58	0.7	47.9	2.44	0.48	0.58	0.72	45.1	2.75	0.48	0.59	0.73	42	3.12	0.48	0.6	0.75
	2520	53.3	2.16	0.5	0.61	0.76	50.4	2.44	0.5	0.62	0.78	47.3	2.76	0.5	0.63	0.8	44.1	3.12	0.5	0.65	0.83
71°F	1680	50.1	2.15	0.37	0.45	0.53	47.5	2.43	0.36	0.45	0.53	44.7	2.75	0.35	0.44	0.53	41.9	3.12	0.34	0.44	0.54
	2100	53.8	2.16	0.37	0.47	0.56	50.9	2.44	0.37	0.47	0.56	47.9	2.76	0.36	0.47	0.57	44.8	3.13	0.35	0.47	0.58
	2520	56.5	2.17	0.38	0.49	0.59	53.5	2.45	0.38	0.49	0.6	50.3	2.77	0.37	0.49	0.61	46.9	3.13	0.36	0.49	0.62

7.5 TON COOLING STANDARD EFFICIENCY KHA092S4M (2ND STAGE) - SINGLE ZONE VAV SUPPLY FAN SUPPLY AIR BLOWER

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) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) 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	2400	87.3	5.43	0.7	0.85	0.99	81.3	6.15	0.71	0.87	1	74.9	6.99	0.72	0.9	1	67.7	7.97	0.74	0.95	1
	3000	92.5	5.44	0.75	0.93	1	86	6.16	0.77	0.96	1	79.2	7	0.8	0.99	1	72.4	7.98	0.83	1	1
	3600	96.3	5.45	0.81	1	1	90	6.17	0.84	1	1	83.7	7	0.87	1	1	76.7	7.98	0.91	1	1
67°F	2400	93.3	5.44	0.54	0.68	0.81	87.2	6.17	0.54	0.69	0.83	80.3	6.99	0.55	0.7	0.87	72.9	7.97	0.55	0.72	0.9
	3000	98.4	5.45	0.58	0.73	0.9	91.6	6.17	0.58	0.75	0.93	84.4	7.01	0.59	0.77	0.96	76.7	7.99	0.6	0.8	1
	3600	102.1	5.46	0.61	0.79	0.97	94.9	6.18	0.62	0.81	1	87.1	7	0.63	0.85	1	79.2	7.98	0.65	0.89	1
71°F	2400	99.3	5.45	0.4	0.53	0.65	92.7	6.17	0.4	0.53	0.66	85.8	7.01	0.39	0.54	0.68	78.1	7.97	0.39	0.55	0.7
	3000	104.5	5.46	0.42	0.57	0.71	97.4	6.18	0.42	0.57	0.73	90	7.02	0.41	0.58	0.75	81.9	7.98	0.41	0.6	0.78
	3600	108.3	5.48	0.44	0.6	0.77	101.1	6.19	0.44	0.61	0.79	93.2	7.02	0.43	0.63	0.82	84.6	7.98	0.43	0.64	0.86

7.5 TON HEATING STANDARD EFFICIENCY KHA092S4M - SINGLE ZONE VAV SUPPLY FAN SUPPLY AIR BLOWER

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
2400	109.2	7.13	83.2	6.60	56.4	6.13	37.0	5.20	18.4	3940
3000	111.1	6.64	85.2	6.12	58.3	5.64	38.9	4.72	20.3	3455
3600	112.8	6.34	86.8	5.82	60.0	5.34	40.6	4.42	22.0	3155

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

8.5 TON COOLING STANDARD EFFICIENCY KHA102S4M (1ST STAGE) - SINGLE ZONE VAV SUPPLY FAN SUPPLY AIR BLOWER

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		65°F					75°F					85°F					95°F				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) 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	1920	48.3	2.39	0.58	0.69	0.82	46	2.71	0.58	0.7	0.84	43.4	3.06	0.58	0.71	0.86	40.8	3.47	0.59	0.73	0.89
	2400	51.7	2.41	0.6	0.75	0.9	49.1	2.72	0.61	0.77	0.93	46.3	3.07	0.62	0.78	0.96	43.3	3.47	0.63	0.81	0.99
	2880	54.2	2.42	0.64	0.81	0.98	51.4	2.73	0.66	0.83	1	48.5	3.08	0.67	0.86	1	45.3	3.48	0.69	0.89	1
67°F	1920	51.8	2.41	0.47	0.56	0.65	49.3	2.72	0.47	0.56	0.66	46.5	3.07	0.47	0.56	0.67	43.7	3.48	0.46	0.57	0.69
	2400	55.1	2.42	0.48	0.58	0.71	52.5	2.73	0.48	0.59	0.72	49.5	3.08	0.49	0.6	0.74	46.4	3.49	0.49	0.61	0.77
	2880	57.6	2.43	0.5	0.62	0.77	54.8	2.74	0.51	0.63	0.79	51.7	3.09	0.51	0.65	0.82	48.3	3.49	0.51	0.66	0.85
71°F	1920	55.1	2.42	0.37	0.45	0.53	52.5	2.73	0.36	0.45	0.54	49.7	3.08	0.36	0.45	0.54	46.7	3.49	0.35	0.45	0.54
	2400	58.6	2.43	0.38	0.47	0.56	55.8	2.74	0.37	0.47	0.57	52.7	3.09	0.37	0.47	0.58	49.5	3.5	0.37	0.48	0.59
	2880	61.2	2.44	0.38	0.49	0.6	58.3	2.75	0.38	0.49	0.6	55.1	3.1	0.38	0.5	0.62	51.5	3.5	0.37	0.5	0.64

8.5 TON COOLING STANDARD EFFICIENCY KHA102S4M (2ND STAGE) - SINGLE ZONE VAV SUPPLY FAN SUPPLY AIR BLOWER

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) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) 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	2720	98.8	6.36	0.71	0.87	1	92.4	7.2	0.73	0.89	1	85.6	8.16	0.74	0.92	1	78.4	9.32	0.77	0.97	1
	3400	103.8	6.38	0.77	0.95	1	97.2	7.21	0.8	0.99	1	90.4	8.18	0.82	1	1	83.5	9.31	0.86	1	1
	4080	108.4	6.4	0.84	1	1	102.1	7.23	0.86	1	1	95.7	8.2	0.9	1	1	88.4	9.34	0.94	1	1
67°F	2720	105.5	6.39	0.56	0.69	0.83	98.9	7.22	0.56	0.71	0.85	91.4	8.18	0.57	0.72	0.89	83.8	9.32	0.58	0.75	0.93
	3400	110.5	6.41	0.6	0.75	0.92	103.4	7.23	0.61	0.77	0.95	95.6	8.2	0.61	0.8	0.99	87.2	9.33	0.63	0.83	1
	4080	113.8	6.41	0.63	0.82	0.99	106.6	7.24	0.64	0.84	1	98.5	8.21	0.66	0.88	1	89.8	9.32	0.68	0.92	1
71°F	2720	112.4	6.41	0.42	0.55	0.67	105.2	7.24	0.42	0.55	0.69	97.7	8.19	0.41	0.56	0.7	89.7	9.34	0.41	0.57	0.73
	3400	117.5	6.43	0.44	0.59	0.73	110.2	7.26	0.44	0.6	0.75	102	8.22	0.43	0.61	0.78	93.4	9.34	0.43	0.62	0.81
	4080	121	6.44	0.45	0.62	0.79	113.4	7.27	0.45	0.64	0.82	105.2	8.23	0.46	0.66	0.85	95.8	9.34	0.46	0.67	0.89

8.5 TON HEATING STANDARD EFFICIENCY KHA102S4M - SINGLE ZONE VAV SUPPLY FAN SUPPLY AIR BLOWER

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
2720	124.0	7.58	93.6	6.91	62.2	6.24	40.0	5.44	20.1	4120
3400	126.0	7.09	95.6	6.43	64.1	5.75	41.9	4.95	22.1	3635
4080	128.0	6.79	97.6	6.12	66.2	5.44	43.9	4.64	24.1	3325

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

10 TON COOLING STANDARD EFFICIENCY KHA120S4M (1ST STAGE) - SINGLE ZONE VAV SUPPLY FAN SUPPLY AIR BLOWER

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		65°F					75°F					85°F					95°F				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) 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	2240	58.1	2.82	0.61	0.72	0.83	55	3.21	0.61	0.73	0.84	51.8	3.65	0.62	0.74	0.86	48.2	4.13	0.62	0.75	0.88
	2800	62.4	2.85	0.64	0.77	0.9	59.1	3.25	0.65	0.78	0.92	55.5	3.68	0.65	0.8	0.94	51.6	4.16	0.66	0.82	0.97
	3360	65.6	2.88	0.68	0.82	0.96	62.1	3.27	0.69	0.84	0.98	58.2	3.7	0.7	0.86	1	54.2	4.18	0.71	0.88	1
67°F	2240	62.4	2.85	0.5	0.59	0.69	59.1	3.24	0.49	0.59	0.69	55.7	3.68	0.49	0.59	0.7	52	4.17	0.48	0.59	0.71
	2800	66.9	2.88	0.52	0.62	0.74	63.3	3.28	0.52	0.62	0.75	59.6	3.71	0.51	0.63	0.76	55.6	4.2	0.51	0.64	0.78
	3360	70.1	2.91	0.53	0.65	0.79	66.3	3.31	0.53	0.66	0.8	62.4	3.74	0.53	0.67	0.82	58.2	4.23	0.54	0.69	0.84
71°F	2240	66.6	2.88	0.39	0.48	0.57	63.3	3.28	0.39	0.48	0.57	59.6	3.71	0.38	0.47	0.57	55.9	4.2	0.37	0.47	0.57
	2800	71.3	2.92	0.4	0.5	0.6	67.6	3.32	0.4	0.5	0.6	63.5	3.75	0.39	0.5	0.61	59.6	4.24	0.38	0.5	0.61
	3360	74.6	2.94	0.41	0.52	0.63	70.7	3.34	0.4	0.52	0.64	66.6	3.78	0.4	0.52	0.65	62.2	4.27	0.39	0.53	0.66

10 TON COOLING STANDARD EFFICIENCY KHA120S4M (2ND STAGE) - SINGLE ZONE VAV SUPPLY FAN SUPPLY AIR BLOWER

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) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) 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	3200	117.9	7.41	0.7	0.85	0.99	110	8.38	0.71	0.87	1	101.4	9.49	0.73	0.9	1	92.3	10.78	0.75	0.94	1
	4000	124.8	7.47	0.76	0.93	1	116.4	8.44	0.78	0.96	1	107.2	9.55	0.8	0.99	1	98	10.83	0.83	1	1
	4800	130	7.52	0.82	1	1	121.5	8.49	0.84	1	1	113.1	9.61	0.87	1	1	104.1	10.89	0.91	1	1
67°F	3200	126.6	7.48	0.55	0.68	0.82	118.3	8.46	0.55	0.69	0.84	109.1	9.57	0.55	0.71	0.86	99.4	10.85	0.55	0.73	0.9
	4000	133.2	7.55	0.58	0.74	0.9	124	8.52	0.59	0.75	0.93	114.5	9.63	0.6	0.78	0.96	104.1	10.9	0.61	0.81	0.99
	4800	137.8	7.6	0.62	0.8	0.97	128.3	8.57	0.63	0.82	0.99	118.1	9.67	0.64	0.85	1	107.2	10.93	0.66	0.89	1
71°F	3200	135.1	7.57	0.41	0.54	0.66	126.5	8.55	0.4	0.54	0.67	116.9	9.66	0.4	0.54	0.69	106.7	10.91	0.39	0.55	0.7
	4000	141.8	7.64	0.43	0.57	0.72	132.2	8.61	0.41	0.58	0.73	122.7	9.72	0.42	0.59	0.76	111.9	10.99	0.41	0.6	0.79
	4800	146.7	7.69	0.44	0.61	0.78	136.8	8.67	0.44	0.62	0.8	126.5	9.77	0.44	0.63	0.84	115.3	11.02	0.44	0.65	0.86

10 TON HEATING STANDARD EFFICIENCY KHA120S4M - SINGLE ZONE VAV SUPPLY FAN SUPPLY AIR BLOWER

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
3200	141.7	9.39	109.6	8.57	76.1	7.74	52.6	6.77	25.4	5130
4000	144.9	8.77	112.9	7.95	79.4	7.12	55.9	6.15	28.7	4510
4800	148.1	8.37	116.1	7.55	82.6	6.72	59.0	5.74	31.9	4105

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

12.5 TON COOLING STANDARD EFFICIENCY KHA150S4M (1ST STAGE) - SINGLE ZONE VAV SUPPLY FAN SUPPLY AIR BLOWER

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		65°F					75°F					85°F					95°F				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) 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	2560	67.8	3.46	0.59	0.7	0.82	64.1	3.87	0.59	0.71	0.83	60.1	4.31	0.59	0.71	0.85	55.6	4.79	0.59	0.72	0.87
	3200	73.1	3.48	0.62	0.76	0.89	69	3.88	0.62	0.76	0.91	64.9	4.32	0.63	0.78	0.93	60.1	4.8	0.63	0.8	0.96
	3840	77.2	3.49	0.66	0.81	0.96	73	3.89	0.66	0.83	0.98	68.3	4.32	0.67	0.84	1	63.4	4.8	0.68	0.87	1
67°F	2560	73.1	3.47	0.48	0.57	0.67	69.2	3.88	0.47	0.57	0.67	65.1	4.32	0.46	0.56	0.67	60.6	4.8	0.45	0.56	0.68
	3200	78.6	3.49	0.5	0.6	0.72	74.6	3.89	0.49	0.6	0.73	70	4.32	0.49	0.6	0.74	65.4	4.8	0.48	0.61	0.75
	3840	82.9	3.5	0.51	0.64	0.78	78.6	3.9	0.51	0.64	0.79	73.8	4.33	0.51	0.64	0.8	68.5	4.8	0.51	0.65	0.82
71°F	2560	78.6	3.49	0.38	0.46	0.55	74.6	3.89	0.37	0.46	0.54	70.3	4.32	0.36	0.45	0.54	65.7	4.8	0.34	0.44	0.54
	3200	84.3	3.51	0.39	0.48	0.58	80.2	3.9	0.38	0.48	0.58	75.4	4.33	0.37	0.48	0.58	70.6	4.81	0.36	0.47	0.58
	3840	88.6	3.52	0.39	0.5	0.61	84.2	3.91	0.39	0.5	0.61	79.3	4.33	0.38	0.5	0.62	74	4.81	0.37	0.5	0.63

