



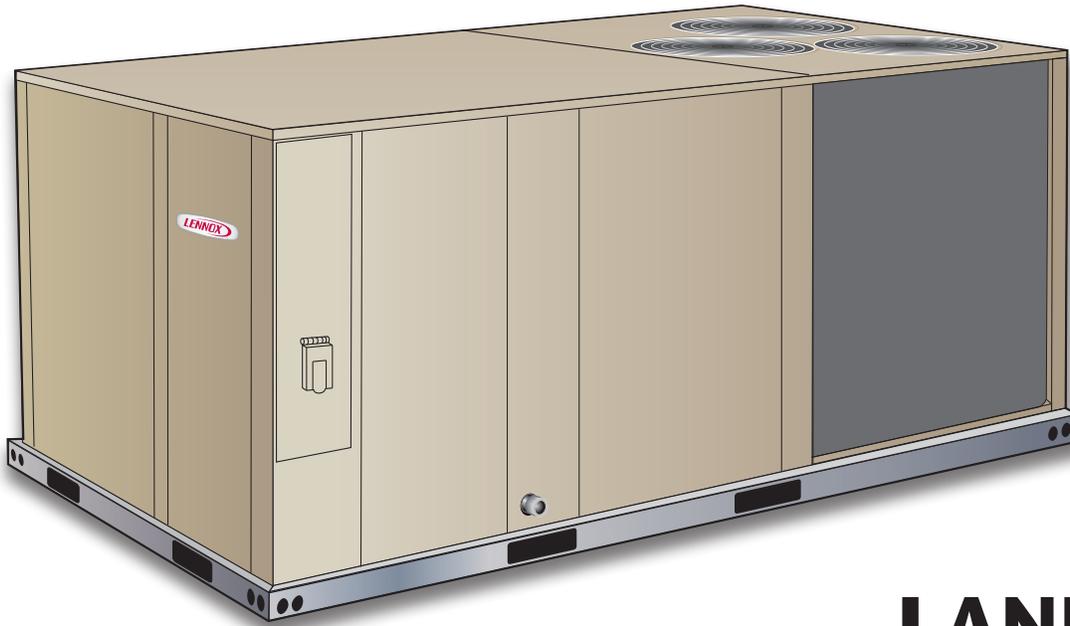
PACKAGED HEAT PUMP

KHA/KHB

Landmark® Rooftop Units
Standard And High Efficiency - 50 Hz

COMMERCIAL
PRODUCT SPECIFICATIONS

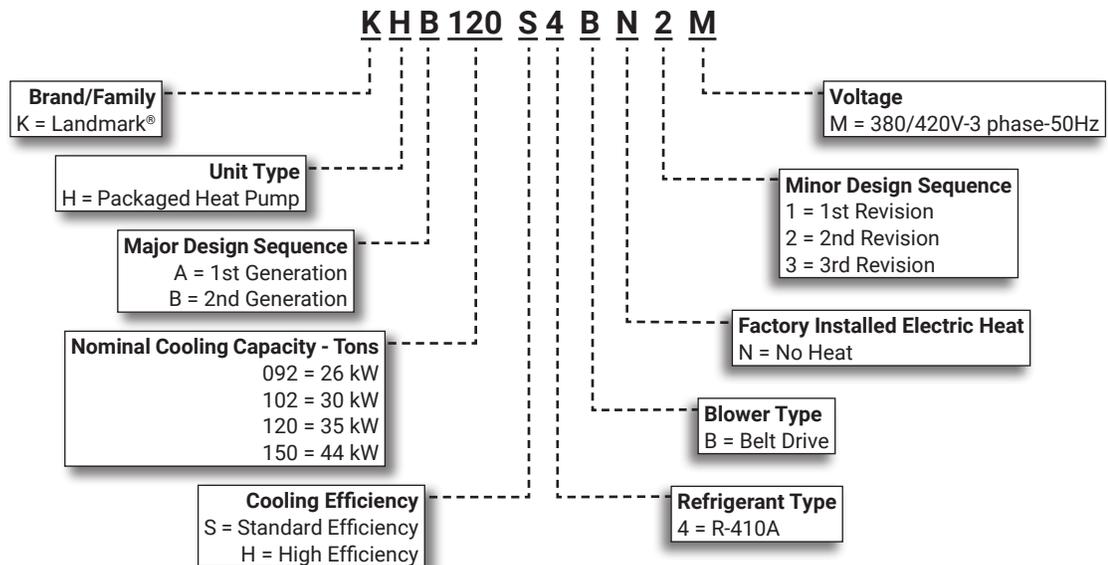
Bulletin No. 490148
 March 2021
 Supersedes July 2019



LANDMARK®
 Performance Marked by Flexibility™

26 to 44 kW
Net Cooling Capacity - 23.6 to 36.5 kW (80 600 to 127 700 Btuh)
Net Heating Capacity - 23.3 to 36.3 kW (79 500 to 124 000 Btuh)
Optional Electric Heat - 5.7 to 45.9 kW

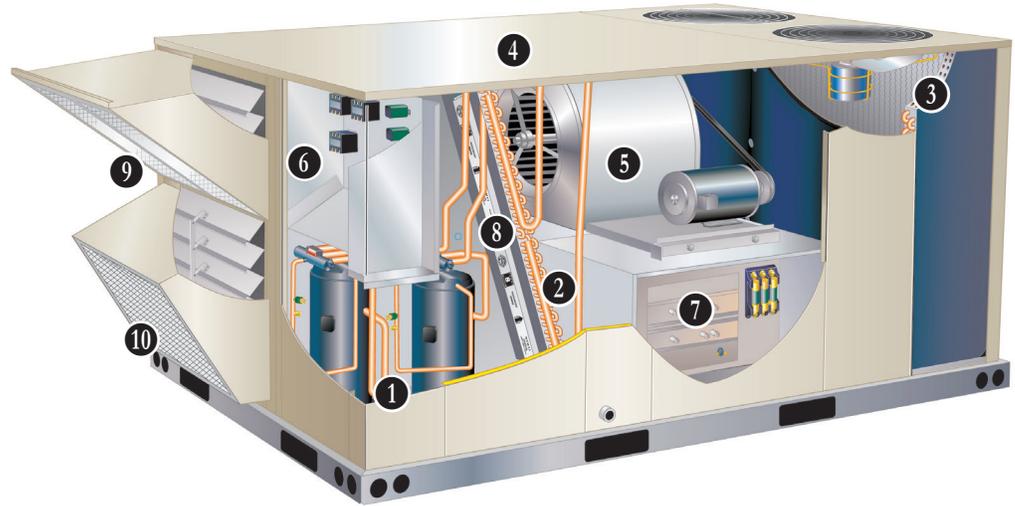
MODEL NUMBER IDENTIFICATION



FEATURE HIGHLIGHTS

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

1. Scroll Compressor
2. Coil Construction
3. Outdoor Coil Fans
4. Construction
5. Blower Motor
6. Unit Control
7. Electric Heat
8. Air Filters
9. Economizer
10. Barometric Relief Dampers



Unit shown with optional Economizer and Outdoor Air Hoods

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PERFORMANCE / QUALITY AND CE MARK OPTION

PERFORMANCE / QUALITY

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

CE MARK OPTION

(KHA Models Only)

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



FEATURES AND BENEFITS

COOLING/HEATING SYSTEM

- Designed to maximize sensible and latent cooling performance at design conditions
- System can operate in the cooling mode from 1°C to 52°C 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

Check/Thermal Expansion Valves

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

Reversing Valves

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

Filter/Driers

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

High Pressure Switches

- Protects the compressor from overload conditions
- Auto-reset

Freezestats

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

② 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

Indoor Coil

- Cross row circuiting with rifled copper tubing optimizes both sensible and latent cooling capacity.

Condenser Coil

- Two independent formed coils allow separation for cleaning.

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

FEATURES AND BENEFITS

COOLING/HEATING SYSTEM (continued)

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

3 Outdoor Coil Fans

- Polyvinyl Chloride (PVC) coated fan guard furnished

Required Selections

Cooling Capacity

- Specify nominal cooling capacity of the unit

Options / Accessories

Field Installed

Condensate Drain Trap

- Available in copper or polyvinyl chloride (PVC)

Drain Pan Overflow Switch

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

Low Ambient Kit

- Designed for use in ambient temperatures no lower than -17°C
- Cycles the outdoor fans while allowing compressor operation in the cooling cycle
- Includes field installed pressure switches on the liquid line to determine when to operate the outdoor fans
- This intermittent fan operation allows the system to operate without icing the evaporator coil and losing capacity
- **Standard Efficiency Models** - If the liquid line pressure drops below 1.66 Pa all outdoor fans stop until main pressure switches have reset to 3.1 Pa to resume normal cooling operation
- **High Efficiency Models** - If the liquid line pressure drops below 1.66 Pa outdoor fans operate at 25% normal fan speed
- If pressure drops below 1.24 Pa all outdoor fans stop until pressure rises to 2.07 Pa, then fans operate at 25% normal fan speed unless main pressure switches have reset to 3.1 Pa to resume normal cooling operation and full fan speed operation

CABINET

4 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 brought through the unit base or through horizontal access knock-outs

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

Hinged Access Panels

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

FEATURES AND BENEFITS

CABINET (continued)

Options / Accessories (continued)

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.

Return Air Adaptor Plate

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

BLOWER

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

5 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

Required Selections

- Order blower motor horsepower and drive kit number required when base unit is ordered
- See Drive Kit Specifications Table

CONTROLS

6 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 (High Efficiency Models Only)

- Provides variable speed control
- 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.

ELECTRICAL

Required Selections

Voltage

- Specify when ordering base unit

Options / Selections

Field Installed

7 Electric Heat

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

FEATURE AND BENEFITS

INDOOR AIR QUALITY

8 Air Filters

- Disposable 51 mm filters furnished as standard

Options / Accessories

Field Installed

Healthy Climate® High Efficiency Air Filter

- Disposable MERV 8 or MERV 13 (Minimum Efficiency Reporting Value based on ASHRAE 52.2) efficiency 51 mm 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

Healthy Climate® UVC Germicidal Lamps



- Germicidal lamps emit ultra-violet (UV-C) energy, which has been proven to be effective in reducing microbes such as viruses, bacteria, yeasts, and molds
- This process either destroys the organism or controls its ability to reproduce
- UV-C energy greatly reduces the growth and proliferation of mold and other bioaerosols (bacteria and viruses) on illuminated surfaces (particularly coil and drain pan)
- Field installed in the blower/evaporator coil section
- Magnetic safety interlock terminates power when access panels are removed
- All necessary hardware for installation is included
- Lamps operate on 220V-1ph power supply

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

Indoor Air Quality (CO₂) Sensors

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

OPTIONS / ACCESSORIES

ECONOMIZER

Factory or Field Installed

9 Economizer Features

(Standard and High Performance Common Features)

- Downflow or Horizontal with Outdoor Air Hood and Barometric Relief Dampers with Exhaust Hood

10 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 CO₂ sensors
- Mixed Air Sensor is furnished for field installation in the rooftop unit

NOTE - 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

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

Standard Economizer Control Module

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



Economizer Controls:

- **Damper Minimum Position** - Can be set lower than traditional minimum air requirements resulting in cost savings
- **IAQ Sensor** - Signals dampers to modulate and maintain 13°C when 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 13°C.

OPTIONS / ACCESSORIES

ECONOMIZER (continued)

High Performance Economizer Features

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

High Performance Economizer Control Module

- Module provides inputs and outputs to control economizer based on parameter settings
- Module automatically detects sensors by polling to determine which sensors are installed in system
- Module displays any alarm messages (fault detection and diagnostics) as an aid in troubleshooting.
- Non-volatile memory retains parameter settings in case of power failure
- Keypad with four navigation buttons and LCD screen is furnished for setting economizer parameters
 - Menu Up/Exit (⬆️) button returns to the main menu
 - Arrow Up (▲) button moves to the previous or next parameter within the selected menu
 - Arrow Down (▼) button moves to the next parameter within the selected menu
 - Select (enter) (↵) button confirms parameter selection



Main Menu Structure:

- **Status** (economizer and system operation status)
- **Setpoints** (settings for various setpoint parameters)
- **System Setup** (settings/information about the system)
- **Advanced Setup** (freeze protection, CO₂ settings, stage 3 delay and additional calibration settings)
- **Checkout** (damper positions)
- **Alarms** (output signal that can be configured for remote alarm monitoring)
- Refer to Installation Instructions for complete setup information and menu parameters available

Factory or Field Installed

Single Enthalpy Temperature Control

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

Field Installed

Differential Enthalpy Control

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

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
- Requires Economizer with Outdoor Air Hood and Barometric Relief Dampers
- Fan is 508 mm diameter
- 5 blades (K1PWRE10B)
- 0.25 kW motor

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: 38°C

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 203, 356, 457, and 610 mm heights

Adjustable Pitch Curb

- Fully adjustable pitch curbs 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 356 mm height

Adaptor Curbs (not shown)

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

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

CEILING DIFFUSERS

Ceiling Diffusers (Flush or Step-Down)

- Aluminum grilles
- Large center grille
- Insulated diffuser box with flanges
- Hanging rings furnished
- Interior transition (even air flow)
- Internally sealed (prevents recirculation)
- Adapts to T-bar ceiling grids or plaster ceilings

Transitions (Supply and Return)

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

OPTIONAL CONVENTIONAL TEMPERATURE CONTROL SYSTEMS

ComfortSense® 7500 Commercial 7-Day Programmable Thermostat



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

ComfortSense® 3000 Commercial 5-2 Day Programmable Thermostat



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

Bacnet Compatible Thermostat With Reheat Function



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

Description	Catalog No.
ComfortSense® 7500 Commercial 7-Day Programmable Thermostat	
CS7500 7-Day Thermostat	17G74
Sensors/	¹ Remote non-adjustable wall-mount 20k 47W36
Accessories	¹ Remote non-adjustable wall-mount 10k 47W37
	Remote non-adjustable discharge air (duct mount) 19L22
	Outdoor temperature sensor X2658
ComfortSense® 3000 5-2 Day Programmable	
CS3000 5-2 Day Thermostat	11Y05
Sensor/	Remote non-adjustable wall mount 10k averaging 47W37
Accessories	Thermostat wall mounting plate X2659
BACnet	² 7-Day BACnet Thermostat Y8241
Controls	³ BACnet Module (factory or field) 16X71
⁴ BACnet	With Display 97W23
Room Sensors	Without Display 97W24
Universal Thermostat Guard with Lock (clear)	
	Inside Dimensions (H x W) 5 7/8 x 8 3/8 in. 39P21

¹ Remote wall-mount sensors can be applied in any of the following combinations:
 One Sensor - (1) 47W36, Two Sensors - (2) 47W37, Three Sensors - (2) 47W36 and (1) 47W37
 Four Sensors - (4) 47W36, Five Sensors - (3) 47W36 and (2) 47W37

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

³ Not compatible with units equipped with Humiditrol® option.