12.5 TON COOLING STANDARD EFFICIENCY KHA150S4M (2ND STAGE) - SINGLE ZONE VAV SUPPLY FAN SUPPLY AIR BLOWER

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) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) 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	3800	138.4	8.45	0.7	0.86	1	128.4	9.38	0.71	0.88	1	117.7	10.42	0.72	0.9	1	106.5	11.6	0.74	0.94	1
	4400	144	8.45	0.74	0.91	1	133.6	9.39	0.76	0.94	1	122.8	10.43	0.77	0.97	1	111.6	11.6	0.8	1	1
	5000	148.6	8.45	0.78	0.96	1	138.6	9.39	0.8	0.98	1	127.6	10.43	0.82	1	1	116.8	11.61	0.85	1	1
67°F	3800	149.2	8.46	0.54	0.68	0.82	138.7	9.39	0.54	0.69	0.84	128.2	10.43	0.54	0.7	0.86	116.2	11.6	0.54	0.72	0.89
	4400	155	8.47	0.57	0.72	0.87	144.3	9.39	0.57	0.73	0.89	132.8	10.42	0.57	0.75	0.93	120.4	11.59	0.58	0.77	0.96
	5000	159.6	8.47	0.59	0.76	0.92	148.7	9.39	0.59	0.77	0.95	136.9	10.43	0.6	0.8	0.98	124.6	11.62	0.61	0.82	1
71°F	3800	160.3	8.47	0.4	0.53	0.66	149.9	9.39	0.39	0.53	0.67	138.9	10.44	0.38	0.53	0.68	126.5	11.61	0.37	0.54	0.69
	4400	166.4	8.48	0.41	0.56	0.69	155.5	9.4	0.41	0.56	0.71	143.7	10.43	0.4	0.56	0.72	131.4	11.62	0.39	0.57	0.74
	5000	171	8.49	0.42	0.58	0.74	159.7	9.4	0.41	0.58	0.75	148.1	10.44	0.41	0.59	0.77	135.5	11.62	0.41	0.6	0.8

12.5 TON HEATING STANDARD EFFICIENCY KHA150S4M - SINGLE ZONE VAV SUPPLY FAN SUPPLY AIR BLOWER

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
3800	167.2	10.04	127.6	9.22	86.4	8.39	58.2	7.34	28.6	5465
4400	170.6	9.68	131.1	8.86	89.8	8.03	61.7	6.97	32.0	5100
5000	174.0	9.41	134.5	8.59	93.2	7.76	65.1	6.71	35.4	4835

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

7.5 TON COOLING HIGH EFFICIENCY KHB092H4B (1ST STAGE) - CONSTANT AIR VOLUME

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		65°F					75°F					85°F					95°F				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) 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	2400	48.5	2.36	0.62	0.78	0.97	44.8	2.65	0.63	0.80	1.00	40.8	2.98	0.63	0.83	1.00	36.7	3.35	0.64	0.86	1.00
	3000	51.6	2.38	0.68	0.89	1.00	47.5	2.67	0.69	0.93	1.00	43.6	3.00	0.70	0.96	1.00	39.3	3.37	0.72	1.00	1.00
	3600	53.8	2.40	0.74	0.99	1.00	49.9	2.69	0.76	1.00	1.00	46.1	3.02	0.79	1.00	1.00	42.2	3.40	0.83	1.00	1.00
67°F	2400	52.3	2.38	0.49	0.60	0.73	48.5	2.68	0.49	0.61	0.75	44.4	3.01	0.48	0.62	0.78	40.1	3.38	0.47	0.62	0.81
	3000	55.3	2.41	0.53	0.66	0.84	51.2	2.70	0.52	0.67	0.88	46.8	3.03	0.52	0.68	0.92	42.4	3.40	0.52	0.70	0.96
	3600	57.4	2.42	0.56	0.72	0.95	53.1	2.71	0.55	0.74	0.98	48.6	3.04	0.56	0.77	1.00	43.9	3.42	0.56	0.80	1.00
71°F	2400	56.1	2.41	0.37	0.48	0.59	52.2	2.71	0.36	0.48	0.59	47.9	3.04	0.34	0.47	0.60	43.5	3.41	0.33	0.46	0.60
	3000	59.2	2.44	0.39	0.52	0.64	54.9	2.73	0.38	0.52	0.65	50.4	3.06	0.37	0.52	0.66	45.8	3.44	0.35	0.52	0.68
	3600	61.2	2.46	0.41	0.55	0.69	56.7	2.74	0.39	0.55	0.71	52.3	3.08	0.39	0.56	0.74	47.4	3.45	0.37	0.56	0.77

7.5 TON COOLING HIGH EFFICIENCY KHB092H4B (2ND STAGE) - CONSTANT AIR VOLUME

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) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) 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	2400	89.0	5.28	0.68	0.84	0.99	81.0	5.98	0.68	0.86	1.00	72.7	6.78	0.69	0.89	1.00	64.0	7.74	0.71	0.93	1.00
	3000	95.2	5.28	0.74	0.93	1.00	86.7	5.98	0.76	0.96	1.00	78.0	6.78	0.77	1.00	1.00	69.8	7.73	0.80	1.00	1.00
	3600	99.9	5.30	0.81	1.00	1.00	92.2	5.99	0.83	1.00	1.00	84.1	6.80	0.86	1.00	1.00	75.5	7.73	0.90	1.00	1.00
67°F	2400	97.1	5.29	0.52	0.66	0.80	88.6	5.99	0.51	0.66	0.82	79.9	6.79	0.50	0.67	0.85	70.7	7.74	0.49	0.68	0.89
	3000	102.9	5.31	0.56	0.72	0.90	93.9	5.99	0.56	0.73	0.93	84.8	6.80	0.55	0.75	0.96	75.0	7.75	0.55	0.78	1.00
	3600	107.0	5.32	0.60	0.79	0.98	97.9	6.00	0.60	0.81	1.00	88.2	6.80	0.60	0.84	1.00	78.3	7.73	0.61	0.87	1.00
71°F	2400	104.8	5.31	0.37	0.50	0.63	96.2	6.00	0.36	0.51	0.64	87.2	6.79	0.34	0.49	0.65	77.8	7.74	0.32	0.49	0.66
	3000	110.9	5.32	0.40	0.55	0.70	102.0	6.02	0.39	0.55	0.71	92.2	6.81	0.37	0.55	0.73	82.3	7.75	0.35	0.55	0.75
	3600	115.1	5.34	0.42	0.59	0.77	105.8	6.02	0.40	0.60	0.79	95.9	6.82	0.39	0.61	0.82	85.3	7.75	0.38	0.61	0.85

7.5 TON HEATING HIGH EFFICIENCY KHB092H4B - CONSTANT AIR VOLUME

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
2400	126.4	6.31	96.2	6.40	66.4	6.48	37.1	6.10	18.8	4.48
3000	128.7	5.88	98.4	5.96	68.6	6.05	39.3	5.67	21.0	4.04
3600	130.5	5.61	100.3	5.69	70.5	5.78	41.2	5.40	22.9	3.77

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

7.5 TON COOLING HIGH EFFICIENCY KHB092H4M (1ST STAGE) - SINGLE ZONE VAV SUPPLY FAN SUPPLY AIR BLOWER

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		65°F					75°F					85°F					95°F				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) 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	1680	42.5	2.28	0.62	0.73	0.85	39.7	2.56	0.62	0.74	0.87	36.8	2.89	0.62	0.75	0.89	33.7	3.26	0.62	0.77	0.91
	2100	45.6	2.30	0.66	0.80	0.93	42.6	2.59	0.66	0.81	0.95	39.5	2.91	0.67	0.82	0.98	36.2	3.28	0.68	0.85	1.00
	2520	48.0	2.32	0.70	0.85	0.99	44.8	2.61	0.71	0.87	1.00	41.4	2.93	0.72	0.90	1.00	38.1	3.30	0.73	0.93	1.00
67°F	1680	45.7	2.30	0.50	0.60	0.70	42.9	2.59	0.50	0.60	0.71	39.8	2.91	0.49	0.60	0.72	36.7	3.29	0.48	0.60	0.73
	2100	49.0	2.33	0.52	0.64	0.76	45.9	2.62	0.52	0.64	0.77	42.5	2.94	0.52	0.65	0.79	39.2	3.31	0.51	0.65	0.81
	2520	51.4	2.35	0.55	0.68	0.82	48.1	2.64	0.55	0.69	0.84	44.5	2.96	0.54	0.70	0.86	40.9	3.33	0.55	0.72	0.89
71°F	1680	49.1	2.33	0.39	0.49	0.58	46.1	2.62	0.39	0.48	0.58	42.9	2.94	0.37	0.47	0.58	39.5	3.31	0.35	0.47	0.58
	2100	52.3	2.36	0.40	0.51	0.62	49.0	2.64	0.39	0.51	0.62	45.6	2.97	0.38	0.50	0.62	42.1	3.34	0.37	0.50	0.64
	2520	54.7	2.38	0.41	0.53	0.65	51.3	2.67	0.41	0.54	0.67	47.6	2.99	0.39	0.53	0.68	43.9	3.36	0.39	0.54	0.69

7.5 TON COOLING HIGH EFFICIENCY KHB092H4M (2ND STAGE) - SINGLE ZONE VAV SUPPLY FAN SUPPLY AIR BLOWER

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) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) 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	2400	88.7	5.26	0.67	0.83	0.99	80.9	5.97	0.68	0.86	1.00	72.8	6.76	0.68	0.89	1.00	64.2	7.72	0.70	0.93	1.00
	3000	94.7	5.27	0.74	0.93	1.00	86.4	5.97	0.75	0.96	1.00	77.9	6.77	0.77	1.00	1.00	69.9	7.71	0.80	1.00	1.00
	3600	99.3	5.29	0.80	1.00	1.00	91.8	5.97	0.82	1.00	1.00	83.9	6.79	0.86	1.00	1.00	75.5	7.72	0.90	1.00	1.00
67°F	2400	96.6	5.28	0.51	0.65	0.79	88.3	5.97	0.51	0.66	0.81	79.8	6.77	0.50	0.66	0.84	70.8	7.72	0.49	0.68	0.88
	3000	102.3	5.30	0.56	0.72	0.89	93.5	5.98	0.55	0.73	0.92	84.6	6.78	0.55	0.75	0.96	75.0	7.73	0.55	0.77	1.00
	3600	106.3	5.30	0.59	0.78	0.98	97.4	5.99	0.60	0.80	1.00	87.9	6.79	0.60	0.83	1.00	78.2	7.71	0.61	0.87	1.00
71°F	2400	104.1	5.30	0.37	0.50	0.63	95.7	5.98	0.36	0.50	0.64	87.0	6.77	0.34	0.49	0.65	77.7	7.73	0.32	0.49	0.66
	3000	110.2	5.31	0.40	0.55	0.70	101.4	6.00	0.38	0.55	0.71	91.8	6.79	0.37	0.55	0.73	82.2	7.73	0.35	0.55	0.75
	3600	114.3	5.32	0.42	0.58	0.76	105.2	6.01	0.40	0.59	0.78	95.4	6.80	0.39	0.60	0.81	85.1	7.73	0.38	0.60	0.85

7.5 TON HEATING HIGH EFFICIENCY KHB092H4M - SINGLE ZONE VAV SUPPLY FAN SUPPLY AIR BLOWER

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
2400	113.9	5.65	85.1	5.65	56.6	5.64	29.5	5.30	15.2	3.90
3000	116.0	5.27	87.1	5.27	58.6	5.26	31.5	4.93	17.2	3.52
3600	117.6	5.04	88.8	5.03	60.3	5.02	33.2	4.69	18.9	3.28

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

8.5 TON COOLING HIGH EFFICIENCY KHB102H4M (1ST STAGE) - SINGLE ZONE VAV SUPPLY FAN SUPPLY AIR BLOWER

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		65°F					75°F					85°F					95°F				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) 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	1920	50.5	2.56	0.62	0.74	0.85	46.5	2.92	0.61	0.74	0.86	42.1	3.31	0.60	0.74	0.87	37.6	3.75	0.59	0.74	0.89
	2400	54.9	2.59	0.66	0.80	0.92	50.6	2.95	0.66	0.80	0.94	46.0	3.34	0.65	0.81	0.96	41.3	3.78	0.65	0.83	0.99
	2880	58.2	2.61	0.71	0.85	0.99	53.7	2.97	0.71	0.87	1.00	48.9	3.36	0.71	0.88	1.00	44.0	3.81	0.72	0.91	1.00
67°F	1920	55.1	2.59	0.50	0.60	0.71	51.0	2.95	0.48	0.59	0.71	46.5	3.35	0.46	0.58	0.70	41.8	3.78	0.43	0.57	0.71
	2400	59.6	2.62	0.53	0.64	0.76	55.1	2.98	0.51	0.64	0.77	50.4	3.38	0.49	0.64	0.78	45.6	3.82	0.48	0.63	0.79
	2880	62.8	2.64	0.55	0.68	0.82	58.2	3.01	0.54	0.69	0.83	53.4	3.40	0.53	0.70	0.85	48.1	3.84	0.52	0.70	0.87
71°F	1920	59.7	2.62	0.39	0.49	0.58	55.5	2.99	0.37	0.47	0.57	50.9	3.38	0.34	0.45	0.56	46.1	3.82	0.31	0.43	0.55
	2400	64.3	2650	.41	.51	.62	59.7	3020	.38	.51	.62	54.9	3420	.36	.49	.62	49.9	3860	.33	.48	.62
	2880	67.7	2670	.42	.54	.67	62.9	3040	.40	.54	.67	57.8	3440	.38	.53	.67	52.6	3880	.35	.52	.67

8.5 TON COOLING HIGH EFFICIENCY KHB102H4M (2ND STAGE) - SINGLE ZONE VAV SUPPLY FAN SUPPLY AIR BLOWER

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) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) 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	2720	100.2	5.91	0.68	0.84	1.00	92.5	6.71	0.69	0.86	1.00	84.5	7.61	0.70	0.90	1.00	75.9	8.62	0.72	0.94	1.00
	3400	106.2	5.93	0.74	0.94	1.00	98.0	6.73	0.76	0.97	1.00	89.9	7.63	0.78	1.00	1.00	81.7	8.65	0.81	1.00	1.00
	4080	111.2	5.95	0.81	1.00	1.00	103.8	6.76	0.83	1.00	1.00	95.9	7.67	0.86	1.00	1.00	87.5	8.68	0.91	1.00	1.00
67°F	2720	108.2	5.94	0.52	0.66	0.80	100.1	6.74	0.52	0.67	0.82	91.7	7.64	0.52	0.68	0.85	82.6	8.66	0.52	0.70	0.89
	3400	113.8	5.96	0.56	0.72	0.90	105.6	6.77	0.57	0.73	0.93	96.6	7.67	0.57	0.76	0.97	86.8	8.68	0.57	0.79	1.00
	4080	118.1	5.98	0.60	0.79	0.98	109.2	6.79	0.60	0.81	1.00	100.1	7.69	0.61	0.84	1.00	90.2	8.69	0.62	0.88	1.00
71°F	2720	116.2	5.97	0.39	0.51	0.63	107.8	6.78	0.38	0.51	0.65	99.0	7.67	0.36	0.51	0.66	89.7	8.69	0.35	0.51	0.67
	3400	122.1	5.99	0.40	0.55	0.69	113.3	6.80	0.40	0.56	0.71	104.1	7.71	0.39	0.56	0.73	94.1	8.72	0.38	0.57	0.76
	4080	126.4	6010	.42	.59	.76	117.1	6820	.42	.59	.78	107.8	7730	.41	.61	.82	97.2	8730	.40	.62	.86

8.5 TON HEATING HIGH EFFICIENCY KHB102H4M- SINGLE ZONE VAV SUPPLY FAN SUPPLY AIR BLOWER

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
2720	127.3	6.42	96.0	6.42	65.1	6.43	35.8	6.02	18.2	4.42
3400	129.5	6.00	98.3	6.01	67.4	6.01	38.1	5.61	20.5	4.01
4080	131.2	5.73	100.0	5.73	69.1	5.74	39.8	5.34	22.2	3.73

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

10 TON COOLING HIGH EFFICIENCY KHB122H4E (1ST STAGE) - SINGLE ZONE VAV SUPPLY FAN SUPPLY AIR BLOWER

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		65°F					75°F					85°F					95°F				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) 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	2240	59.7	3.11	0.61	0.72	0.83	56.2	3.52	0.61	0.72	0.84	52.2	3.97	0.61	0.73	0.86	48.1	4.48	0.60	0.74	0.88
	2800	64.4	3.16	0.64	0.77	0.90	60.3	3.57	0.64	0.78	0.92	56.2	4.02	0.65	0.79	0.94	51.9	4.53	0.65	0.81	0.97
	3360	67.9	3.20	0.68	0.82	0.96	63.6	3.60	0.69	0.84	0.98	59.4	4.06	0.69	0.86	1.00	54.7	4.58	0.71	0.89	1.00
67°F	2240	64.3	3.16	0.50	0.59	0.68	60.6	3.57	0.49	0.59	0.69	56.6	4.03	0.48	0.59	0.70	52.4	4.55	0.47	0.58	0.70
	2800	69.2	3.21	0.52	0.62	0.74	65.0	3.62	0.51	0.62	0.75	60.6	4.07	0.50	0.63	0.76	56.2	4.59	0.50	0.63	0.77
	3360	72.5	3.25	0.54	0.66	0.79	68.2	3.66	0.53	0.66	0.80	63.7	4.12	0.53	0.67	0.82	59.0	4.64	0.53	0.68	0.85
71°F	2240	69.0	3.21	0.39	0.48	0.57	65.0	3.62	0.38	0.47	0.57	61.0	4.08	0.37	0.47	0.56	56.5	4.60	0.35	0.46	0.56
	2800	73.8	3.26	0.40	0.50	0.60	69.5	3.68	0.39	0.50	0.61	65.1	4.14	0.38	0.49	0.60	60.5	4.66	0.37	0.49	0.61
	3360	77.3	3.30	0.41	0.52	0.63	72.9	3.72	0.40	0.52	0.64	68.2	4.18	0.39	0.52	0.65	63.3	4.70	0.38	0.52	0.66

10 TON COOLING HIGH EFFICIENCY KHB122H4E (2ND STAGE) - SINGLE ZONE VAV SUPPLY FAN SUPPLY AIR BLOWER

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) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) 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	3200	123.3	6.92	0.68	0.83	0.98	113.5	7.83	0.69	0.85	1.00	103.4	8.86	0.70	0.88	1.00	92.6	10.06	0.71	0.91	1.00
	4000	131.0	6.96	0.74	0.92	1.00	120.9	7.88	0.76	0.95	1.00	110.2	8.91	0.78	0.98	1.00	99.3	10.11	0.80	1.00	1.00
	4800	137.3	7.00	0.80	0.99	1.00	127.0	7.92	0.82	1.00	1.00	116.8	8.95	0.85	1.00	1.00	106.5	10.15	0.88	1.00	1.00
67°F	3200	133.2	6.97	0.53	0.66	0.80	123.1	7.89	0.52	0.67	0.82	112.7	8.93	0.52	0.68	0.84	101.3	10.11	0.52	0.69	0.87
	4000	140.8	7.02	0.56	0.72	0.88	130.1	7.94	0.56	0.73	0.91	118.8	8.97	0.57	0.75	0.94	107.1	10.16	0.57	0.78	0.98
	4800	146.6	7.06	0.60	0.78	0.96	135.4	7.97	0.61	0.80	0.98	123.5	9.01	0.61	0.83	1.00	111.2	10.19	0.62	0.86	1.00
71°F	3200	143.2	7.04	0.39	0.52	0.64	132.7	7.95	0.38	0.51	0.65	122.0	8.99	0.37	0.51	0.66	110.1	10.17	0.35	0.51	0.67
	4000	151.2	7.10	0.41	0.56	0.70	139.9	8.01	0.40	0.56	0.71	128.7	9.05	0.39	0.56	0.73	116.3	10.22	0.38	0.57	0.76
	4800	157.0	7.14	0.43	0.59	0.76	145.4	8.05	0.42	0.60	0.78	133.2	9.07	0.41	0.61	0.80	120.4	10.25	0.40	0.62	0.84

10 TON HEATING HIGH EFFICIENCY KHB122H4E - SINGLE ZONE VAV SUPPLY FAN SUPPLY AIR BLOWER

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
3200	147.3	7.99	113.6	7.79	79.8	7.59	48.9	6.98	23.9	5.16
4000	150.7	7.48	117.0	7.28	83.2	7.09	52.3	6.47	27.3	4.65
4800	154.1	7.16	120.4	6.96	86.5	6.76	55.7	6.15	30.7	4.33

KHA092S4M - BASE UNIT

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

1 − Wet indoor coil air resistance of selected unit.

2 − Any factory installed options air resistance (heat section, economizer, etc.)

3 − Any field installed accessories air resistance (duct resistance, diffuser, etc.)

Then determine from blower table blower motor output required.

See page 29 for blower motors and drives.

See page 29 for wet coil and option/accessory air resistance data.

MINIMUM AIR VOLUME REQUIRED FOR USE WITH OPTIONAL ELECTRIC HEAT (Maximum Static Pressure - 2.0 in. w.g.)

7.5 kW, 15 kW, 22.5 kW, 30 kW and 45 kW - 2800 cfm

Total Air Volume cfm	Total Static Pressure − in. w.g.													
	0.2		0.4		0.6		0.8		1.0		1.2		1.4	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1750	583	0.09	627	0.06	673	0.09	723	0.06	777	0.45	834	0.82	892	1.13
2000	593	0.11	636	0.07	682	0.10	731	0.22	784	0.60	840	0.96	898	1.26
2250	604	0.15	645	0.11	690	0.15	739	0.39	790	0.74	846	1.08	901	1.34
2500	615	0.19	655	0.15	699	0.20	747	0.55	797	0.89	851	1.20	906	1.44
2750	626	0.23	666	0.19	709	0.37	755	0.71	805	1.03	858	1.32	912	1.55
3000	637	0.27	677	0.24	719	0.55	764	0.87	813	1.18	866	1.45	920	1.67
3250	650	0.31	688	0.43	730	0.73	775	1.04	823	1.34	875	1.60	930	1.81
3500	663	0.35	700	0.63	741	0.92	786	1.22	834	1.50	886	1.76	942	1.96
3750	676	0.57	714	0.84	754	1.12	798	1.41	846	1.68	899	1.93	956	2.14

Total Air Volume cfm	Total Static Pressure − in. w.g.											
	1.6		1.8		2		2.2		2.4		2.6	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1750	943	1.28	990	1.38	1038	1.44	1084	1.60	1131	1.79	1179	2.25
2000	948	1.38	996	1.47	1045	1.57	1092	1.71	1140	1.92	1188	2.32
2250	953	1.48	1002	1.57	1052	1.70	1100	1.86	1149	2.09	1197	2.42
2500	959	1.58	1009	1.68	1059	1.83	1108	2.01	1158	2.26	1206	2.52
2750	966	1.70	1017	1.81	1067	1.97	1117	2.17	1166	2.44	1215	2.71
3000	975	1.82	1026	1.96	1076	2.13	1126	2.35	1176	2.63	1225	2.92
3250	985	1.97	1036	2.12	1086	2.31	1136	2.54	1186	2.83	1235	3.13
3500	997	2.14	1048	2.31	1097	2.51	1147	2.75	1196	3.04	1245	3.35
3750	1010	2.32	1060	2.51	1109	2.72	1158	2.98	1207	3.27	1255	3.58

BLOWER DATA BELT DRIVE - STANDARD/HIGH EFFICIENCY - 7.5 | 8.5 | 10 | 12.5 TON

KHA102S4M, KHA120S4M, KHA150S4M AND KHB092H4B/M, KHB102H4M - BASE UNIT

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

1 − Wet indoor coil air resistance of selected unit.

2 − Any factory installed options air resistance (heat section, economizer, etc.)

3 − Any field installed accessories air resistance (duct resistance, diffuser, etc.)

Then determine from blower table blower motor output required.

See page 29 for blower motors and drives.

See page 29 for wet coil and option/accessory air resistance data.

MINIMUM AIR VOLUME REQUIRED FOR USE WITH OPTIONAL ELECTRIC HEAT (Maximum Static Pressure - 2.0 in. w.g.)

7.5 kW, 15 kW, 22.5 kW, 30 kW and 45 kW - 2800 cfm

60 kW - 4000 cfm

Total Air Volume cfm	Total Static Pressure − in. w.g.													
	0.2		0.4		0.6		0.8		1.0		1.2		1.4	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1750	480	0.19	548	0.39	618	0.57	689	0.70	758	0.81	824	0.92	885	1.07
2000	492	0.27	560	0.47	629	0.64	700	0.77	768	0.88	832	1.00	892	1.16
2250	505	0.35	573	0.55	643	0.72	713	0.85	780	0.97	842	1.10	900	1.25
2500	520	0.45	588	0.64	658	0.81	727	0.94	793	1.07	853	1.21	909	1.37
2750	536	0.55	604	0.74	674	0.91	743	1.05	806	1.19	865	1.34	919	1.50
3000	553	0.66	622	0.85	692	1.02	760	1.17	821	1.32	878	1.48	930	1.64
3250	572	0.77	641	0.98	712	1.15	778	1.32	837	1.48	892	1.64	942	1.81
3500	592	0.90	663	1.12	733	1.31	798	1.48	854	1.65	907	1.82	955	1.99
3750	614	1.04	687	1.28	756	1.48	818	1.66	872	1.83	922	2.01	969	2.19
4000	639	1.22	712	1.47	780	1.67	838	1.85	890	2.03	939	2.22	983	2.42
4250	666	1.42	740	1.68	804	1.88	859	2.06	909	2.25	956	2.45	998	2.67
4500	697	1.65	769	1.91	829	2.10	881	2.28	929	2.48	973	2.71	1013	2.95
4750	729	1.91	798	2.15	854	2.34	903	2.53	948	2.75	991	3.00	1030	3.27
5000	763	2.18	826	2.41	878	2.60	925	2.81	968	3.05	1009	3.33	1046	3.61
5250	797	2.47	854	2.69	903	2.90	947	3.12	989	3.39	1028	3.69	1064	3.99
5500	830	2.78	882	3.00	927	3.22	969	3.48	1010	3.77	1047	4.09	1083	4.40
5750	861	3.11	908	3.34	951	3.58	992	3.87	1031	4.19	1068	4.52	1102	4.84
6000	890	3.45	935	3.71	976	3.98	1016	4.31	1053	4.65	1089	4.99	1122	5.30
6250	918	3.84	961	4.12	1001	4.43	1040	4.79	1076	5.14	1110	5.48	- - -	- - -

Total Air Volume cfm	Total Static Pressure − in. w.g.											
	1.6		1.8		2		2.2		2.4		2.6	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1750	941	1.23	992	1.40	1039	1.55	1084	1.70	1128	1.85	1156	2.08
2000	946	1.32	995	1.48	1041	1.65	1085	1.81	1127	1.97	1160	2.13
2250	952	1.42	999	1.59	1044	1.76	1087	1.93	1127	2.10	1164	2.27
2500	959	1.54	1005	1.71	1048	1.89	1089	2.07	1127	2.25	1166	2.42
2750	968	1.67	1012	1.86	1053	2.04	1092	2.23	1129	2.41	1167	2.60
3000	977	1.83	1020	2.02	1059	2.21	1096	2.41	1133	2.60	1170	2.79
3250	988	2.00	1028	2.20	1066	2.41	1102	2.61	1138	2.81	1174	3.01
3500	999	2.19	1038	2.41	1074	2.63	1109	2.84	1144	3.04	1180	3.24
3750	1010	2.41	1048	2.64	1084	2.87	1118	3.09	1152	3.29	1188	3.50
4000	1023	2.65	1060	2.90	1095	3.14	1128	3.36	1162	3.57	1198	3.77
4250	1036	2.92	1072	3.18	1106	3.42	1139	3.65	1172	3.86	1208	4.07
4500	1050	3.22	1085	3.48	1118	3.73	1151	3.96	1184	4.17	1221	4.39
4750	1065	3.55	1099	3.81	1132	4.06	1164	4.29	1198	4.51	1235	4.74
5000	1081	3.90	1114	4.17	1146	4.42	1178	4.65	1212	4.87	1250	5.09
5250	1098	4.28	1130	4.55	1162	4.80	1194	5.02	1228	5.24	1266	5.47
5500	1116	4.69	1147	4.96	1179	5.20	1211	5.42	1246	5.63	- - -	- - -
5750	1134	5.12	1165	5.38	1196	5.61	- - -	- - -	- - -	- - -	- - -	- - -
6000	1153	5.58	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
6250	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -

KHB122H4E - BASE UNIT

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

1 − Wet indoor coil air resistance of selected unit.

2 − Any factory installed options air resistance (heat section, economizer, etc.)

3 − Any field installed accessories air resistance (duct resistance, diffuser, etc.)

See page 29 for wet coil and option/accessory air resistance data.

MINIMUM AIR VOLUME REQUIRED FOR USE WITH OPTIONAL ELECTRIC HEAT (Maximum Static Pressure - 2.0 in. w.g.)

15 kW, 22.5 kW, 30 kW, 45 kW - 2750 cfm

60 kW - 3500 cfm

Total Air Volume cfm	Total Static Pressure - in. w.g.													
	0.2		0.4		0.6		0.8		1.0		1.2		1.4	
	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts
1750	711	188	771	279	836	366	905	453	975	544	1044	640	1109	737
2000	752	242	812	332	876	420	944	510	1011	606	1075	709	1138	812
2250	799	300	860	389	923	479	988	575	1052	678	1113	787	1171	896
2500	853	362	914	453	976	548	1038	650	1097	761	1154	877	1209	990
2750	914	434	974	529	1033	629	1091	739	1146	858	1199	979	1250	1098
3000	980	513	1037	614	1092	720	1146	837	1198	961	1247	1088	1295	1215
3250	1048	598	1101	705	1153	819	1203	941	1251	1071	1298	1206	1343	1343
3500	1116	693	1166	809	1214	931	1261	1060	1307	1198	1351	1341	1395	1489
3750	1185	806	1232	931	1277	1063	1322	1201	1365	1348	1407	1499	1448	1657
4000	1254	937	1299	1072	1341	1214	1383	1363	1424	1518	1464	1679	1503	1844
4250	1324	1089	1366	1234	1406	1386	1445	1545	1484	1708	1522	1876	1559	2046
4500	1395	1262	1433	1417	1471	1579	1508	1745	1544	1913	1581	2084	1616	2256
4750	1465	1455	1501	1619	1536	1787	1571	1957	1606	2128	1641	2299	1675	2470
5000	1534	1666	1568	1834	1602	2004	1635	2174	1668	2345	1701	2514	1735	2682
5250	1603	1887	1635	2055	1667	2224	1699	2392	1731	2559	1763	2724	- - -	- - -
5500	1671	2110	1702	2275	1733	2441	1764	2605	- - -	- - -	- - -	- - -	- - -	- - -
5750	1738	2325	1768	2488	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -

Total Air Volume cfm	Total Static Pressure - in. w.g.											
	1.6		1.8		2.0		2.2		2.4		2.6	
	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts	RPM	Watts
1750	1172	833	1231	932	1287	1039	1340	1156	1391	1283	1442	1426
2000	1197	913	1253	1019	1306	1135	1357	1261	1407	1398	1457	1547
2250	1227	1003	1280	1117	1330	1242	1379	1378	1428	1525	1477	1680
2500	1261	1103	1311	1226	1360	1361	1407	1507	1454	1663	1501	1826
2750	1299	1219	1347	1350	1394	1494	1440	1649	1485	1813	1530	1982
3000	1342	1346	1388	1487	1432	1640	1476	1803	1520	1973	1563	2146
3250	1388	1485	1432	1638	1475	1800	1517	1969	1558	2143	1600	2319
3500	1437	1643	1479	1805	1519	1975	1560	2148	1600	2325	1640	2502
3750	1489	1821	1528	1990	1567	2164	1605	2340	1645	2517	1685	2693
4000	1541	2014	1579	2187	1616	2364	1654	2540	1693	2715	1732	2887
4250	1596	2218	1632	2393	1668	2569	1705	2742	1743	2913	- - -	- - -
4500	1652	2429	1687	2603	1722	2775	1759	2944	- - -	- - -	- - -	- - -
4750	1709	2641	1743	2811	1778	2979	- - -	- - -	- - -	- - -	- - -	- - -
5000	1768	2850	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
5250	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
5500	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
5750	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -

BLOWER DATA

FACTORY INSTALLED BELT DRIVE KIT SPECIFICATIONS

Nominal hp	Maximum hp	Drive Kit Number	RPM Range
2	2.3	1	590 - 890
2	2.3	2	800 - 1105
2	2.3	3	795 - 1195
3	3.45	4	730 - 970
3	3.45	5	940 - 1200
3	3.45	6	1015 - 1300
5	5.75	10	900 - 1135
5	5.75	11	1040 - 1315
5	5.75	12	1125 - 1425

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

NOTE – Units equipped with Single Zone VAV Supply Fan option are limited to a motor service factor of 1.0.