⁴ Only compatible with BACnet Module (16X70).

OPTIONS / ACCESSORIES

Item Description	Model Number	Catalog Number	Unit Model No				
			KHA KHB	KHA KHB	KHA	KHA	
			092	102	120	150	
CE MARK							
CE Marked Unit		Factory	¹ O	¹ O	O	O	
COOLING SYSTEM							
Condensate Drain Trap	Polyvinyl Chloride (PVC) - C1TRAP20AD2	22H54	X	X	X	X	
	Copper - C1TRAP10AD2	76W27	X	X	X	X	
Corrosion Protection		Factory	O	O	O	O	
Drain Pan Overflow Switch	K1SNSR71AB1-	74W42	X	X	X	X	
Efficiency		Standard	O	O	O	O	
		High	O	O			
Low Ambient Kit	Standard Efficiency - K1SNSR33B-1	54W16	X	X	X	X	
	High Efficiency - K1SNSR34*B0	14N31	X	X			
Refrigerant Type		R-410A	O	O	O	O	
BLOWER - SUPPLY AIR							
Motors	Belt Drive - 1.5 kW (2 hp)	Factory	O	O	O	O	
	Belt Drive - 2.2 kW (3 hp)	Factory	O	O	O	O	
	Belt Drive - 3.7 kW (5 hp)	Factory	O	O	O	O	
Drive Kits See Blower Data Tables for selection	Kit #1 490-740 rev/min	Factory	O	O	O	O	
	Kit #2 665-920 rev/min	Factory	O	O	O	O	
	Kit #3 660-995 rev/min	Factory	O	O	O	O	
	Kit #7 610-810 rev/min	Factory	O	O	O	O	
	Kit #8 780-1000 rev/min	Factory	O	O	O	O	
	Kit #9 845-1085 rev/min	Factory	O	O	O	O	
	Kit #10 750-945 rev/min	Factory	O	O	O	O	
	Kit #11 865-1095 rev/min	Factory	O	O	O	O	
	Kit #12 940-1190 rev/min	Factory	O	O	O	O	
	CABINET						
	Combination Coil/Hail Guards	Standard Efficiency - K1GARD51BS1	13T24	X	X	X	
		Standard Efficiency - K1GARD51BP1	13T25				X
High Efficiency - K1GARD53B-1		14Y77	X	X			
Hinged Access Panels		Factory	O	O	O	O	
Horizontal Discharge Kit	K1HECK00B-1	51W25	X	X	X	X	
Return Air Adaptor Plate (for LC/LG/LH and TC/TG/TH unit replacement)	C1CONV10B-1	54W96	X	X	X	X	
CONTROLS							
NOTE - Also see Conventional Thermostat Control Systems on page 9 for Additional Options.							
Smoke Detector - Supply or Return (Power board and one sensor)	C1SNSR44B-2	11K76	X	X	X	X	
Smoke Detector - Supply and Return (Power board and two sensors)	C1SNSR43B-2	11K80	X	X	X	X	

¹ Available for KHA Models only.

NOTE - Catalog and model 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	Model Number	Catalog Number	Unit Model No			
			KHA	KHA	KHA	KHA
			KHB 092	KHB 102	KHB 120	KHB 150
INDOOR AIR QUALITY						
Air Filters						
Healthy Climate® High Efficiency Air Filters 208 x 635 x 51 mm (Order 4 per unit)	MERV 8 - C1FLTR15B-1	50W61	X	X	X	X
	MERV 13 - C1FLTR40B-1	52W41	X	X	X	X
Replacement Media Filter With Metal Mesh Frame (includes non-pleated filter media)	C1FLTR30B-1-	Y3063	X	X	X	X
Indoor Air Quality (CO₂) Sensors						
Sensor - Wall-mount, off-white plastic cover with LCD display	C0SNSR50AE1L	77N39	X	X	X	X
Sensor - Wall-mount, off-white plastic cover, no display	C0SNSR52AE1L	87N53	X	X	X	X
Sensor - Black plastic case with LCD display, rated for plenum mounting	C0SNSR51AE1L	87N52	X	X	X	X
Sensor - Wall-mount, black plastic case, no display, rated for plenum mounting	C0MISC19AE1	87N54	X	X	X	X
CO ₂ Sensor Duct Mounting Kit - for downflow applications	C0MISC19AE1-	85L43	X	X	X	X
Aspiration Box - for duct mounting non-plenum rated CO ₂ sensors (87N53 or 77N39)	C0MISC16AE1-	90N43	X	X	X	X
UVC Germicidal Lamps						
¹ Healthy Climate® UVC Light Kit (220V-1ph)	C1UVCL10B-1	54W62	X	X	X	X
ELECTRICAL						
Voltage 50 hz with neutral (No neutral on CE marked models)	380/420V - 3 phase	Factory	O	O	O	O
² ELECTRIC HEAT						
5.7 kW	380/420V-3ph - C1EH0057B-1M	68W04	X	X		
11.5 kW	380/420V-3ph - C1EH0115B-1M	68W05	X	X	X	X
17.2 kW	380/420V-3ph - C1EH0172B-1M	68W06	X	X	X	X
23 kW	380/420V-3ph - C1EH0230B-1M	68W07	X	X	X	X
34.5 kW	380/420V-3ph - C1EH0345B-1M	68W08	X	X	X	X
45.9 kW	380/420V-3ph - C1EH0459B-1M	68W09			X	X

¹ Lamps operate on 220V single-phase power supply. Step-down transformer must be field supplied for field installation for 380/420V primary to 220V secondary. Alternately, a separate 220V power supply may be used to directly power the UVC ballast(s).

² Nominal kW at 420V-3ph-50hz.

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

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

O = Configure To Order (Factory Installed)

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OPTIONS / ACCESSORIES

Item Description	Model Number	Catalog Number	Unit Model No			
			KHA KHB	KHA KHB	KHA	KHA
			092	102	120	150
ECONOMIZER						
Standard Economizer						
Standard Economizer with Single Temperature Control Downflow or Horizontal Applications - Includes Barometric Relief Dampers and Air Hoods	K1ECON20B-2	13U45	OX	OX	OX	OX
Standard Economizer Controls						
Single Enthalpy Control	C1SNSR64FF1	21Z09	OX	OX	OX	OX
Differential Enthalpy Control (order 2)	C1SNSR64FF1	21Z09	X	X	X	X
High Performance Economizer						
High Performance Economizer with Single Temperature Control Downflow or Horizontal Applications - Includes Barometric Relief Dampers and Air Hoods	K1ECON22B-4	20U81	OX	OX	OX	OX
High Performance Economizer Controls						
Single Enthalpy Control	C1SNSR60FF1	10Z75	OX	OX	OX	OX
Differential Enthalpy Control (order 2)	C1SNSR60FF1	10Z75	X	X	X	X
Horizontal Barometric Relief Dampers With Exhaust Hood						
Horizontal Barometric Relief Dampers - Exhaust Hood Furnished	LAGEDH03/15	53K04	X	X	X	X
OUTDOOR AIR						
Outdoor Air Dampers with Outdoor Air Hood						
Motorized	C1DAMP20B-1	14G28	OX	OX	OX	OX
Manual	C1DAMP10B-2	14G29	OX	OX	OX	OX
POWER EXHAUST						
Standard Static	380/420V-3ph - K1PWRE10B-1G	53W45	X	X	X	X
ROOF CURBS						
Hybrid Roof Curbs, Downflow						
203 mm height	C1CURB70B-1	11F54	X	X	X	X
356 mm height	C1CURB71B-1	11F55	X	X	X	X
457 mm height	C1CURB72B-1	11F56	X	X	X	X
610 mm height	C1CURB73B-1	11F57	X	X	X	X
Adjustable Pitch Curb						
356 mm height	C1CURB55B-1	54W50	X	X	X	X
CEILING DIFFUSERS						
Step-Down - Order one	RTD11-95S	13K61	X			
	RTD11-135S	13K62		X	X	
	RTD11-185S	13K63				X
Flush - Order one	FD11-95S	13K56	X			
	FD11-135S	13K57		X	X	
	FD11-185S	13K58				X
Transitions (Supply and Return) - Order one	C1DIFF30B-1	12X65	X			
	C1DIFF31B-1	12X66		X	X	
	C1DIFF32B-1	12X67				X

NOTE - Catalog and model 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 kW (Tons)	26 (7.5)	30 (8.5)	35 (10)	44 (12.5)	
		Model Number	KHA092S4B	KHA102S4B	KHA120S4B	KHA150S4B	
		Efficiency Type	Standard				
		Blower Type	CAV (Constant Air Volume)	CAV (Constant Air Volume)	CAV (Constant Air Volume)	CAV (Constant Air Volume)	
Cooling Performance	Gross Cooling Capacity - kW (Btuh)		23.3 (79 500)	26.2 (89 400)	31.5 (107 500)	37 (126 400)	
	¹ Net Cooling Capacity - kW (Btuh)		22.6 (77 000)	25.2 (86 100)	30.4 (103 900)	34.9 (119 400)	
	AHRI Rated Air Flow - L/s (cfm)		1415 (3000)	1605 (3400)	1700 (3600)	2124 (4500)	
	Total Unit Power - kW		6.9	7.7	9.3	11.2	
	¹ EER (Btuh/Watt)		11.2	11.2	11.2	10.7	
	² IEER (Btuh/Watt)		12.2	12.2	11.3	10.7	
	Refrigerant Type		R-410A	R-410A	R-410A	R-410A	
Refrigerant Charge Furnished	Circuit 1		5.7 kg (12 lbs. 8 oz.)	6.1 kg (13 lbs. 8 oz.)	6.8 kg (15 lbs. 0 oz.)	10 kg (22 lbs. 0 oz.)	
	Circuit 2		5.4 kg (12 lbs. 0 oz.)	5.9 kg (13 lbs. 0 oz.)	6.8 kg (15 lbs. 0 oz.)	10.4 kg (23 lbs. 0 oz.)	
Heating Performance	¹ Total High Heat Capacity - kW (Btuh)		23.3 (79 500)	26.1 (89 100)	30.4 (103 900)	36.3 (124 000)	
	Total Unit Power - kW		6.7	7.5	8.8	10.9	
	¹ Coefficient of Performance		3.5	3.5	3.5	3.3	
	¹ Total Low Heat Capacity - kW (Btuh)		13.9 (47 300)	14.6 (49 000)	18.8 (64 100)	21.6 (73 700)	
	Total Unit Power (kW)		5.9	6.2	8.1	10.3	
	¹ Coefficient of Performance		2.33	2.33	2.32	2.10	
Electric Heat Available - See page 11			5.7, 11.5, 17.2, 23, 34.5 KW		11.5, 17.2, 23, 34.5, 45.9 KW		
Compressor Type (number)			Scroll (2)		Scroll (2)		
Outdoor Coils	Net face area (total) - m ² (sq. ft.)		2.68 (28.8)	2.68 (28.8)	2.68 (28.8)	3.79 (40.8)	
	Tube diameter - mm (in.)		9.5 (3/8)	9.5 (3/8)	9.5 (3/8)	9.5 (3/8)	
	Number of rows		2	2	3	3	
	Fins per m (inch)		787 (20)	787 (20)	787 (20)	787 (20)	
Outdoor Coil Fans	Motor - (No.) horsepower		(2) 249 (1/3)	(2) 373 (1/2)	(2) 373 (1/2)	(3) 249 (1/3)	
	Motor rev/min		896	896	896	896	
	Total Motor watts		508	592	616	879	
	Diameter - (No.) mm (in.)		(2) 610 (24)	(2) 610 (24)	(2) 610 (24)	(3) 610 (24)	
	Number of blades		3	3	3	3	
	Total Air volume - L/s (cfm)		3225 (6835)	3380 (7165)	3460 (7335)	4325 (9165)	
Indoor Coils	Net face area (total) - m ² (sq. ft.)		1.19 (12.8)	1.19 (12.8)	1.19 (12.8)	1.19 (12.8)	
	Tube diameter - mm (in.)		9.5 (3/8)	9.5 (3/8)	9.5 (3/8)	9.5 (3/8)	
	Number of rows		3	4	4	4	
	Fins per m (inch)		551 (14)	551 (14)	551 (14)	551 (14)	
Drain connection - Number and size			(1) 1 in. NPT coupling				
Expansion device type			Balance port TXV, removable head				
³ Indoor Blower and Drive Selection	Nominal motor kW (HP)		1.5 (2)	1.5 (2)	1.5 (2)	1.5 (2)	
	Maximum usable motor kW (HP)		1.7 (2.3)	1.7 (2.3)	1.7 (2.3)	1.7 (2.3)	
	Kit # and rev/min range		⁴ #1 490 - 740 #2 665 - 920 #3 660 - 995	⁴ #1 490 - 740 #2 665 - 920 #3 660 - 995	#1 490 - 740 #2 665 - 920 #3 660 - 995	#1 490 - 740 #2 665 - 920 #3 660 - 995	
	Nominal motor kW (HP)		2.2 (3)	2.2 (3)	2.2 (3)	2.2 (3)	
	Maximum usable motor kW (HP)		2.6 (3.45)	2.6 (3.45)	2.6 (3.45)	2.6 (3.45)	
	Kit # and rev/min range		#7 610 - 810 #8 780 - 1000 #9 845 - 1085	#7 610 - 810 #8 780 - 1000 #9 845 - 1085	⁴ #7 610 - 810 #8 780 - 1000 #9 845 - 1085	#7 610 - 810 #8 780 - 1000 #9 845 - 1085	
	Nominal motor kW (HP)		3.7 (5)	3.7 (5)	3.7 (5)	3.7 (5)	
	Maximum usable motor kW (HP)		4.3 (5.75)	4.3 (5.75)	4.3 (5.75)	4.3 (5.75)	
	Kit # and rev/min range		#10 750 - 945 #11 865 - 1095 #12 940 - 1190	#10 750 - 945 #11 865 - 1095 #12 940 - 1190	#10 750 - 945 #11 865 - 1095 #12 940 - 1190	⁴ #10 750 - 945 #11 865 - 1095 #12 940 - 1190	
	Blower wheel nominal diameter x width - mm (in.)		(1) 381 x 381 (15 X 15)	(1) 381 x 381 (15 X 15)	(1) 381 x 381 (15 X 15)	(1) 381 x 381 (15 X 15)	
	Filters	Type of filter		Disposable			
		Number and size - in.		(4) 508 x 508 x 51 (20 x 25 x 2)			
	Electrical characteristics			380/420V - 50 hertz - 3 phase with neutral (No neutral on CE marked models)			