POWER EXHAUST FAN PERFORMANCE

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

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

Air Volume cfm	Wet Indoor Coil		Electric Heat	Economizer	Filters	
	KHA092	KHA 102,120,150 KHB 092,102,122			MERV 8	MERV 13
1750	0.03	0.04	0.03	0.05	0.01	0.03
2000	0.04	0.05	0.03	0.06	0.01	0.03
2250	0.05	0.06	0.04	0.08	0.01	0.04
2500	0.05	0.07	0.04	0.11	0.01	0.05
2750	0.06	0.08	0.05	0.12	0.02	0.05
3000	0.07	0.10	0.06	0.13	0.02	0.06
3250	0.08	0.11	0.06	0.15	0.02	0.06
3500	0.09	0.12	0.09	0.15	0.03	0.07
3750	0.10	0.14	0.09	0.15	0.03	0.08
4000	0.11	0.15	0.09	0.19	0.04	0.08
4250	0.13	0.17	0.13	0.19	0.04	0.09
4500	0.14	0.19	0.14	0.22	0.04	0.09
4750	0.15	0.20	0.17	0.25	0.05	0.10
5000	0.16	0.22	0.20	0.29	0.06	0.10
5250	0.17	0.24	0.22	0.32	0.06	0.11
5500	0.19	0.25	0.25	0.34	0.07	0.12
5750	0.20	0.27	0.31	0.45	0.07	0.12
6000	0.22	0.29	0.33	0.52	0.08	0.13

BLOWER DATA

CEILING DIFFUSERS AIR RESISTANCE - in. w.g.

Unit Size	RTD11 Step-Down Diffuser				FD11 Flush Diffuser
	Air Volume cfm	2 Ends Open	1 Side, 2 Ends Open	All Ends & Sides Open	
092 Models	2400	0.21	0.18	0.15	0.14
	2600	0.24	0.21	0.18	0.17
	2800	0.27	0.24	0.21	0.20
	3000	0.32	0.29	0.25	0.25
	3200	0.41	0.37	0.32	0.31
	3400	0.50	0.45	0.39	0.37
	3600	0.61	0.54	0.48	0.44
	3800	0.73	0.63	0.57	0.51
102,120 & 122 Models	3600	0.36	0.28	0.23	0.15
	3800	0.40	0.32	0.26	0.18
	4000	0.44	0.36	0.29	0.21
	4200	0.49	0.40	0.33	0.24
	4400	0.54	0.44	0.37	0.27
	4600	0.60	0.49	0.42	0.31
	4800	0.65	0.53	0.46	0.35
	5000	0.69	0.58	0.50	0.39
	5200	0.75	0.62	0.54	0.43
150 Models	4200	0.22	0.19	0.16	0.10
	4400	0.28	0.24	0.20	0.12
	4600	0.34	0.29	0.24	0.15
	4800	0.40	0.34	0.29	0.19
	5000	0.46	0.39	0.34	0.23
	5200	0.52	0.44	0.39	0.27
	5400	0.58	0.49	0.43	0.31
	5600	0.64	0.54	0.47	0.35
	5800	0.70	0.59	0.51	0.39

CEILING DIFFUSER AIR THROW DATA

Model No.	Air Volume	[1] Effective Throw Range	
		RTD11 Step-Down	FD11 Flush
	cfm	ft.	ft.
092 Models	2600	24 - 29	19 - 24
	2800	25 - 30	20 - 28
	3000	27 - 33	21 - 29
	3200	28 - 35	22 - 29
	3400	30 - 37	22 - 30
102,120 & 122 Models	3600	25 - 33	22 - 29
	3800	27 - 35	22 - 30
	4000	29- 37	24 - 33
	4200	32 - 40	26 - 35
	4400	34 - 42	28 - 37
150 Models	5600	39 - 49	28 - 37
	5800	42 - 51	29 - 38
	6000	44 - 54	40 - 50
	6200	45 - 55	42 - 51
	6400	46 - 55	43 - 52
	6600	47 - 56	45 - 56

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

ELECTRICAL/ELECTRIC HEAT DATA — STANDARD EFFICIENCY - BELT DRIVE - 7.5 TON

		Model No.	KHA092S4M								
[1] Voltage - 60Hz			208/230V - 3 Ph			460V - 3 Ph			575V - 3 Ph		
Compressor 1	Rated Load Amps		13.1			6.1			4.4		
	Locked Rotor Amps		83.1			41			33		
Compressor 2	Rated Load Amps		13.1			6.1			4.4		
	Locked Rotor Amps		83.1			41			33		
Outdoor Fan Motors (2)	Full Load Amps (total)		2.4 (4.8)			1.3 (2.6)			1 (2)		
Power Exhaust (1) 0.33 HP	Full Load Amps		2.4			1.3			1		
Service Outlet 115V GFI (amps)			15			15			20		
Indoor Blower Motor	Horsepower		2	3	5	2	3	5	2	3	5
	Full Load Amps		7.5	10.6	16.7	3.4	4.8	7.6	2.7	3.9	6.1
[2] Maximum Overcurrent Protection	Unit Only		50	50	60	25	25	30	15	20	20
	With (1) 0.33 HP Power Exhaust		50	60	70	25	25	30	20	20	25
[3] Minimum Circuit Ampacity	Unit Only		42	45	52	20	22	25	15	16	19
	With (1) 0.33 HP Power Exhaust		45	48	55	22	23	26	16	17	20

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	208V	240V	208V	240V	480V	480V	480V	600V	600V	600V
[2] Maximum Overcurrent Protection	Unit+ Electric Heat	7.5 kW	70	70	70	70	80	80	35	35	40	25	25	30
		15 kW	90	90	90	90	100	100	45	45	50	35	35	40
		22.5 kW	110	110	110	125	125	125	60	60	60	45	45	50
		30 kW	125	150	125	150	150	150	70	70	70	60	60	60
		45 kW	175	200	175	200	175	200	90	90	100	70	70	80
[3] Minimum Circuit Ampacity	Unit+ Electric Heat	7.5 kW	62	65	65	68	72	75	32	33	36	24	25	28
		15 kW	81	87	84	90	91	97	43	44	47	33	34	37
		22.5 kW	101	110	104	113	111	120	54	55	59	42	43	46
		30 kW	120	132	124	136	131	143	65	67	70	51	52	55
		45 kW	160	178	163	181	170	188	88	89	92	69	70	73
[2] Maximum Overcurrent Protection	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	7.5 kW	70	70	70	70	80	80	35	35	40	25	30	30
		15 kW	90	90	90	100	100	100	45	45	50	35	35	40
		22.5 kW	110	125	110	125	125	125	60	60	60	45	45	50
		30 kW	125	150	150	150	150	150	70	70	80	60	60	60
		45 kW	175	200	175	200	175	200	90	100	100	70	80	80
[3] Minimum Circuit Ampacity	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	7.5 kW	64	67	67	70	74	77	33	34	37	25	26	29
		15 kW	84	90	87	93	94	100	44	45	49	34	35	38
		22.5 kW	103	112	106	115	113	122	55	57	60	43	44	47
		30 kW	123	135	126	138	133	145	67	68	71	52	53	56
		45 kW	162	180	165	183	172	190	89	91	94	70	71	74

ELECTRICAL ACCESSORIES

Disconnect	**7.5 kW**	**54W56**	**54W56**	**54W56**
	15 kW	**54W57**	**54W56**	**54W56**
	22.5 kW	**54W57**	**54W56**	**54W56**
	30 kW	**54W57**	**54W56**	**54W56**
	45 kW	**Not Available**	**54W57**	**54W56**

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 — STANDARD EFFICIENCY - BELT DRIVE - 8.5 TON

		Model No.	KHA102S4M								
[1] Voltage - 60Hz			208/230V - 3 Ph			460V - 3 Ph			575V - 3 Ph		
Compressor 1		Rated Load Amps	14.5			6.3			6		
		Locked Rotor Amps	98			55			41		
Compressor 2		Rated Load Amps	14.5			6.3			6		
		Locked Rotor Amps	98			55			41		
Outdoor Fan Motors (2)		Full Load Amps	3			1.5			1.2		
		(total)	(6)			(3)			(2.4)		
Power Exhaust (1) 0.33 HP		Full Load Amps	2.4			1.3			1		
Service Outlet 115V GFI (amps)			15			15			20		
Indoor Blower Motor		Horsepower	2	3	5	2	3	5	2	3	5
		Full Load Amps	7.5	10.6	16.7	3.4	4.8	7.6	2.7	3.9	6.1
[2] Maximum Overcurrent Protection		Unit Only	60	60	70	25	25	30	20	25	25
		With (1) 0.33 HP Power Exhaust	60	60	70	25	25	30	25	25	25
[3] Minimum Circuit Ampacity		Unit Only	47	50	56	21	22	26	19	20	23
		With (1) 0.33 HP Power Exhaust	49	52	59	22	24	27	20	21	24

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	208V	240V	208V	240V	480V	480V	480V	600V	600V	600V
[2] Maximum Overcurrent Protection	Unit+ Electric Heat	**7.5 kW**	70	70	70	80	80	90	35	35	40	30	30	35
		15 kW	90	100	90	100	100	110	45	45	50	40	40	45
		22.5 kW	110	125	110	125	125	125	60	60	60	50	50	50
		30 kW	125	150	150	150	150	150	70	70	80	60	60	60
		45 kW	175	200	175	200	175	200	90	90	100	80	80	80
[3] Minimum Circuit Ampacity	Unit+ Electric Heat	**7.5 kW**	66	69	69	72	76	79	32	34	37	28	29	32
		15 kW	86	92	89	95	95	101	44	45	48	37	38	41
		22.5 kW	105	114	108	117	115	124	55	56	59	46	47	50
		30 kW	125	137	128	140	135	147	66	68	71	55	56	59
		45 kW	164	182	167	185	174	192	89	90	93	73	74	77
[2] Maximum Overcurrent Protection	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	**7.5 kW**	70	80	80	80	90	90	35	35	40	30	30	35
		15 kW	90	100	100	100	100	110	45	50	50	40	40	45
		22.5 kW	110	125	125	125	125	150	60	60	70	50	50	60
		30 kW	150	150	150	150	150	150	70	70	80	60	60	60
		45 kW	175	200	175	200	200	200	90	100	100	80	80	80
[3] Minimum Circuit Ampacity	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	**7.5 kW**	69	72	72	75	78	81	34	35	38	29	30	33
		15 kW	88	94	91	97	98	104	45	46	49	38	39	42
		22.5 kW	108	117	111	120	117	126	56	58	61	47	48	51
		30 kW	127	139	130	142	137	149	67	69	72	56	57	60
		45 kW	166	184	169	187	176	194	90	91	95	74	75	78

ELECTRICAL ACCESSORIES

Disconnect	**7.5 kW**	**54W56**	**54W56**	**54W56**
	15 kW	**54W57**	**54W56**	**54W56**
	22.5 kW	**54W57**	**54W56**	**54W56**
	30 kW	**54W57**	**54W56**	**54W56**
	45 kW	**Not Available**	**54W57**	**54W56**

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 — STANDARD EFFICIENCY - BELT DRIVE - 10 TON

		Model No.	KHA120S4M								
[1] Voltage - 60Hz			208/230V - 3 Ph			460V - 3 Ph			575V - 3 Ph		
Compressor 1	Rated Load Amps		15.6			7.8			5.8		
	Locked Rotor Amps		110			52			38.9		
Compressor 2	Rated Load Amps		15.6			7.8			5.8		
	Locked Rotor Amps		110			52			38.9		
Outdoor Fan Motors (2)	Full Load Amps (total)		3 (6)			1.5 (3)			1.2 (2.4)		
Power Exhaust (1) 0.33 HP	Full Load Amps		2.4			1.3			1		
Service Outlet 115V GFI (amps)			15			15			20		
Indoor Blower Motor	Horsepower		2	3	5	2	3	5	2	3	5
	Full Load Amps		7.5	10.6	16.7	3.4	4.8	7.6	2.7	3.9	6.1
[2] Maximum Overcurrent Protection	Unit Only		60	60	70	30	30	35	20	25	25
	With (1) 0.33 HP Power Exhaust		60	60	70	30	30	35	20	25	25
[3] Minimum Circuit Ampacity	Unit Only		49	52	59	24	26	29	19	20	22
	With (1) 0.33 HP Power Exhaust		51	55	61	26	27	30	20	21	23

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	208V	240V	208V	240V	480V	480V	480V	600V	600V	600V
[2] Maximum Overcurrent Protection	Unit+ Electric Heat	**15 kW**	90	100	100	100	100	110	50	50	60	40	40	40
		22.5 kW	110	125	125	125	125	150	60	60	70	50	50	50
		30 kW	150	150	150	150	150	150	70	80	80	60	60	60
		45 kW	175	200	175	200	200	200	100	100	100	80	80	80
		60 kW	175	200	200	200	200	225	100	100	110	80	80	80
[3] Minimum Circuit Ampacity	Unit+ Electric Heat	**15 kW**	88	94	91	97	98	104	47	48	51	37	38	40
		22.5 kW	108	117	111	120	117	126	58	60	62	46	47	49
		30 kW	127	139	130	142	137	149	70	71	74	55	56	58
		45 kW	166	184	169	188	176	194	92	94	96	73	74	76
		60 kW	174	193	177	197	184	203	97	98	101	76	78	80
[2] Maximum Overcurrent Protection	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	**15 kW**	100	100	100	100	100	110	50	50	60	40	40	45
		22.5 kW	110	125	125	125	125	150	60	70	70	50	50	50
		30 kW	150	150	150	150	150	175	80	80	80	60	60	60
		45 kW	175	200	175	200	200	200	100	100	100	80	80	80
		60 kW	200	200	200	200	200	225	100	100	110	80	80	90
[3] Minimum Circuit Ampacity	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	**15 kW**	91	97	94	100	100	106	48	50	53	38	39	41
		22.5 kW	110	119	113	122	120	129	60	61	64	47	48	50
		30 kW	130	142	133	145	139	151	71	72	75	56	57	59
		45 kW	169	187	172	190	178	196	93	95	98	74	75	77
		60 kW	177	196	180	199	186	205	98	99	102	77	79	81