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

¹ Tested at conditions included in the ULE certification program, which is based on AHRI Standard 340/360 while operating at rated voltage and air volumes:

Cooling Ratings - 35°C (95°F) outdoor air temperature and 27°C (80°F) db/19°C (67°F) wb entering indoor coil air.

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

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

² Integrated Energy Efficiency Ratio tested at conditions included in AHRI Standard 340/360 while operating at rated voltage and air volumes.

³ Using total air volume and system static pressure requirements determine from blower performance tables rev/min and motor output required. Maximum usable output of motors furnished are shown. 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.

SPECIFICATIONS - HIGH EFFICIENCY

General Data		Nominal kW (Tons)	26 (7.5)	30 (8.5)
		Model Number	KHB092H4B	KHB102H4B
		Efficiency Type	High	High
		Blower Type	CAV (Constant Air Volume)	CAV (Constant Air Volume)
Cooling Performance	Gross Cooling Capacity - kW (Btuh)		23.6 (80 500)	26.5 (90 500)
	¹ Net Cooling Capacity - kW (Btuh)		22.6 (77 000)	25.5 (87 000)
	AHRI Rated Air Flow - L/s (cfm)		1415 (3 000)	1604 (3 400)
	Total Unit Power - kW		6.2	7.1
	¹ EER (Btuh/Watt)		12.1	12.0
	² IEER (Btuh/Watt)		12.9	12.5
		Refrigerant Type	R-410A	R-410A
		Refrigerant Charge	6.12 kg	6.12 kg
			(13.5 lbs.)	(13.5 lbs.)
			6.12 kg	5.89 kg
		(13.5 lbs.)	(13.0 lbs.)	
Heating Performance	¹ Total High Heat Capacity - kW (Btuh)		22.3 (76 000)	25.5 (87 000)
	Total Unit Power - kW		5.8	6.4
	¹ Coefficient of Performance		3.60	3.60
	¹ Total Low Heat Capacity - kW (Btuh)		12.9 (44 000)	15.2 (52 000)
	Total Unit Power (kW)		5.5	6.1
	¹ Coefficient of Performance		2.35	2.35
Electric Heat Available - See page 11			5.7, 11.5, 17.2, 23, 34.5 KW	
Compressor Type (number)			Scroll (2)	Scroll (2)
Outdoor Coils	Net face area (total) - m ² (sq. ft.)		2.4 (25.9)	2.4 (25.9)
	Tube diameter - mm (in.)		9.5 (3/8)	9.5 (3/8)
	Number of rows		3	3
	Fins per m (inch)		787 (20)	787 (20)
Outdoor Coil Fans	Motor - (No.) horsepower		(2) 1/3 ECM	(2) 1/3 ECM
	Motor rev/min		530-950	650-1010
	Total Motor watts		140-620	220-700
	Diameter - (No.) mm (in.)		(2) 610 (24)	(2) 610 (24)
	Number of blades		3	3
	Total Air volume - L/s (cfm)		1700-3300 (3600-7000)	2170-3540 (4600-7500)
Indoor Coils	Net face area (total) - m ² (sq. ft.)		1.18 (12.8)	1.18 (12.8)
	Tube diameter - mm (in.)		9.5 (3/8)	9.5 (3/8)
	Number of rows		4	4
	Fins per m (inch)		551 (14)	551 (14)
	Drain connection - Number and size		(1) 1 in. NPT coupling	
	Expansion device type		Balance port TXV, removable head	
³ Indoor Blower and Drive Selection	Nominal motor kW (HP)		1.5 (2)	1.5 (2)
	Maximum usable motor kW (HP)		1.7 (2.3)	1.7 (2.3)
	Kit # and rev/min range		⁴ #1 490 - 740	⁴ #1 490 - 740
			#2 665 - 920	#2 665 - 920
			#3 660 - 995	#3 660 - 995
	Nominal motor kW (HP)		2.2 (3)	2.2 (3)
	Maximum usable motor kW (HP)		2.6 (3.45)	2.6 (3.45)
	Kit # and rev/min range		#7 610 - 810	#7 610 - 810
			#8 780 - 1000	#8 780 - 1000
			#9 845 - 1085	#9 845 - 1085
	Nominal motor kW (HP)		3.7 (5)	3.7 (5)
	Maximum usable motor kW (HP)		4.3 (5.75)	4.3 (5.75)
	Kit # and rev/min range		#10 750 - 945	#10 750 - 945
			#11 865 - 1095	#11 865 - 1095
			#12 940 - 1190	#12 940 - 1190
Blower wheel nominal diameter x width - mm (in.)		(1) 381 x 381 (15 X 15)	(1) 381 x 381 (15 X 15)	
Filters	Type of filter		Disposable	
	Number and size - in.		(4) 508 x 508 x 51 (20 x 25 x 2)	
Electrical characteristics			380/420V - 50 hertz - 3 phase with neutral	

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

¹ Tested at conditions included in the ULE certification program, which is based on AHRI Standard 340/360 while operating at rated voltage and air volumes:

Cooling Ratings - 35°C (95°F) outdoor air temperature and 27°C (80°F) db/19°C (67°F) wb entering indoor coil air.

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

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

² Integrated Energy Efficiency Ratio tested at conditions included in AHRI Standard 340/360 while operating at rated voltage and air volumes.

³ Using total air volume and system static pressure requirements determine from blower performance tables rev/min and motor output required. Maximum usable output of motors furnished are shown. 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.

COOLING / HEATING RATINGS - STANDARD EFFICIENCY

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

26 KW COOLING STANDARD EFFICIENCY KHA092S4 (1ST STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		18.3°C						23.9°C					29.4°C					35°C			
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb		
L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	
17.2°C	1135	12.6	1.78	0.64	0.81	1	11.9	2.01	0.65	0.83	1	11.1	2.28	0.66	0.87	1	10.3	2.58	0.67	0.92	1
	1415	13.3	1.79	0.69	0.93	1	12.5	2.02	0.7	0.96	1	11.7	2.28	0.72	1	1	10.9	2.58	0.75	1	1
	1700	13.9	1.79	0.75	1	1	13.2	2.02	0.78	1	1	12.4	2.29	0.82	1	1	11.5	2.59	0.87	1	1
19.4°C	1135	13.5	1.79	0.5	0.62	0.75	12.7	2.02	0.5	0.63	0.78	11.9	2.28	0.5	0.64	0.81	11	2.59	0.51	0.65	0.86
	1415	14.2	1.79	0.53	0.67	0.88	13.3	2.03	0.54	0.68	0.91	12.4	2.29	0.54	0.7	0.96	11.5	2.59	0.55	0.72	1
	1700	14.6	1.8	0.56	0.72	0.98	13.7	2.03	0.57	0.75	1	12.8	2.29	0.58	0.79	1	11.9	2.59	0.59	0.83	1
21.7°C	1135	14.3	1.79	0.38	0.49	0.6	13.5	2.03	0.37	0.49	0.61	12.6	2.29	0.37	0.5	0.62	11.7	2.59	0.36	0.5	0.63
	1415	15	1.8	0.39	0.52	0.65	14.1	2.03	0.39	0.53	0.66	13.2	2.3	0.39	0.53	0.68	12.3	2.59	0.38	0.54	0.7
	1700	15.5	1.8	0.41	0.56	0.7	14.6	2.04	0.41	0.56	0.72	13.7	2.3	0.4	0.57	0.76	12.6	2.59	0.4	0.58	0.8

26 KW COOLING STANDARD EFFICIENCY KHA092S4 (2ND STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		26.7°C						35°C					43.3°C					51.7°C			
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb		
L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	
17.2°C	1135	23.2	4.22	0.73	0.9	1	20.8	5.09	0.75	0.94	1	18.1	6.17	0.78	1	1	15.5	7.55	0.85	1	1
	1415	24.5	4.23	0.79	0.99	1	22.1	5.09	0.83	1	1	19.6	6.18	0.88	1	1	16.7	7.53	0.96	1	1
	1700	25.8	4.24	0.86	1	1	23.4	5.1	0.91	1	1	20.7	6.17	0.97	1	1	17.7	7.54	1	1	1
19.4°C	1135	24.9	4.23	0.56	0.71	0.86	22.3	5.1	0.57	0.73	0.9	19.4	6.18	0.58	0.76	0.96	16.3	7.55	0.6	0.82	1
	1415	26	4.24	0.6	0.77	0.96	23.3	5.1	0.61	0.8	1	20.3	6.18	0.63	0.86	1	17	7.54	0.66	0.94	1
	1700	26.9	4.25	0.64	0.84	1	24	5.1	0.66	0.89	1	21	6.18	0.69	0.95	1	17.7	7.54	0.73	1	1
21.7°C	1135	26.4	4.24	0.41	0.55	0.69	23.7	5.1	0.41	0.56	0.71	20.8	6.18	0.39	0.57	0.74	17.6	7.55	0.39	0.59	0.79
	1415	27.7	4.26	0.44	0.6	0.75	24.9	5.11	0.43	0.61	0.78	21.7	6.18	0.42	0.63	0.83	18.3	7.54	0.42	0.66	0.91
	1700	28.6	4.26	0.45	0.64	0.82	25.6	5.11	0.45	0.66	0.86	22.4	6.19	0.45	0.68	0.92	18.8	7.54	0.45	0.73	1

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil									
		48°C					50°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb					Dry Bulb		
L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	
17.2°C	1135	16.7	6.90	0.81	1.00	1.00	16.1	7.24	0.83	1.00	1.00
	1415	18.0	6.91	0.92	1.00	1.00	17.3	7.24	0.95	1.00	1.00
	1700	19.0	6.91	1.00	1.00	1.00	18.3	7.25	1.00	1.00	1.00
19.4°C	1135	17.7	6.89	0.59	0.79	1.00	16.9	7.24	0.59	0.81	1.00
	1415	18.5	6.90	0.65	0.90	1.00	17.7	7.23	0.66	0.92	1.00
	1700	19.1	6.90	.71	.99	1.00	18.3	7.24	.72	1.00	1.00
21.7°C	1135	19.0	6.91	.39	.58	.77	18.3	7.24	.39	.59	.78
	1415	19.8	6.90	.42	.65	.87	19.0	7.24	.42	.65	.89
	1700	20.5	6.91	.45	.71	.97	19.5	7.24	.45	.72	.98

26 KW HEATING STANDARD EFFICIENCY KHA092S4

Indoor Coil Air Volume 21°C Dry Bulb	Air Temperature Entering Outdoor Coil									
	18°C		7°C		-4°C		-15°C		-28°C	
	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input
L/s	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
1135	28.6	5.9	21.8	5.5	14.7	5.1	9.6	4.4	4.8	3.3
1415	29.1	5.5	22.3	5.2	15.2	4.8	10.1	4.0	5.3	3.0
1700	29.5	5.3	22.7	4.9	15.7	4.6	10.6	3.8	5.7	2.7

COOLING / HEATING RATINGS - STANDARD EFFICIENCY

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

30 KW COOLING STANDARD EFFICIENCY KHA102S4 (1ST STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																				
		18.3°C						23.9°C					29.4°C					35°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb			
L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C		
17.2°C	1285	13.7	2.01	0.66	0.82	1	12.9	2.26	0.67	0.85	1	12.2	2.55	0.69	0.9	1	11.3	2.89	0.7	0.95	1	
	1605	14.3	2.01	0.72	0.96	1	13.6	2.27	0.73	0.99	1	12.8	2.56	0.74	1	1	12	2.89	0.78	1	1	
	1925	15	2.02	0.78	1	1	14.3	2.28	0.81	1	1	13.5	2.57	0.86	1	1	12.7	2.9	0.9	1	1	
19.4°C	1285	14.6	2.01	0.52	0.64	0.77	13.7	2.27	0.52	0.65	0.8	13	2.56	0.53	0.67	0.84	12.1	2.89	0.53	0.68	0.89	
	1605	15.2	2.02	0.55	0.7	0.91	14.4	2.28	0.56	0.71	0.95	13.5	2.57	0.55	0.73	0.99	12.6	2.9	0.58	0.75	1	
	1925	15.7	2.03	0.59	0.75	1	14.8	2.28	0.59	0.78	1	13.9	2.57	0.6	0.82	1	13	2.9	0.62	0.87	1	
21.7°C	1285	15.4	2.02	0.39	0.51	0.61	14.7	2.28	0.39	0.51	0.63	13.8	2.57	0.38	0.52	0.65	12.9	2.9	0.38	0.53	0.66	
	1605	16.1	2.03	0.41	0.54	0.68	15.3	2.29	0.41	0.55	0.69	14.3	2.57	0.4	0.55	0.71	13.4	2.91	0.41	0.57	0.73	
	1925	16.6	2.04	0.42	0.58	0.73	15.7	2.29	0.43	0.59	0.75	14.7	2.58	0.42	0.6	0.78	13.7	2.91	0.42	0.61	0.84	

30 KW COOLING STANDARD EFFICIENCY KHA102S4 (2ND STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																				
		26.7°C						35°C					43.3°C					51.7°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb			
L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C		
17.2°C	1285	26.1	4.96	0.75	0.92	1	23.6	5.96	0.78	0.97	1	20.9	7.21	0.81	1	1	18.3	8.81	0.88	1	1	
	1605	27.4	4.97	0.82	1	1	25.1	5.97	0.86	1	1	22.5	7.23	0.91	1	1	19.5	8.79	0.99	1	1	
	1925	29	4.99	0.89	1	1	26.4	5.98	0.94	1	1	23.7	7.23	1	1	1	20.5	8.8	1	1	1	
19.4°C	1285	27.9	4.98	0.58	0.73	0.88	25.2	5.97	0.59	0.76	0.93	22.2	7.21	0.6	0.79	0.99	18.9	8.8	0.63	0.85	1	
	1605	29	4.99	0.62	0.8	0.98	26.2	5.98	0.64	0.83	1	23.1	7.22	0.67	0.89	1	19.6	8.79	0.7	0.97	1	
	1925	29.9	4.99	0.66	0.87	1	27	5.98	0.68	0.92	1	23.8	7.23	0.72	0.98	1	20.5	8.8	0.77	1	1	
21.7°C	1285	29.7	5	0.43	0.57	0.7	26.9	5.99	0.42	0.58	0.73	23.8	7.23	0.42	0.6	0.77	20.3	8.8	0.42	0.63	0.83	
	1605	30.8	5	0.45	0.61	0.78	27.9	6	0.45	0.63	0.81	24.6	7.23	0.45	0.65	0.86	21.1	8.81	0.46	0.71	0.95	
	1925	31.7	5.02	0.46	0.66	0.84	28.6	6	0.47	0.68	0.89	25.3	7.24	0.48	0.72	0.96	21.5	8.81	0.49	0.77	1	

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil									
		48°C					50°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb					Dry Bulb		
L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	
17.2°C	1285	19.4	8.05	0.84	1.00	1.00	18.7	8.46	0.86	1.00	1.00
	1605	20.8	8.06	0.95	1.00	1.00	20.1	8.46	0.98	1.00	1.00
	1925	21.8	8.06	1.00	1.00	1.00	21.1	8.45	1.00	1.00	1.00
19.4°C	1285	20.4	8.06	0.62	0.82	1.00	19.6	8.45	0.62	0.83	1.00
	1605	21.2	8.06	0.68	0.93	1.00	20.3	8.45	0.70	0.95	1.00
	1925	22.0	8.08	.74	1.00	1.00	21.1	8.45	.76	1.00	1.00
21.7°C	1285	21.9	8.08	.42	.61	.80	21.0	8.47	.42	.62	.81
	1605	22.7	8.07	.45	.68	.91	21.7	8.46	.45	.69	.93
	1925	23.2	8.07	.48	.74	1.00	22.3	8.47	.49	.76	1.00

30 KW HEATING STANDARD EFFICIENCY KHA102S4

Indoor Coil Air Volume 21°C Dry Bulb	Air Temperature Entering Outdoor Coil									
	18°C		7°C		-4°C		-15°C		-28°C	
	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input
L/s	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
1285	32.5	6.3	24.6	5.8	16.3	5.3	10.5	4.6	5.3	3.5
1605	33.0	5.9	25.0	5.4	16.8	4.9	10.9	4.3	5.7	3.1
1925	33.6	5.7	25.6	5.2	17.3	4.7	11.5	4.0	6.3	2.9

COOLING / HEATING RATINGS - STANDARD EFFICIENCY

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

35 KW COOLING STANDARD EFFICIENCY KHA120S4 (1ST STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		18.3°C					23.9°C					29.4°C					35°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb		
L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	
17.2°C	1510	16.6	2.39	0.69	0.84	1	15.6	2.72	0.7	0.87	1	14.6	3.08	0.71	0.89	1	13.5	3.48	0.73	0.93	1
	1890	17.5	2.41	0.75	0.94	1	16.5	2.74	0.76	0.97	1	15.4	3.1	0.78	1	1	14.4	3.51	0.8	1	1
	2265	18.2	2.43	0.81	1	1	17.3	2.77	0.83	1	1	16.2	3.13	0.86	1	1	15.2	3.54	0.89	1	1
19.4°C	1510	17.7	2.42	0.55	0.67	0.8	16.7	2.75	0.55	0.68	0.82	15.6	3.11	0.54	0.69	0.85	14.5	3.51	0.55	0.71	0.88
	1890	18.6	2.44	0.58	0.73	0.9	17.5	2.78	0.58	0.74	0.93	16.4	3.13	0.59	0.76	0.96	15.2	3.54	0.59	0.78	0.99
	2265	19.2	2.46	0.61	0.78	0.99	18.1	2.79	0.62	0.8	1	16.9	3.15	0.63	0.83	1	15.6	3.55	0.63	0.87	1
21.7°C	1510	18.9	2.45	0.41	0.53	0.65	17.8	2.78	0.41	0.54	0.66	16.7	3.15	0.4	0.54	0.68	15.5	3.55	0.39	0.54	0.68
	1890	19.7	2.48	0.43	0.57	0.71	18.6	2.81	0.42	0.57	0.72	17.4	3.17	0.42	0.58	0.74	16.2	3.58	0.42	0.59	0.76
	2265	20.4	2.5	0.44	0.6	0.76	19.2	2.83	0.44	0.61	0.78	18	3.2	0.44	0.63	0.81	16.7	3.6	0.43	0.64	0.84

35 KW COOLING STANDARD EFFICIENCY KHA120S4 (2ND STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		26.7°C					35°C					43.3°C					51.7°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb		
L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	
17.2°C	1510	31.4	5.8	0.74	0.9	1	28.2	6.98	0.76	0.94	1	24.6	8.41	0.79	0.99	1	21.1	10.17	0.84	1	1
	1890	33	5.85	0.8	0.99	1	29.9	7.04	0.83	1	1	26.6	8.48	0.88	1	1	22.8	10.24	0.96	1	1
	2265	34.8	5.9	0.87	1	1	31.6	7.1	0.91	1	1	28	8.54	0.97	1	1	24.1	10.28	1	1	1
19.4°C	1510	33.6	5.87	0.57	0.72	0.86	30.2	7.04	0.58	0.74	0.9	26.5	8.47	0.58	0.77	0.96	22.2	10.22	0.6	0.82	1
	1890	35.1	5.92	0.61	0.78	0.96	31.5	7.1	0.62	0.81	1	27.5	8.52	0.64	0.86	1	23.2	10.24	0.67	0.93	1
	2265	36.3	5.95	0.65	0.85	1	32.5	7.13	0.66	0.89	1	28.5	8.54	0.69	0.95	1	24.1	10.28	0.74	1	1
21.7°C	1510	35.8	5.94	0.42	0.56	0.7	32.3	7.12	0.41	0.56	0.71	28.5	8.55	0.4	0.58	0.75	24.1	10.29	0.39	0.59	0.79
	1890	37.5	5.99	0.44	0.6	0.76	33.8	7.17	0.44	0.62	0.79	29.6	8.6	0.43	0.64	0.83	25.1	10.32	0.42	0.67	0.91
	2265	38.5	6.03	0.45	0.64	0.83	34.7	7.21	0.45	0.67	0.87	30.5	8.63	0.45	0.69	0.93	25.7	10.35	0.46	0.74	0.99

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil									
		48°C					50°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb					Dry Bulb		
L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	
17.2°C	1510	22.6	9.35	0.82	1.00	1.00	21.8	9.79	0.83	1.00	1.00
	1890	24.5	9.42	0.92	1.00	1.00	23.6	9.85	0.94	1.00	1.00
	2265	25.9	9.47	1.00	1.00	1.00	24.9	9.90	1.00	1.00	1.00
19.4°C	1510	24.2	9.40	0.59	0.80	0.99	23.1	9.84	0.59	0.80	1.00
	1890	25.2	9.44	0.65	0.90	1.00	24.2	9.87	0.66	0.91	1.00
	2265	26.0	9.47	.71	.98	1.00	24.9	9.90	.73	1.00	1.00
21.7°C	1510	26.1	9.48	.39	.58	.77	25.0	9.90	.39	.59	.78
	1890	27.1	9.52	.42	.65	.87	26.0	9.94	.43	.65	.89
	2265	27.8	9.55	.45	.71	.96	26.7	9.97	.46	.72	.98

35 KW HEATING STANDARD EFFICIENCY KHA120S4

Indoor Coil Air Volume 21°C Dry Bulb	Air Temperature Entering Outdoor Coil									
	18°C		7°C		-4°C		-15°C		-28°C	
	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input
L/s	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
1510	37.2	7.8	28.7	7.2	19.9	6.5	13.7	5.7	6.6	4.3
1890	38.0	7.3	29.6	6.7	20.8	6.1	14.6	5.3	7.5	3.9
2265	38.8	7.0	30.4	6.4	21.6	5.8	15.4	5.0	8.3	3.6

COOLING / HEATING RATINGS - STANDARD EFFICIENCY

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

44 KW COOLING STANDARD EFFICIENCY KHA150S4 (1ST STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		18.3°C					23.9°C					29.4°C					35°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb		
L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	
17.2°C	1795	19.7	2.89	0.67	0.85	1	18.6	3.22	0.68	0.87	1	17.3	3.57	0.68	0.89	1	15.9	3.97	0.69	0.93	1
	2075	20.4	2.9	0.71	0.92	1	19.2	3.22	0.71	0.94	1	18	3.58	0.73	0.97	1	16.6	3.97	0.75	1	1
	2360	21	2.9	0.75	0.98	1	19.9	3.23	0.76	1	1	18.7	3.58	0.79	1	1	17.4	3.97	0.81	1	1
19.4°C	1795	21.1	2.9	0.52	0.65	0.8	20	3.23	0.52	0.66	0.82	18.7	3.58	0.52	0.67	0.84	17.3	3.97	0.52	0.67	0.87
	2075	21.8	2.91	0.54	0.68	0.87	20.5	3.23	0.54	0.69	0.89	19.3	3.58	0.55	0.7	0.92	17.9	3.97	0.55	0.72	0.96
	2360	22.4	2.91	0.57	0.72	0.93	21.2	3.23	0.57	0.74	0.96	19.8	3.58	0.57	0.75	0.99	18.4	3.97	0.58	0.78	1
21.7°C	1795	22.6	2.91	0.4	0.51	0.63	21.4	3.23	0.39	0.51	0.63	20.1	3.58	0.38	0.52	0.64	18.7	3.97	0.36	0.51	0.65
	2075	23.4	2.92	0.4	0.54	0.67	22.1	3.24	0.39	0.53	0.67	20.7	3.59	0.39	0.54	0.68	19.3	3.97	0.38	0.54	0.7
	2360	23.9	2.92	0.41	0.56	0.7	22.7	3.24	0.41	0.56	0.71	21.3	3.59	0.41	0.57	0.73	19.8	3.97	0.4	0.57	0.75