ELECTRICAL ACCESSORIES

Disconnect				
	15 kW	**54W57**	**54W56**	**54W56**
	22.5 kW	**54W57**	**54W56**	**54W56**
	30 kW	**54W57**	**54W56**	**54W56**
	45 kW	**Not Available**	**54W57**	**54W56**
	60 kW	**Not Available**	**54W57**	**54W56**

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 — STANDARD EFFICIENCY - BELT DRIVE - 12.5 TON

		Model No.	KHA150S4M								
[1] Voltage - 60Hz			208/230V - 3 Ph			460V - 3 Ph			575V - 3 Ph		
Compressor 1		Rated Load Amps	19			9.7			7.4		
		Locked Rotor Amps	123			62			50		
Compressor 2		Rated Load Amps	19			9.7			7.4		
		Locked Rotor Amps	123			62			50		
Outdoor Fan Motors (3)		Full Load Amps (total)	2.4 (7.2)			1.3 (3.9)			1 (3)		
Power Exhaust (1) 0.33 HP		Full Load Amps	2.4			1.3			1		
Service Outlet 115V GFI (amps)			15			15			20		
Indoor Blower Motor		Horsepower	2	3	5	2	3	5	2	3	5
		Full Load Amps	7.5	10.6	16.7	3.4	4.8	7.6	2.7	3.9	6.1
[2] Maximum Overcurrent Protection		Unit Only	70	70	80	35	40	40	25	30	30
		With (1) 0.33 HP Power Exhaust	80	80	90	40	40	45	30	30	35
[3] Minimum Circuit Ampacity		Unit Only	58	61	67	30	31	34	23	24	26
		With (1) 0.33 HP Power Exhaust	65	68	74	34	35	38	26	27	29

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	208V	240V	208V	240V	480V	480V	480V	600V	600V	600V
[2] Maximum Overcurrent Protection	Unit+ Electric Heat	**15 kW**	100	110	110	110	110	125	60	60	60	45	45	45
		22.5 kW	125	150	125	150	150	150	70	70	70	50	60	60
		30 kW	150	150	150	175	150	175	80	80	80	60	60	70
		45 kW	175	200	200	200	200	225	100	100	110	80	80	80
		60 kW	200	225	200	225	200	225	110	110	110	90	90	90
[3] Minimum Circuit Ampacity	Unit+ Electric Heat	**15 kW**	97	103	100	106	106	112	52	54	56	41	42	44
		22.5 kW	117	126	120	129	126	135	63	65	68	50	51	53
		30 kW	136	148	139	151	145	157	75	76	79	59	60	62
		45 kW	175	193	178	196	184	202	97	99	101	77	78	80
		60 kW	183	202	186	205	192	211	102	103	106	81	82	84
[2] Maximum Overcurrent Protection	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	**15 kW**	110	110	110	125	125	125	60	60	60	45	45	50
		22.5 kW	125	150	150	150	150	150	70	70	80	60	60	60
		30 kW	150	175	150	175	175	175	80	80	90	70	70	70
		45 kW	200	200	200	225	200	225	110	110	110	80	90	90
		60 kW	200	225	200	225	200	225	110	110	110	90	90	90
[3] Minimum Circuit Ampacity	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	**15 kW**	104	110	107	113	113	119	56	57	60	44	45	47
		22.5 kW	124	133	127	136	133	142	67	69	72	53	54	56
		30 kW	143	155	146	158	153	165	79	80	83	62	63	65
		45 kW	182	200	186	204	192	210	101	103	105	80	81	83
		60 kW	190	209	193	213	199	219	106	107	110	84	85	87

ELECTRICAL ACCESSORIES

Disconnect	**15 kW**	**54W57**	**54W56**	**54W56**
	22.5 kW	**54W57**	**54W56**	**54W56**
	30 kW	**Not Available**	**54W56**	**54W56**
	45 kW	**Not Available**	**54W57**	**54W57**
	60 kW	**Not Available**	**54W57**	**54W57**

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 — HIGH EFFICIENCY - BELT DRIVE - 7.5 TON

		Model No.	KHB092H4B / KHB092H4M								
[1] Voltage - 60Hz			208/230V - 3 Ph			460V - 3 Ph			575V - 3 Ph		
Compressor 1		Rated Load Amps	13.1			6.1			4.4		
		Locked Rotor Amps	83.1			41			33		
Compressor 2		Rated Load Amps	13.1			6.1			4.4		
		Locked Rotor Amps	83.1			41			33		
Outdoor Fan Motors (2)		Full Load Amps (total)	2.8 (5.6)			1.4 (2.8)			1.1 (2.2)		
Power Exhaust (1) 0.33 HP		Full Load Amps	2.4			1.3			1		
Service Outlet 115V GFI (amps)			15			15			20		
Indoor Blower Motor		Horsepower	2	3	5	2	3	5	2	3	5
		Full Load Amps	7.5	10.6	16.7	3.4	4.8	7.6	2.7	3.9	6.1
[2] Maximum Overcurrent Protection		Unit Only	50	50	60	25	25	30	15	20	20
		With (1) 0.33 HP Power Exhaust	50	60	70	25	25	30	20	20	25
[3] Minimum Circuit Ampacity		Unit Only	43	46	53	20	22	25	15	16	19
		With (1) 0.33 HP Power Exhaust	45	49	56	22	23	26	16	17	20

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	208V	240V	208V	240V	480V	480V	480V	600V	600V	600V
[2] Maximum Overcurrent Protection	Unit+ Electric Heat	**7.5 kW**	70	70	70	70	80	80	35	35	40	25	30	30
		15 kW	90	90	90	100	100	100	45	45	50	35	35	40
		22.5 kW	110	125	110	125	125	125	60	60	60	45	45	50
		30 kW	125	150	125	150	150	150	70	70	70	60	60	60
		45 kW	175	200	175	200	175	200	90	90	100	70	80	80
[3] Minimum Circuit Ampacity	Unit+ Electric Heat	**7.5 kW**	63	66	66	69	73	76	32	33	36	24	26	28
		15 kW	82	88	85	91	92	98	43	44	48	33	35	37
		22.5 kW	102	111	105	114	112	121	54	56	59	42	44	46
		30 kW	121	133	124	136	131	143	66	67	70	51	53	55
		45 kW	160	178	163	181	170	188	88	89	93	69	71	73
[2] Maximum Overcurrent Protection	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	**7.5 kW**	70	70	70	80	80	80	35	35	40	25	30	30
		15 kW	90	100	90	100	100	110	45	50	50	35	40	40
		22.5 kW	110	125	110	125	125	125	60	60	60	45	45	50
		30 kW	125	150	150	150	150	150	70	70	80	60	60	60
		45 kW	175	200	175	200	175	200	90	100	100	70	80	80
[3] Minimum Circuit Ampacity	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	**7.5 kW**	65	68	68	71	75	78	33	34	38	25	27	29
		15 kW	85	91	88	94	95	101	44	46	49	34	36	38
		22.5 kW	104	113	107	116	114	123	56	57	60	43	45	47
		30 kW	124	136	127	139	134	146	67	68	71	52	54	56
		45 kW	163	181	166	184	173	191	89	91	94	70	72	74

ELECTRICAL ACCESSORIES

Disconnect	**7.5 kW**	**54W56**	**54W56**	**54W56**
	15 kW	**54W57**	**54W56**	**54W56**
	22.5 kW	**54W57**	**54W56**	**54W56**
	30 kW	**54W57**	**54W56**	**54W56**
	45 kW	**Not Available**	**54W57**	**54W56**

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 — HIGH EFFICIENCY - BELT DRIVE - 8.5 TON

		Model No.	KHB102H4M								
[1] Voltage - 60Hz			208/230V - 3 Ph			460V - 3 Ph			575V - 3 Ph		
Compressor 1		Rated Load Amps	14.5			6.3			6		
		Locked Rotor Amps	98			55			41		
Compressor 2		Rated Load Amps	14.5			6.3			6		
		Locked Rotor Amps	98			55			41		
Outdoor Fan Motors (2)		Full Load Amps (total)	2.8 (5.6)			1.4 (2.8)			1.1 (2.2)		
Power Exhaust (1) 0.33 HP		Full Load Amps	2.4			1.3			1		
Service Outlet 115V GFI (amps)			15			15			20		
Indoor Blower Motor		Horsepower	2	3	5	2	3	5	2	3	5
		Full Load Amps	7.5	10.6	16.7	3.4	4.8	7.6	2.7	3.9	6.1
[2] Maximum Overcurrent Protection		Unit Only	60	60	70	25	25	30	20	25	25
		With (1) 0.33 HP Power Exhaust	60	60	70	25	25	30	25	25	25
[3] Minimum Circuit Ampacity		Unit Only	46	49	56	21	22	25	19	20	22
		With (1) 0.33 HP Power Exhaust	49	52	58	22	24	27	20	21	23

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	208V	240V	208V	240V	480V	480V	480V	600V	600V	600V
[2] Maximum Overcurrent Protection	Unit+ Electric Heat	**7.5 kW**	70	70	70	80	80	90	35	35	40	30	30	35
		15 kW	90	100	90	100	100	110	45	45	50	40	40	40
		22.5 kW	110	125	110	125	125	125	60	60	60	50	50	50
		30 kW	125	150	150	150	150	150	70	70	80	60	60	60
		45 kW	175	200	175	200	175	200	90	90	100	80	80	80
[3] Minimum Circuit Ampacity	Unit+ Electric Heat	**7.5 kW**	66	69	69	72	76	79	32	34	37	28	29	31
		15 kW	85	91	88	94	95	101	43	45	48	37	38	40
		22.5 kW	105	114	108	117	115	124	55	56	59	46	47	49
		30 kW	124	136	128	140	134	146	66	67	71	55	56	58
		45 kW	163	182	167	185	173	191	89	90	93	73	74	76
[2] Maximum Overcurrent Protection	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	**7.5 kW**	70	80	80	80	90	90	35	35	40	30	30	35
		15 kW	90	100	100	100	100	110	45	50	50	40	40	45
		22.5 kW	110	125	110	125	125	150	60	60	70	50	50	50
		30 kW	150	150	150	150	150	150	70	70	80	60	60	60
		45 kW	175	200	175	200	200	200	90	100	100	80	80	80
[3] Minimum Circuit Ampacity	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	**7.5 kW**	68	71	71	74	78	81	33	35	38	29	30	32
		15 kW	88	94	91	97	97	103	45	46	49	38	39	41
		22.5 kW	107	116	110	119	117	126	56	57	61	47	48	50
		30 kW	127	139	130	142	137	149	67	69	72	56	57	59
		45 kW	166	184	169	187	176	194	90	91	94	74	75	77

ELECTRICAL ACCESSORIES

Disconnect	**7.5 kW**	**54W56**	**54W56**	**54W56**
	15 kW	**54W57**	**54W56**	**54W56**
	22.5 kW	**54W57**	**54W56**	**54W56**
	30 kW	**54W57**	**54W56**	**54W56**
	45 kW	**Not Available**	**54W57**	**54W56**

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 — HIGH EFFICIENCY - DIRECT DRIVE - 10 TON

		Model No.	KHB122H4E		
[1] Voltage - 60Hz			208/230V - 3 Ph	460V - 3 Ph	575V - 3 Ph
Compressor 1		Rated Load Amps	15.6	7.8	5.8
		Locked Rotor Amps	110	52	38.9
Compressor 2		Rated Load Amps	15.6	7.8	5.8
		Locked Rotor Amps	110	52	38.9
Outdoor Fan Motors (3)		Full Load Amps	2.8	1.4	1.1
		(total)	(8.4)	(4.2)	(3.3)
Power Exhaust (1) 0.33 HP		Full Load Amps	2.4	1.3	1
Service Outlet 115V GFI (amps)			15	15	20
Indoor Blower Motor		Horsepower	3.75	3.75	3.75
		Full Load Amps	8.8	4.3	3.4
[2] Maximum Overcurrent Protection		Unit Only	60	30	25
		With (1) 0.33 HP Power Exhaust	70	35	25
[3] Minimum Circuit Ampacity		Unit Only	53	27	20
		With (1) 0.33 HP Power Exhaust	60	30	23

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	480V	600V
[2] Maximum Overcurrent Protection	Unit+ Electric Heat	**15 kW**	100	100	50	40
		22.5 kW	125	125	60	50
		30 kW	150	150	80	60
		45 kW	175	200	100	80
		60 kW	200	200	100	80
[3] Minimum Circuit Ampacity	Unit+ Electric Heat	**15 kW**	92	98	49	38
		22.5 kW	111	120	60	47
		30 kW	131	143	72	56
		45 kW	170	188	94	74
		60 kW	178	197	99	78
[2] Maximum Overcurrent Protection	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	**15 kW**	100	110	60	45
		22.5 kW	125	150	70	50
		30 kW	150	150	80	60
		45 kW	200	200	100	80
		60 kW	200	225	110	90
[3] Minimum Circuit Ampacity	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	**15 kW**	99	105	53	41
		22.5 kW	119	128	64	50
		30 kW	138	150	76	59
		45 kW	177	195	98	77
		60 kW	185	204	103	81

ELECTRICAL ACCESSORIES

Disconnect	**15 kW**	**54W57**	**54W56**	**54W56**
	22.5 kW	**54W57**	**54W56**	**54W56**
	30 kW	**54W57**	**54W56**	**54W56**
	45 kW	**Not Available**	**54W57**	**54W57**
	60 kW	**Not Available**	**54W57**	**54W57**

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.

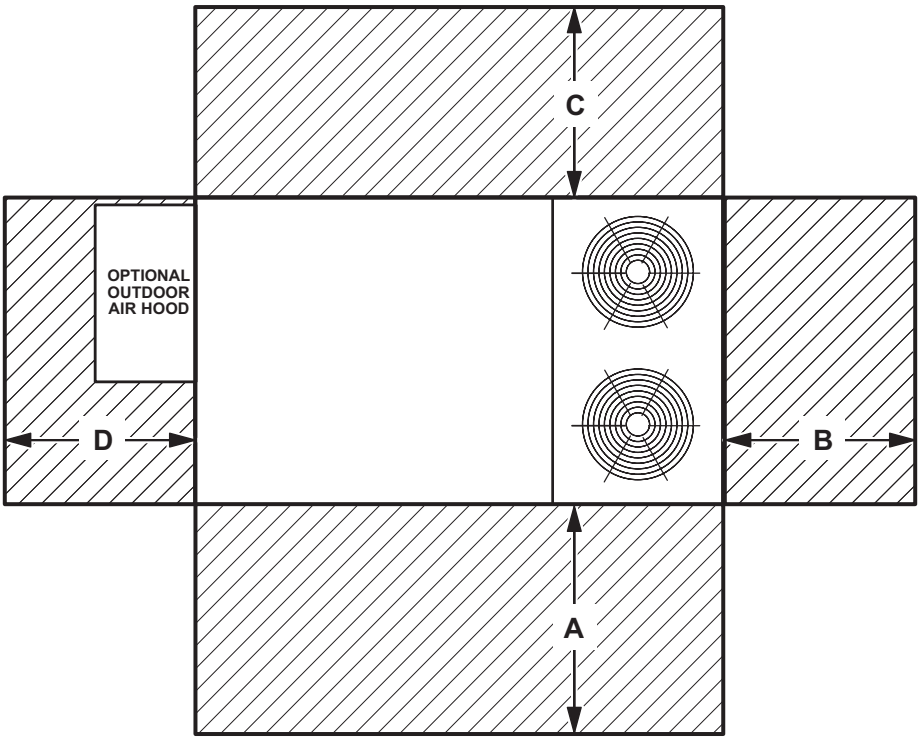
[2] HACR type breaker or fuse.