44 KW COOLING STANDARD EFFICIENCY KHA150S4 (2ND STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		26.7°C					35°C					43.3°C					51.7°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb		
L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	
17.2°C	1795	37	6.63	0.74	0.91	1	33	7.76	0.76	0.94	1	28.8	9.1	0.79	0.99	1	24.4	10.72	0.83	1	1
	2075	38.5	6.64	0.78	0.97	1	34.4	7.76	0.81	1	1	30.4	9.11	0.85	1	1	26	10.72	0.91	1	1
	2360	39.8	6.65	0.83	1	1	36	7.77	0.86	1	1	31.9	9.1	0.9	1	1	27.4	10.73	0.97	1	1
19.4°C	1795	39.9	6.65	0.57	0.72	0.87	35.7	7.76	0.56	0.73	0.9	31.3	9.1	0.57	0.76	0.95	26.1	10.73	0.58	0.81	1
	2075	41.2	6.65	0.6	0.76	0.93	37	7.77	0.6	0.78	0.97	32.3	9.11	0.61	0.81	1	27.1	10.72	0.62	0.88	1
	2360	42.3	6.66	0.62	0.8	0.98	37.9	7.78	0.63	0.83	1	33.1	9.11	0.64	0.87	1	27.8	10.71	0.67	0.94	1
21.7°C	1795	42.9	6.66	0.42	0.56	0.7	38.6	7.78	0.39	0.56	0.71	34	9.1	0.39	0.57	0.74	28.7	10.71	0.36	0.57	0.78
	2075	44.2	6.66	0.43	0.58	0.74	39.9	7.77	0.42	0.59	0.76	35.1	9.11	0.4	0.6	0.79	29.7	10.72	0.38	0.62	0.84
	2360	45.4	6.67	0.44	0.61	0.78	41	7.78	0.43	0.62	0.81	36	9.11	0.42	0.64	0.85	30.5	10.72	0.41	0.66	0.91

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil									
		48°C					50°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb					Dry Bulb		
L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	
17.2°C	1795	26.0	9.97	0.81	1.00	1.00	25.0	10.37	0.82	1.00	1.00
	2075	27.7	9.97	0.87	1.00	1.00	26.6	10.37	0.89	1.00	1.00
	2360	29.1	9.97	0.94	1.00	1.00	28.0	10.36	0.96	1.00	1.00
19.4°C	1795	28.2	9.97	0.57	0.78	0.99	26.9	10.37	0.57	0.79	1.00
	2075	29.2	9.98	.61	.84	1.00	27.8	10.36	.62	.86	1.00
	2360	30.0	9.96	.65	.91	1.00	28.6	10.36	.65	.93	1.00
21.7°C	1795	30.9	9.97	.37	.57	.76	29.6	10.37	.37	.57	.77
	2075	31.9	9.98	.39	.60	.82	30.7	10.38	.38	.61	.83
	2360	32.7	9.97	.41	.65	.88	31.3	10.37	.40	.65	.90

44 KW HEATING STANDARD EFFICIENCY KHA150S4

Indoor Coil Air Volume 21°C Dry Bulb	Air Temperature Entering Outdoor Coil									
	18°C		7°C		-4°C		-15°C		-28°C	
	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input
L/s	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
1795	44.2	8.5	33.7	7.8	22.7	7.1	15.2	6.3	7.5	4.6
2075	45.1	8.2	34.6	7.5	23.6	6.8	16.1	6.0	8.4	4.4
2360	46.0	8.0	35.4	7.3	24.4	6.6	17.0	5.8	9.2	4.2

COOLING / HEATING RATINGS - HIGH EFFICIENCY

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

26 KW COOLING HIGH EFFICIENCY KHB092H4 (1ST STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																							
		18.3°C						23.9°C						29.4°C						35°C					
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)						
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb						
L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C					
17.2°C	1135	12.4	1.83	0.73	0.89	1.00	11.3	2.06	0.74	0.91	1.00	10.1	2.32	0.74	0.94	1.00	8.9	2.62	0.75	0.97	1.00				
	1415	13.2	1.85	0.80	0.98	1.00	12.0	2.08	0.81	1.00	1.00	10.9	2.34	0.83	1.00	1.00	9.8	2.63	0.85	1.00	1.00				
	1700	14.0	1.86	0.87	1.00	1.00	12.9	2.09	0.89	1.00	1.00	11.8	2.35	0.92	1.00	1.00	10.5	2.65	0.95	1.00	1.00				
19.4°C	1135	13.5	1.85	0.57	0.71	0.86	12.3	2.08	0.56	0.72	0.88	11.0	2.34	0.55	0.73	0.90	9.8	2.63	0.53	0.73	0.93				
	1415	14.2	1.87	0.61	0.78	0.95	13.0	2.09	0.60	0.79	0.98	11.7	2.35	0.60	0.81	1.00	10.3	2.64	0.59	0.83	1.00				
	1700	14.7	1.88	0.66	0.85	1.00	13.5	2.10	0.65	0.87	1.00	12.1	2.36	0.65	0.90	1.00	10.8	2.65	0.66	0.93	1.00				
21.7°C	1135	14.5	1.87	0.42	0.56	0.70	13.3	2.10	0.40	0.56	0.70	12.1	2.36	0.38	0.54	0.71	10.8	2.65	0.35	0.53	0.71				
	1415	15.3	1.88	0.45	0.61	0.77	14.0	2.11	0.42	0.60	0.77	12.7	2.37	0.41	0.61	0.79	11.3	2.66	0.38	0.60	0.81				
	1700	15.8	1.89	0.46	0.65	0.83	14.5	2.12	0.45	0.65	0.85	13.1	2.38	0.43	0.65	0.87	11.7	2.67	0.41	0.65	0.91				

26 KW COOLING HIGH EFFICIENCY KHB092H4 (2ND STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																							
		26.7°C						35°C						43.3°C						51.7°C					
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)						
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb						
L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C					
17.2°C	1135	22.7	4.28	0.73	0.91	1.00	21.1	4.84	0.75	0.94	1.00	19.5	5.50	0.76	0.98	1.00	17.9	6.27	0.79	1.00	1.00				
	1415	23.9	4.27	0.79	1.00	1.00	22.5	4.84	0.81	1.00	1.00	21.0	5.50	0.85	1.00	1.00	19.3	6.27	0.90	1.00	1.00				
	1700	25.3	4.28	0.87	1.00	1.00	23.8	4.85	0.91	1.00	1.00	22.2	5.49	0.95	1.00	1.00	20.5	6.24	0.99	1.00	1.00				
19.4°C	1135	24.3	4.28	0.56	0.71	0.86	22.7	4.84	0.57	0.73	0.90	21.0	5.49	0.57	0.74	0.93	19.1	6.26	0.58	0.76	0.98				
	1415	25.4	4.28	0.60	0.77	0.97	23.7	4.84	0.61	0.80	1.00	21.9	5.49	0.62	0.83	1.00	20.0	6.25	0.64	0.87	1.00				
	1700	26.2	4.28	0.64	0.85	1.00	24.4	4.84	0.66	0.88	1.00	22.5	5.49	0.68	0.92	1.00	20.6	6.25	0.70	0.97	1.00				
21.7°C	1135	25.9	4.28	0.41	0.55	0.69	24.3	4.85	0.41	0.56	0.70	22.5	5.49	0.40	0.56	0.72	20.5	6.25	0.40	0.57	0.74				
	1415	27.1	4.29	0.43	0.59	0.75	25.3	4.84	0.43	0.61	0.77	23.4	5.49	0.42	0.61	0.80	21.4	6.25	0.42	0.63	0.84				
	1700	27.9	4.29	0.44	0.64	0.82	26.1	4.85	0.45	0.66	0.86	24.1	5.49	0.45	0.66	0.89	22.0	6.25	0.45	0.69	0.95				

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		46°C						48°C						50°C							
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)							
				Dry Bulb					Dry Bulb					Dry Bulb							
L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	
17.2°C	1135	17.9	6.25	.82	1.00	1.00	17.3	6.56	.83	1.00	1.00	16.8	6.89	.84	1.00	1.00					
	1415	19.4	6.25	.91	1.00	1.00	18.8	6.55	.93	1.00	1.00	18.1	6.87	.95	1.00	1.00					
	1700	20.5	6.22	.99	1.00	1.00	19.8	6.54	1.00	1.00	1.00	19.1	6.86	1.00	1.00	1.00					
19.4°C	1135	19.1	6.25	.59	.79	.98	18.4	6.56	.60	.81	1.00	17.8	6.87	.61	.82	1.00					
	1415	20.0	6.24	.66	.89	1.00	19.3	6.54	.66	.91	1.00	18.5	6.87	.67	.92	1.00					
	1700	20.7	6.24	.72	.98	1.00	19.9	6.54	.73	.99	1.00	19.2	6.86	.74	1.00	1.00					
21.7°C	1135	20.6	6.23	.40	.58	.76	19.9	6.55	.41	.59	.78	19.2	6.86	.41	.60	.79					
	1415	21.5	6.24	.43	.65	.87	20.7	6.53	.43	.67	.88	20.0	6.85	.43	.67	.90					
	1700	22.1	6.23	.46	.72	.96	21.3	6.53	.46	.73	.97	20.5	6.85	.46	.74	.99					

26 KW HEATING HIGH EFFICIENCY KHB092H4

Indoor Coil Air Volume 21°C Dry Bulb	Air Temperature Entering Outdoor Coil									
	18°C		7°C		-4°C		-15°C		-28°C	
	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input
L/s	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
1135	27.9	4.34	20.5	4.44	13.0	4.53	6.6	4.35	3.5	3.16
1415	28.4	4.09	20.9	4.18	13.5	4.28	7.0	4.09	3.9	2.91
1700	28.8	3.92	21.3	4.02	13.8	4.11	7.4	3.93	4.3	2.75

COOLING / HEATING RATINGS - HIGH EFFICIENCY

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

30 KW COOLING HIGH EFFICIENCY KHB102H4 (1ST STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																				
		18.3°C						23.9°C					29.4°C					35°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb			
L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C		
17.2°C	1285	14.1	2.14	0.68	0.85	1.00	13.0	2.44	0.69	0.88	1.00	11.8	2.77	0.70	0.92	1.00	10.6	3.14	0.71	0.96	1.00	
	1605	14.9	2.15	0.75	0.97	1.00	13.8	2.46	0.76	1.00	1.00	12.7	2.79	0.77	1.00	1.00	11.6	3.16	0.80	1.00	1.00	
	1925	15.8	2.17	0.82	1.00	1.00	14.7	2.48	0.84	1.00	1.00	13.6	2.81	0.88	1.00	1.00	12.4	3.18	0.92	1.00	1.00	
19.4°C	1285	15.2	2.15	0.53	0.66	0.81	14.0	2.46	0.53	0.67	0.83	12.9	2.80	0.52	0.68	0.86	11.6	3.16	0.51	0.69	0.90	
	1605	15.9	2.17	0.57	0.73	0.93	14.7	2.48	0.57	0.74	0.96	13.5	2.81	0.57	0.75	1.00	12.2	3.18	0.57	0.77	1.00	
	1925	16.5	2.18	0.61	0.79	1.00	15.3	2.49	0.62	0.81	1.00	14.0	2.82	0.62	0.85	1.00	12.7	3.19	0.61	0.89	1.00	
21.7°C	1285	16.3	2.17	0.39	0.52	0.65	15.1	2.48	0.39	0.51	0.65	14.0	2.82	0.37	0.52	0.66	12.7	3.19	0.35	0.51	0.67	
	1605	17.1	2.19	0.42	0.56	0.71	15.9	2.50	0.40	0.57	0.72	14.6	2.83	0.39	0.55	0.73	13.3	3.20	0.38	0.57	0.76	
	1925	17.7	2.20	0.44	0.60	0.77	16.4	2.51	0.42	0.61	0.79	15.0	2.85	0.41	0.60	0.82	13.7	3.21	0.39	0.62	0.86	