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

ELECTRIC HEAT CAPACITIES

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

UNIT CLEARANCES



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

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

[1] **Service Clearance** - Required for removal of serviceable parts.
Minimum Operation Clearance - Required clearance for proper unit operation.

OUTDOOR SOUND DATA

Unit Model Number	Octave Band Sound Power Levels dBA, re 10^{-12} Watts Center Frequency - Hz							[1] Sound Rating Number (dBA)
	125	250	500	1000	2000	4000	8000	
KHA092, 102 and 120	76	79	84	83	79	73	66	88
KHA150	77	80	85	84	79	74	66	88
KHB092, 102	72	75	76	73	67	60	50	86
KHB122	73	74	75	72	66	60	50	85

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

[1] Sound Rating Number according to AHRI Standard 270-95 or AHRI Standard 370-2001 (includes pure tone penalty). Sound Rating Number is the overall A-Weighted Sound Power Level, (Lwa), dB (100 Hz to 10,000 Hz).

WEIGHT DATA — UNIT

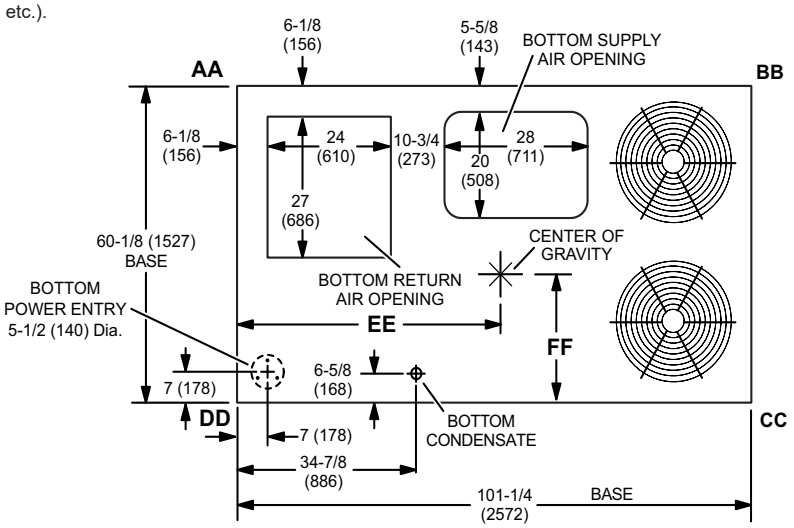
Model Number	Net		Shipping		Model Number	Net		Shipping	
	lbs.	kg	lbs.	kg		lbs.	kg	lbs.	kg
KHA092S Base Unit	1052	477	1137	516	KHB092H Base Unit	1073	487	1158	526
KHA092S Max. Unit	1209	548	1294	587	KHB092H Max. Unit	1253	569	1340	608
KHA102S Base Unit	1084	492	1169	530	KHB102H Base Unit	1075	488	1160	527
KHA102S Max. Unit	1241	563	1326	601	KHB102H Max. Unit	1255	570	1340	608
KHA120S Base Unit	1150	522	1235	560	KHB122H Base Unit	1216	552	1301	591
KHA120S Max. Unit	1314	596	1399	635	KHB122H Max. Unit	1405	638	1490	676
KHA150S Base Unit	1350	612	1435	651					
KHA150S Max. Unit	1514	687	1599	725					

WEIGHT DATA — OPTIONS / ACCESSORIES

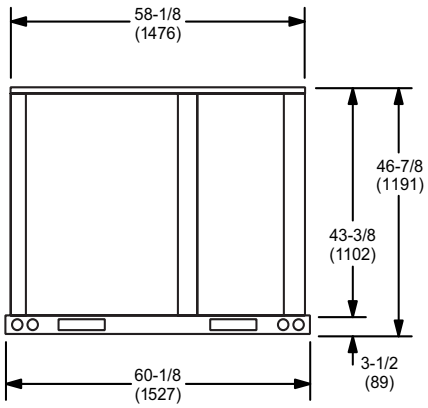
Model Number	Shipping Weight	
	lbs.	kg
ECONOMIZER / OUTDOOR AIR / EXHAUST		
Economizer		
Economizer Dampers	60	27
Barometric Relief Dampers (downflow)	8	4
Barometric Relief Damper Hood (downflow)	25	11
Outdoor Air Hood (downflow)	23	10
Outdoor Air Dampers		
Outdoor Air Damper Section - Automatic	51	23
Outdoor Air Damper Section - Manual	39	18
Power Exhaust	31	14
ELECTRIC HEAT		
7.5 kW	50	23
15 kW	50	23
22.5 kW	57	26
30 kW	57	26
45 kW	59	27
60 kW	68	31
SINGLE ZONE VAV SUPPLY FAN SUPPLY AIR BLOWER OPTION		
Variable Frequency Drive (VFD) and associated components	10	5
ROOF CURBS		
Hybrid Roof Curbs, Downflow		
8 in. height	60	27
14 in. height	85	39
18 in. height	100	45
24 in. height	125	57
Adjustable Pitch Curb, Downflow		
14 in. height	191	82
PACKAGING		
LTL Packaging (less than truck load)	105	48
CEILING DIFFUSERS		
Step-Down		
RTD11-95S	118	54
RTD11-135S	135	61
RTD11-185S	168	76
Flush		
FD11-95S	118	54
FD11-135S	135	61
FD11-185S	168	76
Transitions		
C1DIFF30B-1	30	14
C1DIFF31B-1	32	15
C1DIFF32B-1	36	16

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.	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	in.	mm	in.	mm	in.	mm	in.	mm
KHA092	264	120	310	140	237	108	271	123	258	117	290	131	293	133	339	154	46.5	1181	45.5	1156	24.5	622	25.5	648
KHB092	283	129	331	150	237	108	277	126	249	113	290	132	304	138	355	161	44	1118	43	1092	27	686	28	711
KHA102	272	123	318	144	244	111	278	126	266	121	297	135	302	137	348	158	46.5	1181	45.5	1156	24.5	622	25.5	648
KHB102	284	129	332	151	237	108	277	126	249	113	291	132	304	138	355	161	44	1118	43	1092	27	686	28	711
KHA120	284	129	333	151	264	120	298	135	288	131	320	145	315	143	363	165	46.5	1181	45.5	1156	24.5	622	25.5	648

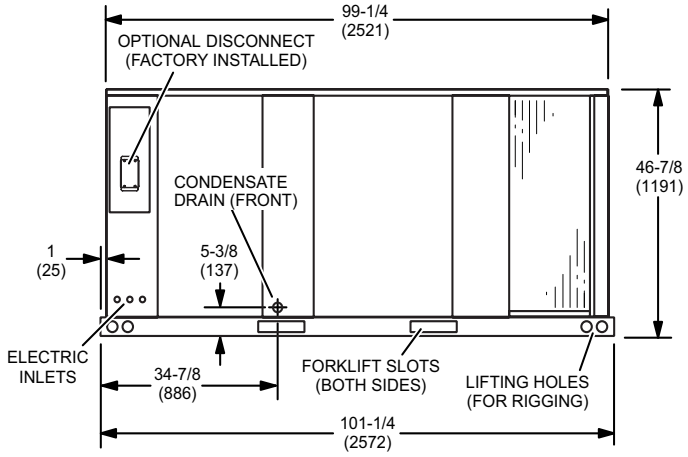
Base Unit - The unit with NO OPTIONS.
Max. Unit - The unit with ALL OPTIONS Installed (Economizer, etc.).



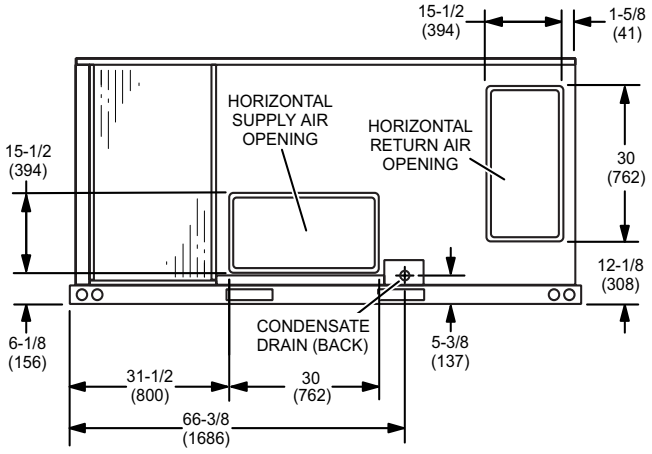
TOP VIEW



END VIEW



SIDE VIEW

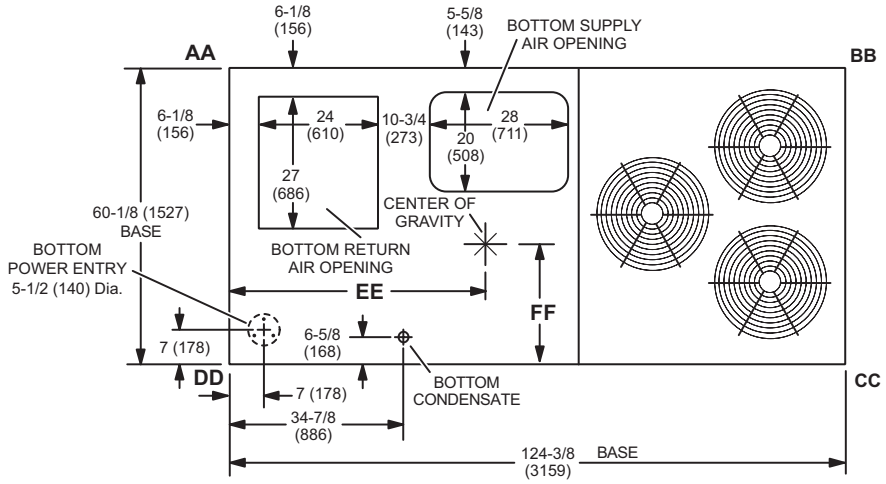


SIDE VIEW
(Horizontal Openings)

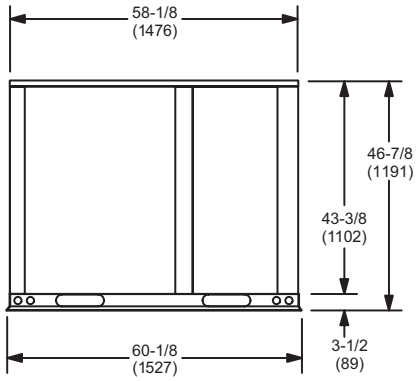
DIMENSIONS 122-150

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.	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	in.	mm	in.	mm	in.	mm	in.	mm
KHA150	348	158	398	180	303	137	337	153	321	146	353	160	377	171	426	193	46.5	1181	45.5	1156	24.5	622	25.5	648
KHB122	316	143	365	166	273	124	316	143	288	131	333	151	339	154	392	178	56.5	1435	55.5	1410	25.5	679	26.5	673

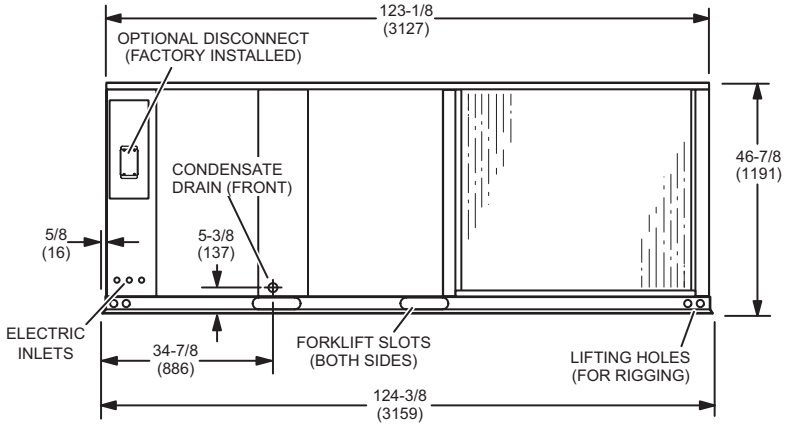
Base Unit - The unit with NO OPTIONS.
Max. Unit - The unit with ALL OPTIONS Installed (Economizer, etc.).



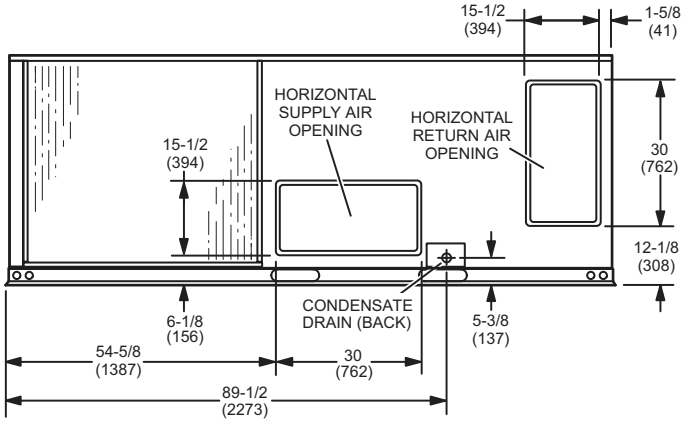
TOP VIEW



END VIEW

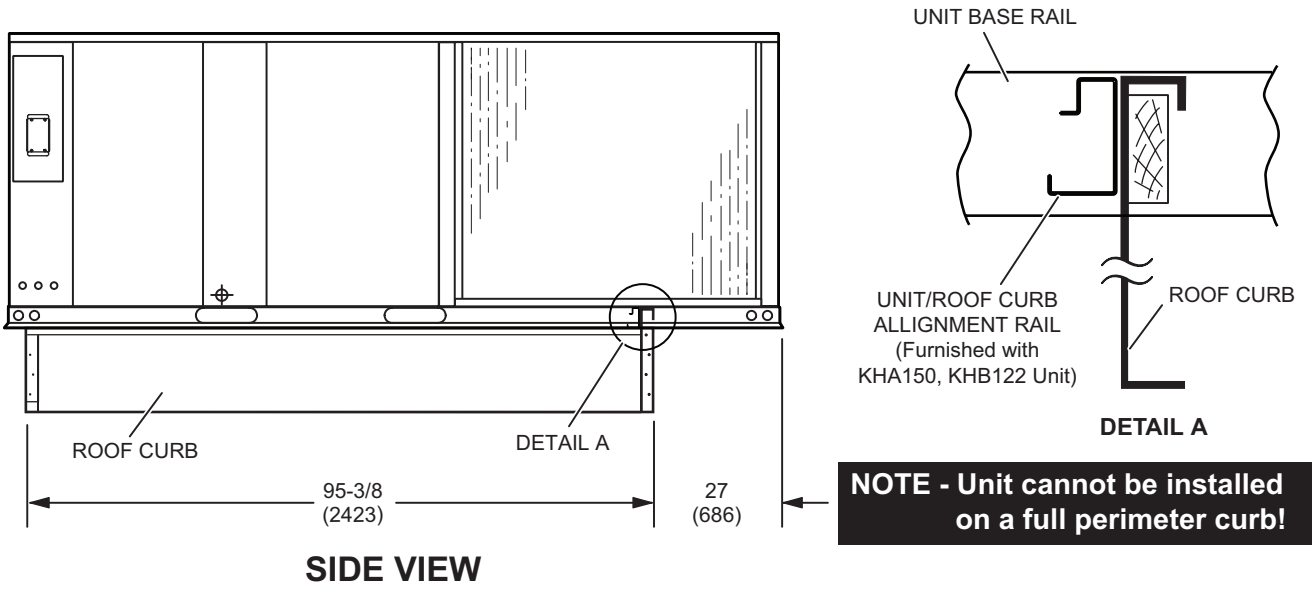


SIDE VIEW



SIDE VIEW
(Horizontal Openings)

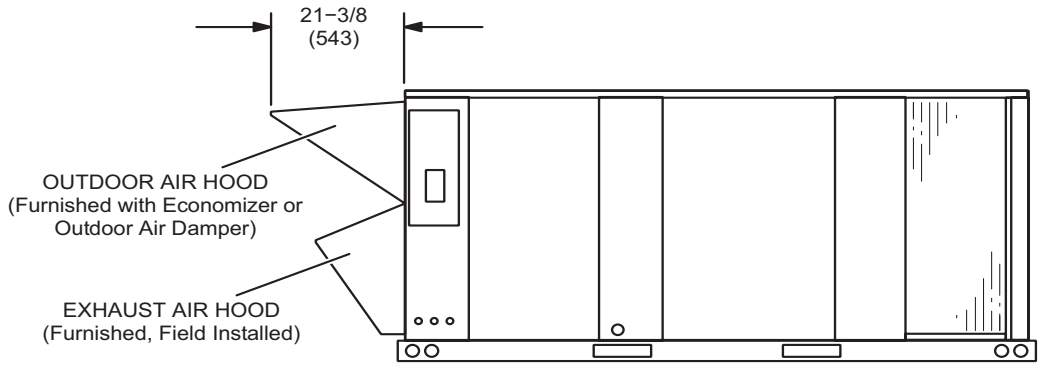
UNIT ON CURB LOCATION − KHA150, KHB122



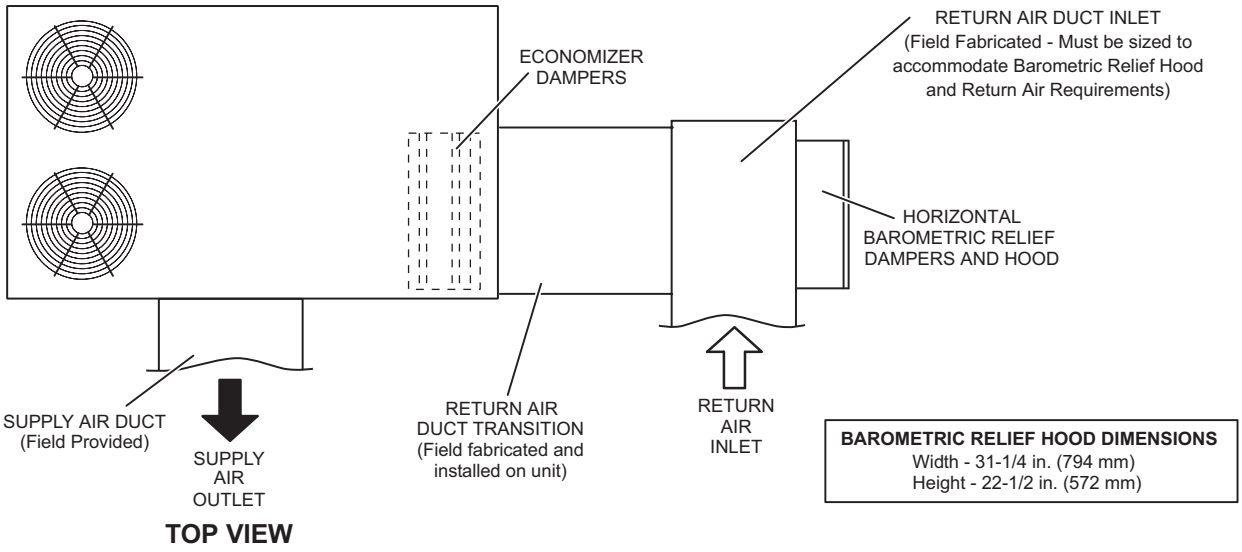
NOTE - Unit cannot be installed on a full perimeter curb!

SIDE VIEW

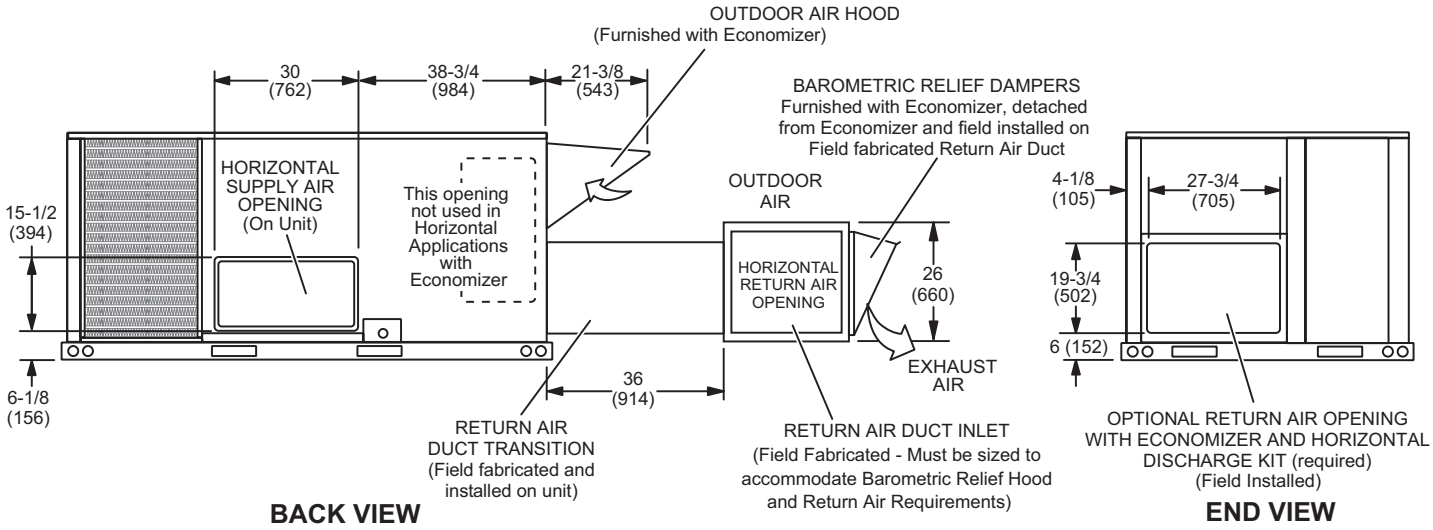
OUTDOOR AIR HOOD DETAIL



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



TOP VIEW

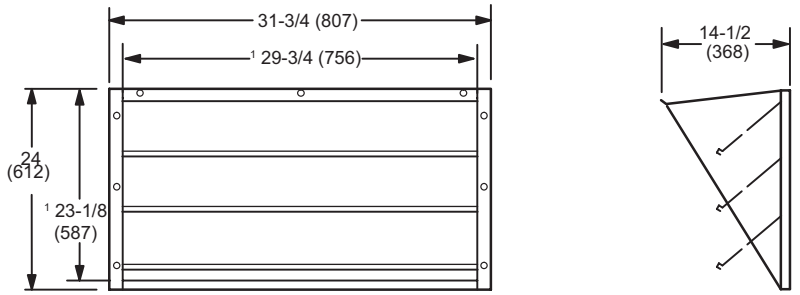


BACK VIEW **END VIEW**

NOTE - Return Air Duct and Transition must be supported.

BAROMETRIC RELIEF DAMPERS
(Furnished with Economizer)

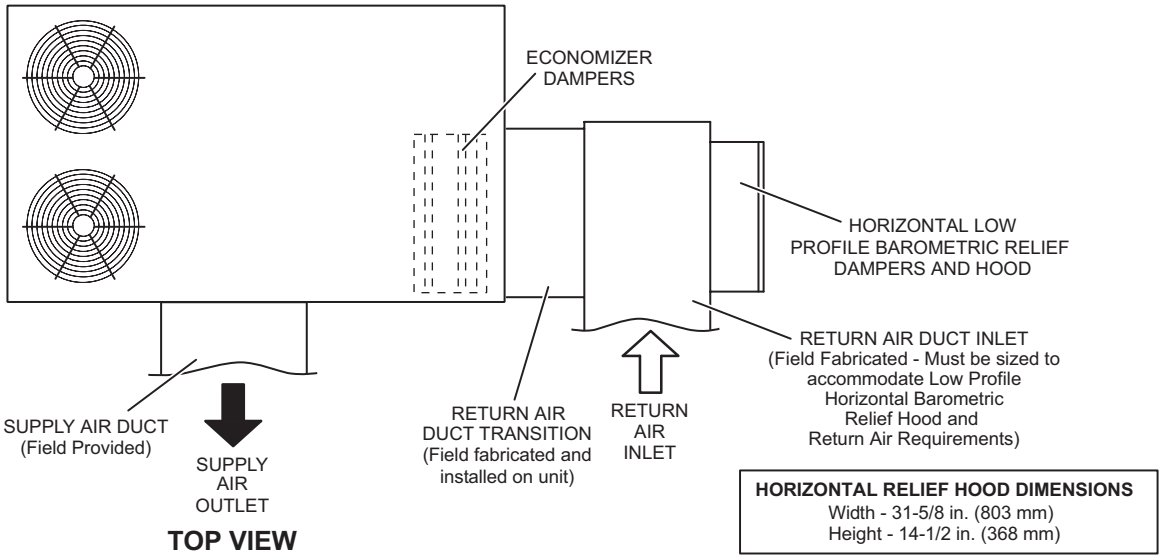
(Field installed in horizontal return air duct adjacent to unit)



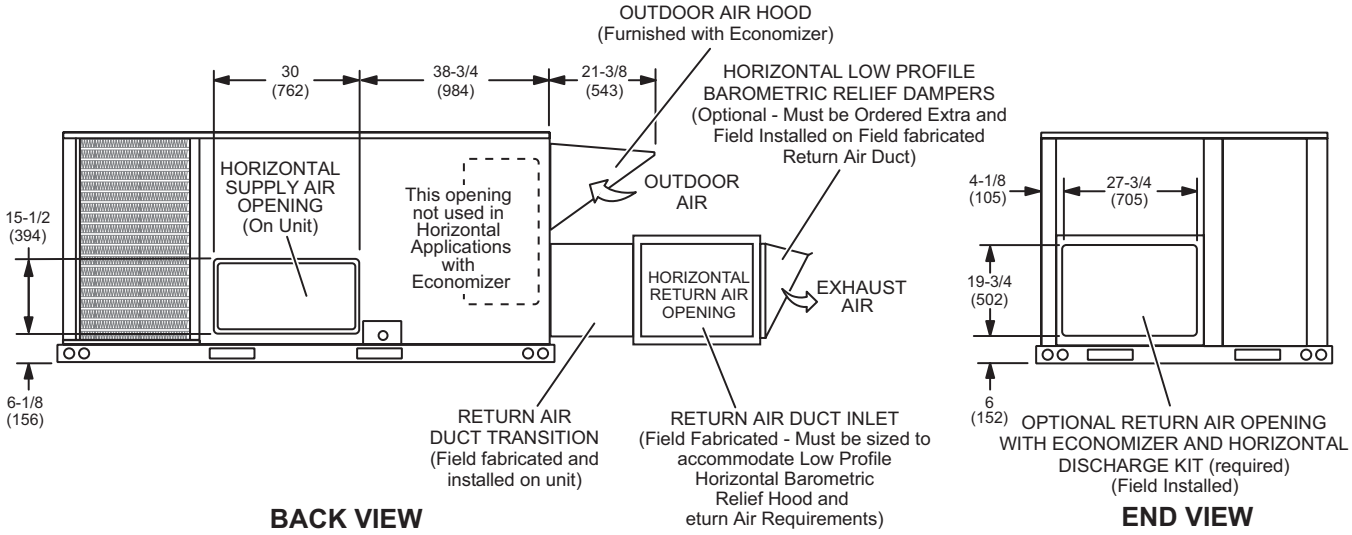
FRONT VIEW **SIDE VIEW**

[1] NOTE - Opening size required in return air duct.

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



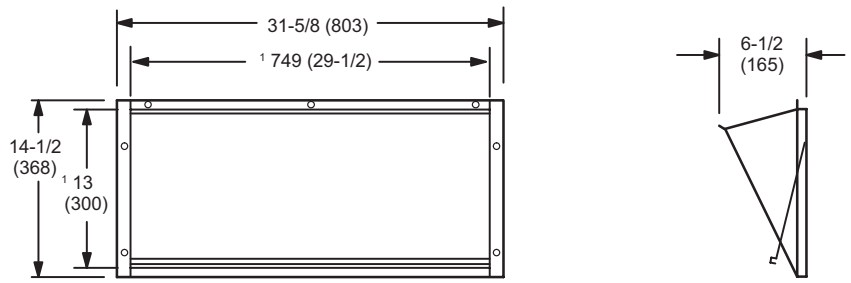
TOP VIEW



BACK VIEW **END VIEW**

NOTE - Return Air Duct and Transition must be supported.