30 KW COOLING HIGH EFFICIENCY KHB102H4 (2ND STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																				
		26.7°C						35°C					43.3°C					51.7°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb			
L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C		
17.2°C	1285	25.5	4.72	0.75	0.92	1.00	23.9	5.39	0.76	0.95	1.00	22.2	6.13	0.78	0.98	1.00	20.5	6.96	0.80	1.00	1.00	
	1605	26.8	4.74	0.81	1.00	1.00	25.4	5.40	0.84	1.00	1.00	23.8	6.14	0.87	1.00	1.00	22.0	6.97	0.91	1.00	1.00	
	1925	28.4	4.75	0.88	1.00	1.00	26.8	5.41	0.92	1.00	1.00	25.1	6.15	0.95	1.00	1.00	23.2	6.97	0.99	1.00	1.00	
19.4°C	1285	27.3	4.74	0.58	0.72	0.87	25.6	5.40	0.58	0.74	0.91	23.8	6.14	0.59	0.76	0.94	21.8	6.96	0.59	0.78	0.98	
	1605	28.5	4.75	0.61	0.79	0.98	26.6	5.41	0.62	0.81	1.00	24.7	6.15	0.63	0.84	1.00	22.7	6.97	0.65	0.88	1.00	
	1925	29.4	4.76	0.66	0.86	1.00	27.5	5.42	0.68	0.90	1.00	25.5	6.15	0.68	0.93	1.00	23.4	6.99	0.71	0.97	1.00	
21.7°C	1285	29.1	4.76	0.42	0.56	0.70	27.4	5.42	0.42	0.57	0.72	25.5	6.16	0.42	0.58	0.73	23.4	6.98	0.41	0.58	0.76	
	1605	30.3	4.76	0.44	0.61	0.77	28.4	5.43	0.44	0.60	0.79	26.5	6.17	0.44	0.63	0.82	24.3	6.99	0.44	0.64	0.85	
	1925	31.3	4.78	0.46	0.66	0.84	29.2	5.44	0.46	0.66	0.87	27.2	6.17	0.46	0.68	0.90	25.0	7.01	0.46	0.71	0.95	

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																	
		46°C						48°C					50°C						
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)					
				Dry Bulb					Dry Bulb					Dry Bulb					
L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C				
17.2°C	1285	20.5	6.94	0.82	1.00	1.00	19.9	7.26	0.84	1.00	1.00	19.3	7.60	0.85	1.00	1.00			
	1605	22.1	6.96	0.92	1.00	1.00	21.5	7.28	0.93	1.00	1.00	20.7	7.63	0.95	1.00	1.00			
	1925	23.3	6.96	0.99	1.00	1.00	22.6	7.28	1.00	1.00	1.00	21.8	7.63	1.00	1.00	1.00			
19.4°C	1285	21.8	6.94	0.60	0.80	0.98	21.1	7.28	0.61	0.81	1.00	20.3	7.62	0.62	0.82	1.00			
	1605	22.8	6.95	0.66	0.89	1.00	22.0	7.28	0.68	0.91	1.00	21.2	7.62	0.68	0.92	1.00			
	1925	23.4	6.96	0.72	0.98	1.00	22.7	7.29	0.73	0.99	1.00	21.9	7.63	0.74	1.00	1.00			
21.7°C	1285	23.4	6.96	0.42	0.60	0.78	22.7	7.30	0.42	0.60	0.78	21.9	7.64	0.42	0.61	0.80			
	1605	24.4	6.97	0.44	0.65	0.87	23.6	7.30	0.44	0.67	0.88	22.7	7.64	0.44	0.68	0.90			
	1925	25.0	6.98	0.47	0.71	0.96	24.2	7.31	0.48	0.73	0.97	23.3	7.64	0.48	0.74	0.99			

30 KW HEATING HIGH EFFICIENCY KHB102H4

Indoor Coil Air Volume 21°C Dry Bulb	Air Temperature Entering Outdoor Coil									
	18°C		7°C		-4°C		-15°C		-28°C	
	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input
L/s	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
1285	31.2	4.73	23.3	4.93	15.4	5.14	8.6	4.96	4.4	3.59
1605	31.8	4.45	23.9	4.66	15.9	4.86	9.1	4.68	4.9	3.31
1925	32.2	4.26	24.3	4.47	16.3	4.68	9.5	4.50	5.3	3.13

BLOWER DATA - BELT DRIVE - STANDARD EFFICIENCY

KHA092S4B – 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 23 for blower motors and drives.

See page 23 for wet coil and option/accessory air resistance data.

MINIMUM AIR VOLUME REQUIRED FOR USE WITH OPTIONAL ELECTRIC HEAT - Maximum Static Pressure - 500 Pa (2.0 in. w.g.)

5.7 kW, 11.5 kW, 17.2 kW, 23 kW and 34.5 kW - 1320 L/s (2800 cfm)

Air Volume		TOTAL STATIC PRESSURE - Pa (Inches Water Gauge)																				
		50 (0.20)			100 (0.40)			150 (0.60)			200 (0.80)			250 (1.00)			300 (1.20)			350 (1.40)		
L/s	cfm	rev/min	kW	BHP	rev/min	kW	BHP	rev/min	kW	BHP	rev/min	kW	BHP	rev/min	kW	BHP	rev/min	kW	BHP	rev/min	kW	BHP
1062	2250	---	---	---	---	---	---	707	0.10	0.14	753	0.37	0.5	800	0.63	0.84	847	0.86	1.15	892	1.03	1.38
1180	2500	---	---	---	---	---	---	714	0.22	0.29	758	0.48	0.64	803	0.72	0.97	849	0.94	1.26	893	1.10	1.48
1298	2750	---	---	---	680	0.08	0.11	721	0.34	0.45	763	0.58	0.78	807	0.81	1.09	852	1.02	1.37	896	1.18	1.58
1416	3000	---	---	---	689	0.22	0.29	728	0.46	0.61	770	0.69	0.93	812	0.92	1.23	856	1.11	1.49	901	1.27	1.7
1534	3250	661	0.13	0.17	698	0.34	0.46	737	0.58	0.78	777	0.81	1.09	819	1.03	1.38	862	1.22	1.63	908	1.37	1.84
1652	3500	672	0.27	0.36	708	0.48	0.65	746	0.71	0.95	786	0.93	1.25	827	1.14	1.53	870	1.33	1.78	916	1.48	1.99
1770	3750	684	0.42	0.56	719	0.63	0.85	756	0.85	1.14	795	1.07	1.43	836	1.27	1.7	880	1.45	1.95	927	1.61	2.16
1888	4000	697	0.58	0.78	731	0.78	1.05	768	1.00	1.34	807	1.21	1.62	848	1.41	1.89	892	1.59	2.13	940	1.75	2.34
2006	4250	710	0.75	1.0	745	0.95	1.27	781	1.16	1.55	819	1.37	1.83	861	1.56	2.09	906	1.74	2.33	954	1.90	2.55
2124	4500	725	0.92	1.23	759	1.12	1.5	795	1.32	1.77	834	1.53	2.05	875	1.72	2.31	921	1.90	2.55	970	2.07	2.77
2242	4750	741	1.10	1.48	775	1.30	1.74	811	1.50	2.01	850	1.71	2.29	892	1.90	2.55	939	2.08	2.79	986	2.25	3.01
2360	5000	758	1.30	1.74	791	1.49	2.0	828	1.69	2.27	867	1.89	2.54	911	2.09	2.8	958	2.28	3.05	1004	2.44	3.27
2477	5250	775	1.50	2.01	809	1.69	2.27	846	1.90	2.55	886	2.10	2.82	931	2.30	3.08	977	2.48	3.33	1021	2.66	3.56
2595	5500	794	1.72	2.3	829	1.91	2.56	866	2.12	2.84	907	2.32	3.11	952	2.52	3.38	997	2.71	3.63	1039	2.88	3.86
2713	5750	814	1.95	2.61	849	2.15	2.88	887	2.35	3.15	930	2.56	3.43	974	2.76	3.7	1018	2.95	3.95	1058	3.13	4.19
2831	6000	836	2.19	2.93	871	2.39	3.21	910	2.60	3.49	953	2.81	3.77	997	3.01	4.04	1038	3.21	4.3	1077	3.39	4.54

Air Volume		TOTAL STATIC PRESSURE - Pa (Inches Water Gauge)																				
		400 (1.60)			450 (1.80)			500 (2.00)			550 (2.20)			600 (2.40)			650 (2.60)					
L/s	cfm	rev/min	kW	BHP	rev/min	kW	BHP	rev/min	kW	BHP	rev/min	kW	BHP	rev/min	kW	BHP	rev/min	kW	BHP	rev/min	kW	BHP
1062	2250	934	1.14	1.53	979	1.23	1.65	1051	1.39	1.86	1126	1.58	2.12	1183	1.76	2.36	1238	1.95	2.62	---	---	---
1180	2500	936	1.22	1.63	983	1.31	1.75	1052	1.46	1.96	1124	1.66	2.22	1184	1.86	2.49	1241	2.07	2.77	---	---	---
1298	2750	940	1.30	1.74	989	1.40	1.88	1053	1.55	2.08	1121	1.75	2.34	1185	1.96	2.63	1244	2.19	2.93	---	---	---
1416	3000	947	1.40	1.87	996	1.51	2.02	1055	1.65	2.21	1120	1.84	2.47	1186	2.07	2.78	1248	2.31	3.1	---	---	---
1534	3250	955	1.50	2.01	1004	1.62	2.17	1059	1.76	2.36	1122	1.95	2.62	1189	2.19	2.94	1252	2.45	3.28	---	---	---
1652	3500	965	1.62	2.17	1013	1.74	2.33	1065	1.88	2.52	1126	2.08	2.79	1193	2.33	3.12	1257	2.59	3.47	---	---	---
1770	3750	976	1.75	2.34	1023	1.87	2.51	1073	2.02	2.71	1133	2.22	2.98	1198	2.48	3.32	1263	2.74	3.67	---	---	---
1888	4000	988	1.89	2.53	1034	2.02	2.71	1083	2.17	2.91	1141	2.38	3.19	1205	2.63	3.53	1270	2.90	3.89	---	---	---
2006	4250	1001	2.04	2.74	1046	2.19	2.93	1094	2.34	3.14	1151	2.55	3.42	1214	2.80	3.76	1278	3.07	4.12	---	---	---
2124	4500	1015	2.22	2.97	1059	2.36	3.16	1106	2.52	3.38	1162	2.74	3.67	1224	2.98	4.0	1287	3.25	4.36	---	---	---
2242	4750	1030	2.40	3.22	1072	2.55	3.42	1119	2.72	3.64	1174	2.93	3.93	1235	3.18	4.26	1297	3.44	4.61	---	---	---
2360	5000	1046	2.60	3.48	1087	2.75	3.69	1134	2.92	3.92	1188	3.14	4.21	1247	3.38	4.53	1309	3.64	4.88	---	---	---
2477	5250	1062	2.81	3.77	1103	2.97	3.98	1150	3.15	4.22	1203	3.36	4.5	1261	3.60	4.82	1321	3.85	5.16	---	---	---
2595	5500	1079	3.04	4.08	1120	3.20	4.29	1166	3.38	4.53	1218	3.58	4.8	1275	3.82	5.12	1335	4.07	5.45	---	---	---
2713	5750	1096	3.29	4.41	1138	3.45	4.62	1183	3.62	4.85	1235	3.82	5.12	1290	4.05	5.43	---	---	---	---	---	---
2831	6000	1115	3.54	4.75	1156	3.70	4.96	1202	3.87	5.19	1252	4.07	5.45	1307	4.29	5.75	---	---	---	---	---	---

BLOWER DATA - BELT DRIVE - STANDARD / HIGH EFFICIENCY

KHA102S4B, KHA120S4B, KHA150S4B AND KHB092H4B, KHB102H4B – 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 23 for blower motors and drives.

See page 23 for wet coil and option/accessory air resistance data.

MINIMUM AIR VOLUME REQUIRED FOR USE WITH OPTIONAL ELECTRIC HEAT - Maximum Static Pressure - 500 Pa (2.0 in. w.g.)