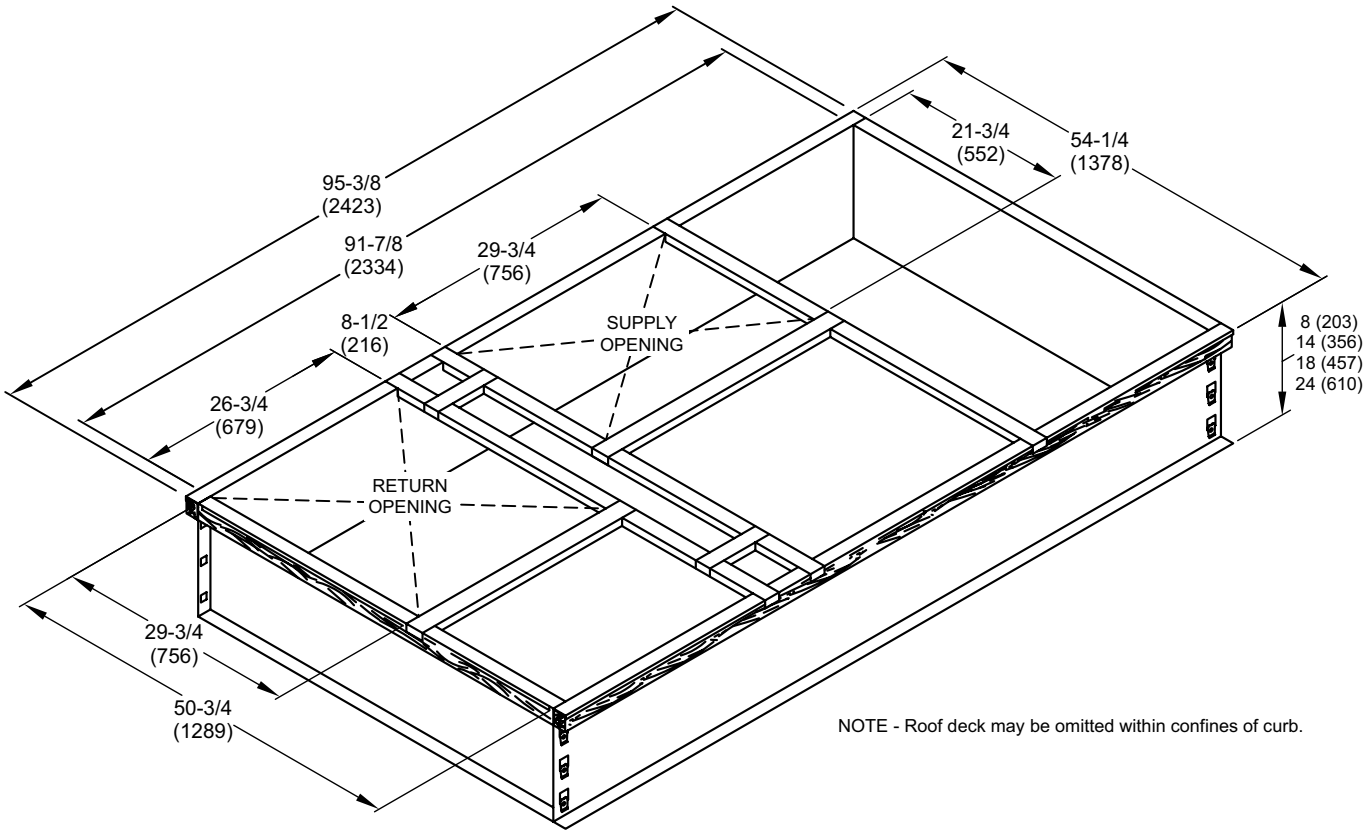
HORIZONTAL LOW PROFILE BAROMETRIC RELIEF DAMPERS
(Field installed in horizontal return air duct adjacent to unit)



FRONT VIEW **SIDE VIEW**

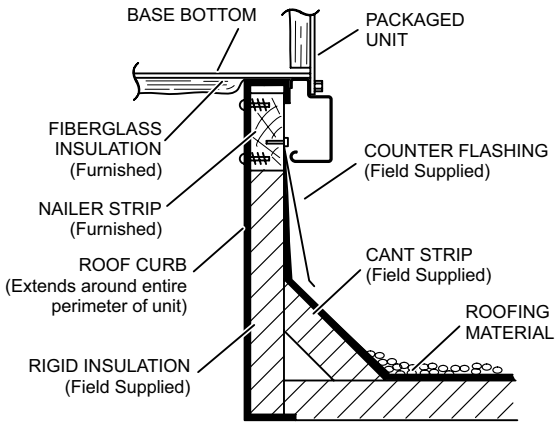
[1] NOTE - Opening size required in return air duct.

HYBRID ROOF CURBS - DOUBLE DUCT OPENING

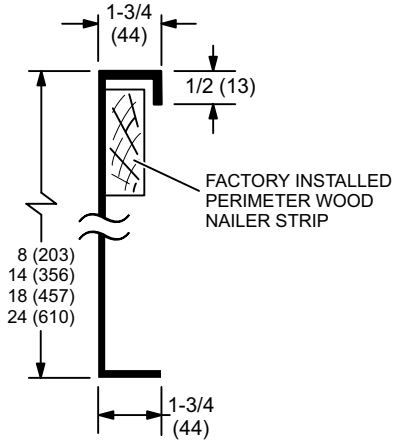


NOTE - Roof deck may be omitted within confines of curb.

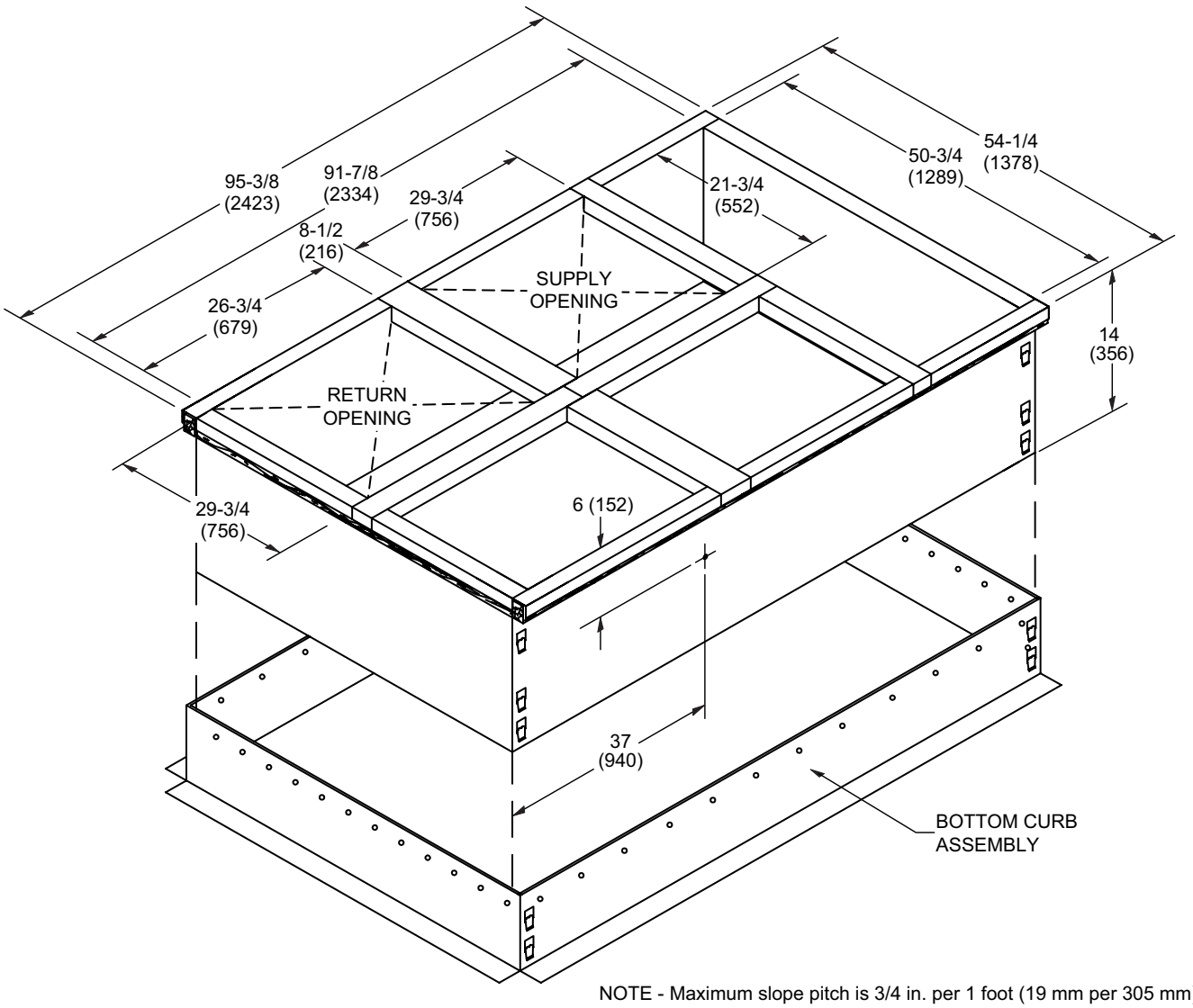
TYPICAL FLASHING DETAIL FOR ROOF CURB



DETAIL ROOF CURB

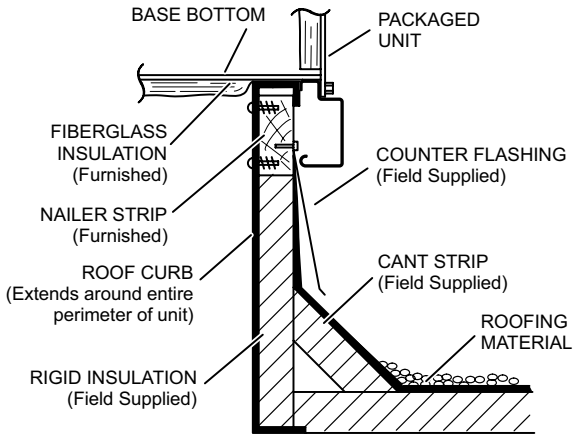


ADJUSTABLE PITCH CURBS - DOUBLE DUCT OPENING

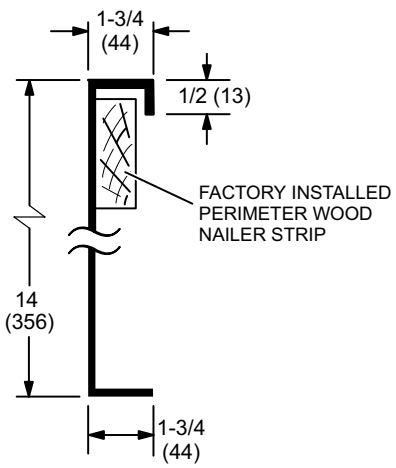


NOTE - Maximum slope pitch is 3/4 in. per 1 foot (19 mm per 305 mm) in any one direction.

TYPICAL FLASHING DETAIL FOR ROOF CURB

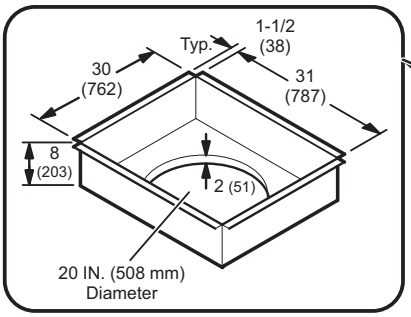


DETAIL ROOF CURB

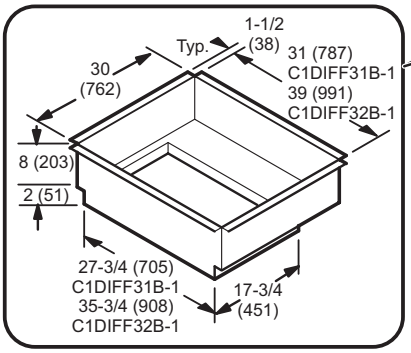


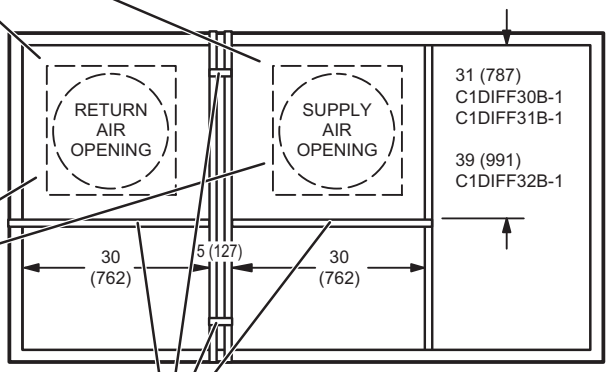
ROOF CURBS WITH SUPPLY & RETURN AIR TRANSITIONS FOR CEILING DIFFUSERS

C1DIFF30B-1 ROUND TRANSITIONS
(for 092 models)



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



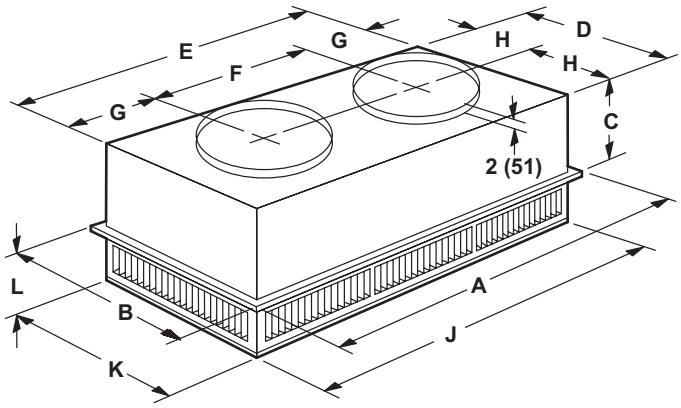


TOP VIEW

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

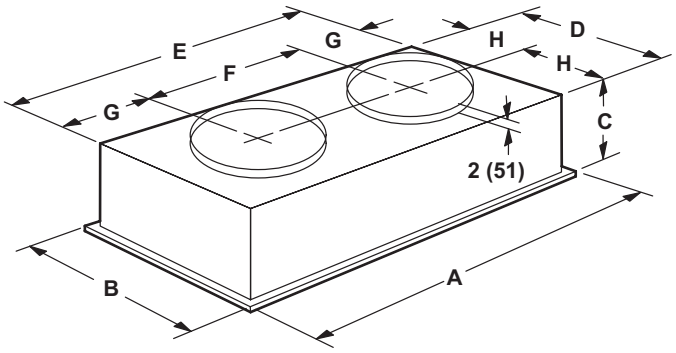
COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

STEP-DOWN CEILING DIFFUSER



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

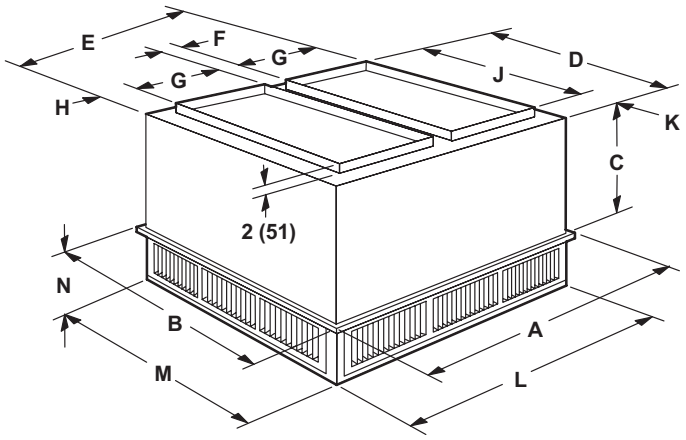
FLUSH CEILING DIFFUSER



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

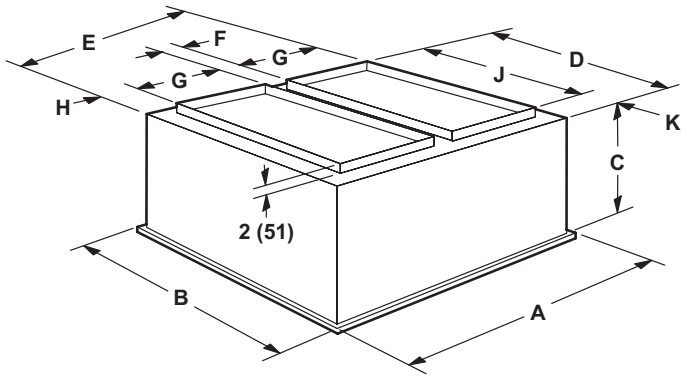
COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

STEP-DOWN CEILING DIFFUSER



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

FLUSH CEILING DIFFUSER



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

REVISIONS

Sections	Description of Change
Options/Accessories	High Performance Economizer information updated.

ALLIED™ Commercial

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Installation and service must be performed by a qualified installer and servicing agency.