5.7 kW, 11.5 kW, 17.2 kW, 23 kW and 34.5 kW - 1320 L/s (2800 cfm)

45.9 kW - 1885 (4000 cfm)

Air Volume		TOTAL STATIC PRESSURE - Pa (Inches Water Gauge)																				
		50 (0.20)			100 (0.40)			150 (0.60)			200 (0.80)			250 (1.00)			300 (1.20)			350 (1.40)		
L/s	cfm	rev/min	kW	BHP	rev/min	kW	BHP	rev/min	kW	BHP	rev/min	kW	BHP	rev/min	kW	BHP	rev/min	kW	BHP	rev/min	kW	BHP
1062	2250	587	0.06	0.08	637	0.23	0.31	690	0.42	0.56	746	0.61	0.82	805	0.79	1.06	865	0.95	1.28	927	1.09	1.46
1180	2500	601	0.18	0.24	650	0.35	0.47	703	0.53	0.71	757	0.71	0.95	815	0.88	1.18	875	1.04	1.4	938	1.17	1.57
1298	2750	616	0.31	0.41	664	0.46	0.62	715	0.63	0.85	769	0.81	1.09	826	0.98	1.31	886	1.13	1.52	950	1.27	1.7
1416	3000	632	0.43	0.58	679	0.59	0.79	729	0.75	1.01	782	0.92	1.23	839	1.08	1.45	899	1.24	1.66	963	1.37	1.84
1534	3250	649	0.57	0.76	695	0.72	0.96	744	0.87	1.17	797	1.04	1.39	853	1.19	1.6	913	1.35	1.81	976	1.48	1.99
1652	3500	666	0.71	0.95	712	0.85	1.14	761	1.01	1.35	813	1.16	1.55	868	1.31	1.76	929	1.47	1.97	990	1.62	2.17
1770	3750	685	0.87	1.16	730	1.00	1.34	779	1.14	1.53	830	1.30	1.74	886	1.45	1.94	946	1.60	2.15	1005	1.76	2.36
1888	4000	706	1.02	1.37	750	1.16	1.55	798	1.29	1.73	849	1.44	1.93	905	1.60	2.14	965	1.75	2.35	1019	1.92	2.57
2006	4250	727	1.19	1.6	772	1.32	1.77	819	1.45	1.95	871	1.60	2.15	926	1.75	2.35	984	1.92	2.58	1034	2.09	2.8
2124	4500	750	1.37	1.84	795	1.50	2.01	843	1.63	2.19	894	1.78	2.38	949	1.93	2.59	1003	2.11	2.83	1050	2.29	3.07
2242	4750	775	1.57	2.1	820	1.69	2.26	868	1.82	2.44	919	1.96	2.63	972	2.13	2.86	1023	2.32	3.11	1067	2.51	3.36
2360	5000	802	1.77	2.37	847	1.89	2.53	895	2.02	2.71	945	2.17	2.91	997	2.36	3.16	1044	2.56	3.43	1087	2.75	3.69
2477	5250	831	1.99	2.67	876	2.11	2.83	924	2.25	3.01	973	2.41	3.23	1022	2.61	3.5	1066	2.82	3.78	1108	3.01	4.04
2595	5500	862	2.22	2.98	907	2.34	3.14	955	2.48	3.33	1002	2.68	3.59	1048	2.90	3.89	1090	3.11	4.17	1132	3.30	4.42
2713	5750	895	2.47	3.31	940	2.60	3.48	987	2.77	3.71	1032	2.99	4.01	1075	3.22	4.32	1116	3.42	4.59	1158	3.60	4.82
2831	6000	931	2.73	3.66	976	2.89	3.87	1021	3.10	4.16	1064	3.35	4.49	1104	3.57	4.78	1144	3.74	5.02	1185	3.90	5.23

Air Volume		TOTAL STATIC PRESSURE - Pa (Inches Water Gauge)																	
		400 (1.60)			450 (1.80)			500 (2.00)			550 (2.20)			600 (2.40)			650 (2.60)		
L/s	cfm	rev/min	kW	BHP	rev/min	kW	BHP	rev/min	kW	BHP	rev/min	kW	BHP	rev/min	kW	BHP	rev/min	kW	BHP
1062	2250	985	1.17	1.57	1034	1.25	1.68	1084	1.34	1.8	1136	1.45	1.95	1189	1.59	2.13	1239	1.73	2.32
1180	2500	996	1.27	1.7	1045	1.36	1.82	1095	1.46	1.96	1147	1.59	2.13	1201	1.72	2.31	1253	1.88	2.52
1298	2750	1008	1.37	1.84	1056	1.48	1.98	1105	1.59	2.13	1158	1.72	2.31	1213	1.88	2.52	1266	2.04	2.73
1416	3000	1019	1.48	1.99	1066	1.60	2.15	1115	1.73	2.32	1169	1.87	2.51	1225	2.04	2.73	1279	2.21	2.96
1534	3250	1030	1.61	2.16	1076	1.74	2.33	1126	1.88	2.52	1181	2.04	2.73	1237	2.20	2.95	1293	2.38	3.19
1652	3500	1041	1.75	2.35	1087	1.89	2.53	1138	2.04	2.73	1193	2.20	2.95	1250	2.38	3.19	1307	2.56	3.43
1770	3750	1053	1.90	2.55	1098	2.05	2.75	1150	2.21	2.96	1207	2.39	3.2	1264	2.57	3.44	1321	2.75	3.69
1888	4000	1065	2.07	2.78	1111	2.23	2.99	1164	2.40	3.22	1221	2.58	3.46	1279	2.76	3.7	1336	2.95	3.96
2006	4250	1079	2.25	3.02	1126	2.42	3.25	1180	2.60	3.49	1236	2.78	3.73	1295	2.97	3.98	1352	3.16	4.24
2124	4500	1094	2.46	3.3	1142	2.63	3.53	1196	2.81	3.77	1253	3.00	4.02	1311	3.19	4.27	1369	3.38	4.53
2242	4750	1112	2.69	3.6	1161	2.86	3.84	1215	3.04	4.08	1271	3.22	4.32	1329	3.41	4.57	1387	3.60	4.83
2360	5000	1131	2.93	3.93	1181	3.10	4.16	1235	3.28	4.4	1291	3.46	4.64	1349	3.65	4.89	1406	3.83	5.14
2477	5250	1153	3.19	4.27	1203	3.36	4.51	1256	3.54	4.74	1312	3.72	4.98	1369	3.89	5.22	1426	4.08	5.47
2595	5500	1177	3.46	4.64	1226	3.63	4.87	1278	3.80	5.09	1333	3.97	5.32	1390	4.15	5.56	---	---	---
2713	5750	1202	3.75	5.03	1251	3.91	5.24	1302	4.07	5.46	1356	4.24	5.68	---	---	---	---	---	---
2831	6000	1229	4.05	5.43	1276	4.20	5.63	---	---	---	---	---	---	---	---	---	---	---	---

BLOWER DATA

FACTORY INSTALLED BELT DRIVE KIT SPECIFICATIONS

Nominal		Maximum		Drive Kit Number	rev/min Range
kW	hp	kW	hp		
1.5	2	1.7	2.3	1	490 - 740
1.5	2	1.7	2.3	2	665 - 920
1.5	2	1.7	2.3	3	660 - 995
2.2	3	2.6	3.45	7	610 - 810
2.2	3	2.6	3.45	8	780 - 1000
2.2	3	2.6	3.45	9	845 - 1085
3.7	5	4.3	5.75	10	750 - 945
3.7	5	4.3	5.75	11	865 - 1095
3.7	5	4.3	5.75	12	940 - 1190

POWER EXHAUST FAN PERFORMANCE

Return Air System Static Pressure		Air Volume Exhausted	
Pa	in. w.g.	L/s	cfm
0	0	1498	3175
12	0.05	1394	2955
25	0.10	1267	2685
37	0.15	1137	2410
50	0.20	1022	2165
62	0.25	906	1920
75	0.30	670	1420
87	0.35	566	1200

FACTORY INSTALLED OPTIONS/FIELD INSTALLED ACCESSORY AIR RESISTANCE

Air Volume		Wet Indoor Coil				Electric Heat		Economizer		Filters				Return Air Adaptor Plate	
		KHA092		KHA 102, 120, 150 KHB 092, 102						MERV 8		MERV 13			
L/s	cfm	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.
1062	2250	25	0.1	32	0.13	10	0.04	20	0.08	2	0.01	10	0.04	0	0.00
1180	2500	30	0.12	37	0.15	10	0.04	27	0.11	2	0.01	12	0.05	0	0.00
1298	2750	30	0.12	42	0.17	12	0.05	30	0.12	5	0.02	12	0.05	0	0.00
1416	3000	37	0.15	47	0.19	15	0.06	32	0.13	5	0.02	15	0.06	5	0.02
1534	3250	45	0.18	57	0.23	15	0.06	37	0.15	5	0.02	15	0.06	5	0.02
1652	3500	52	0.21	65	0.26	22	0.09	37	0.15	7	0.03	17	0.07	10	0.04
1770	3750	57	0.23	72	0.29	22	0.09	37	0.15	7	0.03	20	0.08	17	0.07
1888	4000	62	0.25	77	0.31	22	0.09	47	0.19	10	0.04	20	0.08	22	0.09
2006	4250	67	0.27	85	0.34	32	0.13	47	0.19	10	0.04	22	0.09	27	0.11
2124	4500	75	0.3	92	0.37	35	0.14	55	0.22	10	0.04	22	0.09	30	0.12
2242	4750	80	0.32	99	0.4	42	0.17	62	0.25	12	0.05	25	0.1	40	0.16
2360	5000	87	0.35	107	0.43	50	0.2	72	0.29	15	0.06	25	0.1	45	0.18
2477	5250	90	0.36	114	0.46	55	0.22	80	0.32	15	0.06	27	0.11	47	0.19
2595	5500	99	0.4	124	0.5	62	0.25	85	0.34	17	0.07	30	0.12	55	0.22
2713	5750	107	0.43	139	0.56	77	0.31	112	0.45	17	0.07	30	0.12	62	0.25
2831	6000	114	0.46	147	0.59	82	0.33	129	0.52	20	0.08	32	0.13	67	0.27

BLOWER DATA

CEILING DIFFUSERS AIR RESISTANCE

Unit Size	RTD11 Step-Down Diffuser								FD11 Flush Diffuser	
	Air Volume		2 Ends Open		1 Side, 2 Ends Open		All Ends & Sides Open			
	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.
092 Models	1133	2400	52	0.21	45	0.18	37	0.15	35	0.14
	1227	2600	60	0.24	52	0.21	45	0.18	42	0.17
	1321	2800	67	0.27	60	0.24	52	0.21	50	0.20
	1416	3000	80	0.32	72	0.29	62	0.25	62	0.25
	1510	3200	102	0.41	92	0.37	80	0.32	77	0.31
	1604	3400	124	0.50	112	0.45	97	0.39	92	0.37
	1699	3600	152	0.61	134	0.54	119	0.48	109	0.44
102 & 120 Models	1793	3800	182	0.73	157	0.63	142	0.57	127	0.51
	1699	3600	90	0.36	70	0.28	57	0.23	37	0.15
	1793	3800	99	0.40	80	0.32	65	0.26	45	0.18
	1888	4000	109	0.44	90	0.36	72	0.29	52	0.21
	1982	4200	122	0.49	99	0.40	82	0.33	60	0.24
	2076	4400	134	0.54	109	0.44	92	0.37	67	0.27
	2171	4600	149	0.60	122	0.49	104	0.42	77	0.31
	2265	4800	162	0.65	132	0.53	114	0.46	87	0.35
150 Models	2360	5000	172	0.69	144	0.58	124	0.50	97	0.39
	2454	5200	186	0.75	154	0.62	134	0.54	107	0.43
	1982	4200	55	0.22	47	0.19	40	0.16	25	0.10
	2076	4400	70	0.28	60	0.24	50	0.20	30	0.12
	2171	4600	85	0.34	72	0.29	60	0.24	37	0.15
	2265	4800	99	0.40	85	0.34	72	0.29	47	0.19
	2360	5000	114	0.46	97	0.39	85	0.34	57	0.23
	2454	5200	129	0.52	109	0.44	97	0.39	67	0.27
	2548	5400	144	0.58	122	0.49	107	0.43	77	0.31
2643	5600	159	0.64	134	0.54	117	0.47	87	0.35	
2737	5800	174	0.70	147	0.59	127	0.51	97	0.39	

CEILING DIFFUSER AIR THROW DATA

Model No.	Air Volume		¹ Effective Throw Range			
			RTD11 Step-Down		FD11 Flush	
	L/s	cfm	m	ft.	m	ft.
092 Models	1227	2600	7 - 9	24 - 29	6 - 7	19 - 24
	1321	2800	8 - 9	25 - 30	6 - 9	20 - 28
	1416	3000	8 - 10	27 - 33	6 - 9	21 - 29
	1510	3200	9 - 11	28 - 35	7 - 9	22 - 29
	1604	3400	9 - 11	30 - 37	7 - 9	22 - 30
102, 120 Models	1699	3600	8 - 10	25 - 33	7 - 9	22 - 29
	1793	3800	8 - 11	27 - 35	7 - 9	22 - 30
	1888	4000	9 - 11	29 - 37	7 - 10	24 - 33
	1982	4200	10 - 12	32 - 40	8 - 11	26 - 35
	2076	4400	10 - 13	34 - 42	9 - 11	28 - 37
150 Models	2643	5600	12 - 15	39 - 49	9 - 11	28 - 37
	2737	5800	13 - 16	42 - 51	9 - 12	29 - 38
	2831	6000	13 - 17	44 - 54	12 - 15	40 - 50
	2926	6200	14 - 17	45 - 55	13 - 16	42 - 51
	3020	6400	14 - 17	46 - 55	13 - 16	43 - 52
3115	6600	14 - 17	47 - 56	14 - 17	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 15 m (50 ft.) per minute. Four sides open.

ELECTRICAL/ELECTRIC HEAT DATA - STANDARD EFFICIENCY

		KHA092S4			KHA102S4			KHA120S4			KHA150S4		
¹ Voltage - 50hz 3 Phase with neutral		380/420V			380/420V			380/420V			380/420V		
Compressor 1	Rated Load Amps	6.1			6.3			7.8			9.7		
	Locked Rotor Amps	41			55			51.5			64		
Compressor 2	Rated Load Amps	6.1			6.3			7.8			9.7		
	Locked Rotor Amps	41			55			51.5			64		
Outdoor Fan Motors	Full Load Amps	(2) 1.3			(2) 1.5			(2) 1.5			(3) 1.3		
	(total)	(2.6)			(3)			(3)			(3.9)		
Power Exhaust (1) 0.25 kW (0.33 HP)	Full Load Amps	1.3			1.3			1.3			1.3		
Indoor Blower Motor	kW	1.5	2.2	3.7	1.5	2.2	3.7	1.5	2.2	3.7	1.5	2.2	3.7
	Full Load Amps	3.6	5.3	8.2	3.6	5.3	8.2	3.6	5.3	8.2	3.6	5.3	8.2
² Maximum Overcurrent Protection	Unit Only	25	25	30	25	25	30	30	30	35	35	40	40
	With 0.25 kW (0.33 HP) Power Exhaust	25	25	30	25	30	35	30	30	35	40	40	40
³ Minimum Circuit Ampacity	Unit Only	20	22	26	21	23	26	25	26	29	30	32	34
	With 0.25 kW (0.33 HP) Power Exhaust	22	23	27	23	24	28	26	28	31	31	33	36

ELECTRIC HEAT DATA

Electric Heat Voltage			420V	420V	420V	420V	420V	420V	420V	420V	420V	420V	420V	
² Maximum Overcurrent Protection	Unit+ ⁴ Electric Heat	5.7 kW	30	35	40	35	35	40	---	---	---	---	---	
		11.5 kW	40	45	45	45	45	50	45	50	50	50	60	60
		17.2 kW	50	60	60	60	60	60	60	60	60	60	70	70
		23 kW	60	70	70	70	70	70	70	70	70	70	80	80
		34.5 kW	80	90	90	80	90	90	90	90	90	90	100	100
		45.9 kW	---	---	---	---	---	---	90	90	100	100	100	100
³ Minimum Circuit Ampacity	Unit+ ⁴ Electric Heat	5.7 kW	30	32	35	31	33	36	---	---	---	---	---	
		11.5 kW	40	42	45	41	43	46	44	46	49	50	51	54
		17.2 kW	50	52	55	51	53	56	54	56	59	59	61	64
		23 kW	60	62	65	61	62	66	64	66	69	69	71	74
		34.5 kW	80	81	85	80	82	86	84	86	89	89	91	94
		45.9 kW	---	---	---	---	---	---	88	89	92	93	95	98
² Maximum Overcurrent Protection	Unit+ ⁴ Electric Heat and 0.25 kW (0.33 HP) Power Exhaust	5.7 kW	35	35	40	35	35	40	---	---	---	---	---	
		11.5 kW	45	45	50	45	45	50	50	50	50	60	60	60
		17.2 kW	60	60	60	60	60	60	60	60	60	70	70	70
		23 kW	70	70	70	70	70	70	70	70	70	80	80	80
		34.5 kW	90	90	90	90	90	90	90	90	90	90	100	100
		45.9 kW	---	---	---	---	---	---	90	100	100	100	100	100
³ Minimum Circuit Ampacity	Unit+ ⁴ Electric Heat and 0.25 kW (0.33 HP) Power Exhaust	5.7 kW	32	33	37	32	34	37	---	---	---	---	---	
		11.5 kW	41	43	47	42	44	47	46	47	50	51	53	55
		17.2 kW	51	53	56	52	54	57	56	57	60	61	62	65
		23 kW	61	63	66	62	64	66	65	67	70	71	72	75
		34.5 kW	81	83	86	82	83	86	85	87	90	90	92	95
		45.9 kW	---	---	---	---	---	---	89	91	94	94	96	99

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

² Heating / Air Conditioning / Refrigeration (HACR) type breaker or fuse.

³ Refer to local codes to determine wire, fuse and disconnect size requirements.

⁴ Nominal kW based on 420V-3ph-50hz.

ELECTRICAL/ELECTRIC HEAT DATA - HIGH EFFICIENCY

		KHB092H4			KHB102H4		
¹ Voltage - 50hz 3 Phase with neutral		380/420V			380/420V		
Compressor 1	Rated Load Amps	6.1			6.3		
	Locked Rotor Amps	41			55		
Compressor 2	Rated Load Amps	6.1			6.3		
	Locked Rotor Amps	41			55		
Outdoor Fan Motors	Full Load Amps	(2) 2.8			(2) 2.8		
	(total)	5.6			5.6		
Power Exhaust (1) 0.25 kW (0.33 HP)	Full Load Amps	1.3			1.3		
Indoor Blower Motor	kW	1.5	2.2	3.7	1.5	2.2	3.7
	Full Load Amps	3.6	5.3	8.2	3.6	5.3	8.2
² Maximum Overcurrent Protection	Unit Only	25	30	35	25	30	35
	With 0.25 kW (0.33 HP) Power Exhaust	30	30	35	30	30	35
³ Minimum Circuit Ampacity	Unit Only	23	25	29	24	26	29
	With 0.25 kW (0.33 HP) Power Exhaust	25	26	30	25	27	30

ELECTRIC HEAT DATA

Electric Heat Voltage			420V	420V	420V	420V	420V	420V
² Maximum Overcurrent Protection	Unit+ ⁴ Electric Heat	5.7 kW	35	35	40	35	35	40
		11.5 kW	45	45	50	45	45	50
		17.2 kW	60	60	60	60	60	60
		23 kW	70	70	70	70	70	70
		34.5 kW	90	90	90	90	90	90
³ Minimum Circuit Ampacity	Unit+ ⁴ Electric Heat	5.7 kW	33	35	38	34	35	39
		11.5 kW	43	45	48	44	45	49
		17.2 kW	53	55	58	53	55	59
		23 kW	63	65	68	63	65	68
		34.5 kW	83	84	88	83	85	88
² Maximum Overcurrent Protection	Unit+ ⁴ Electric Heat and 0.25 kW (0.33 HP) Power Exhaust	5.7 kW	35	40	45	35	40	45
		11.5 kW	45	50	50	45	50	50
		17.2 kW	60	60	60	60	60	60
		23 kW	70	70	70	70	70	70
		34.5 kW	90	90	90	90	90	90
³ Minimum Circuit Ampacity	Unit+ ⁴ Electric Heat and 0.25 kW (0.33 HP) Power Exhaust	5.7 kW	35	36	40	35	37	40
		11.5 kW	44	46	50	45	47	50
		17.2 kW	54	56	59	55	56	60
		23 kW	64	66	69	65	66	70
		34.5 kW	84	86	89	84	86	89

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

² Heating / Air Conditioning / Refrigeration (HACR) type breaker or fuse.

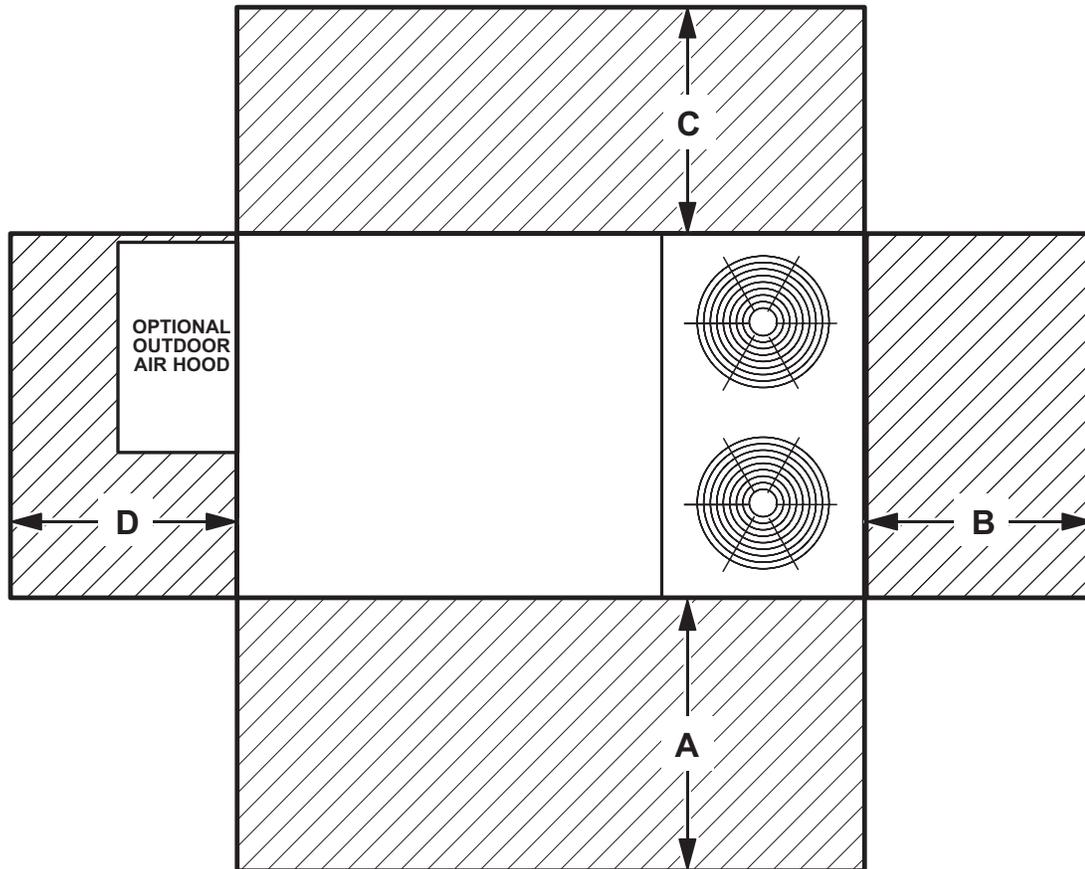
³ Refer to local codes to determine wire, fuse and disconnect size requirements.

⁴ Nominal kW based on 420V-3ph-50hz.

ELECTRIC HEAT CAPACITIES

Volts Input	5.7 kW			11.5 kW			17.2 kW			23 kW			34.5 kW			45.9 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
380	4.7	16 000	1	9.4	32 100	1	14.1	48 200	1	18.8	64 200	2	28.2	96 300	2	37.6	128 400	2
400	5.2	17 800	1	10.4	35 500	1	15.6	53 300	1	20.9	71 400	2	31.2	106 600	2	41.6	142 100	2
420	5.7	19 500	1	11.5	39 300	1	17.2	58 700	1	23	78 500	2	34.5	117 500	2	45.9	156 800	2

UNIT CLEARANCES



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

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

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

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

OPTIONS / ACCESSORIES

Model Number	Shipping Weight	
	kg	lbs.

ECONOMIZER / OUTDOOR AIR / EXHAUST

Economizer

Economizer Dampers	27	60
Barometric Relief Dampers (downflow)	4	8
Barometric Relief Damper Hood (downflow)	11	25
Outdoor Air Hood (downflow)	10	23

Outdoor Air Dampers

Outdoor Air Damper Section (downflow) - Automatic	4	9
Outdoor Air Damper Section (downflow) - Manual	1	2
Outdoor Air Damper Hood (downflow)	4	9

Power Exhaust

	14	31
--	----	----

ELECTRIC HEAT

5.7 kW	23	50
11.5 kW	23	50
17.2 kW	26	57
23 kW	26	57
34.5 kW	27	59
45.9 kW	31	68

ROOF CURBS

Hybrid Roof Curbs, Downflow

203 mm height	27	60
356 mm height	39	85
457 mm height	45	100
610 mm height	57	125

Adjustable Pitch Curb, Downflow

356 mm height	82	191
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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	14	30
C1DIFF31B-1	15	32
C1DIFF32B-1	16	36

PACKAGING

LTL Packaging (less than truck load)	48	105
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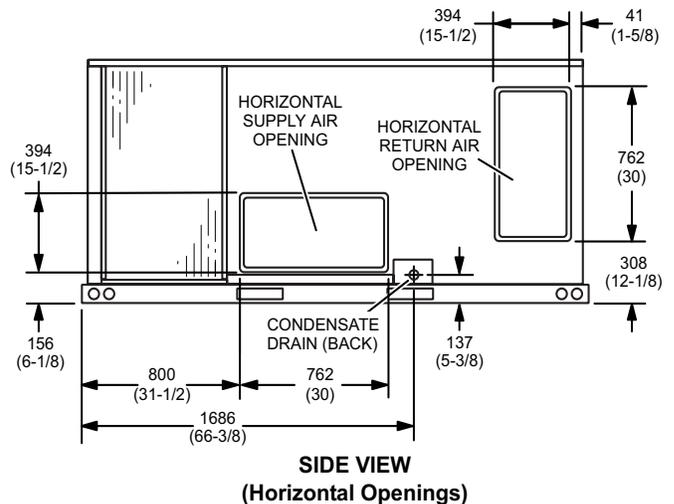
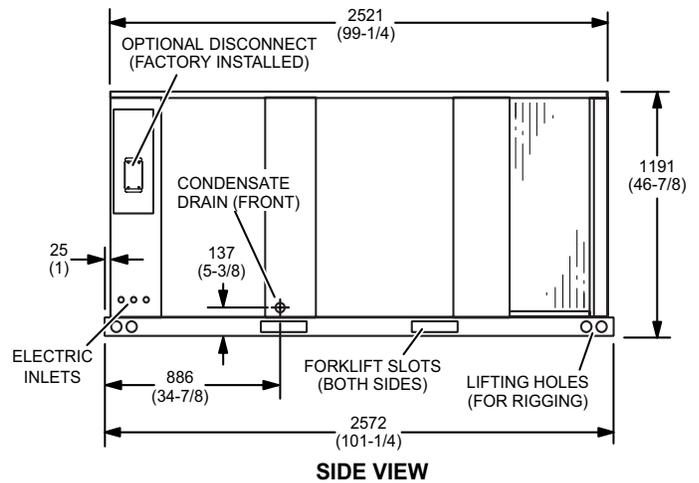
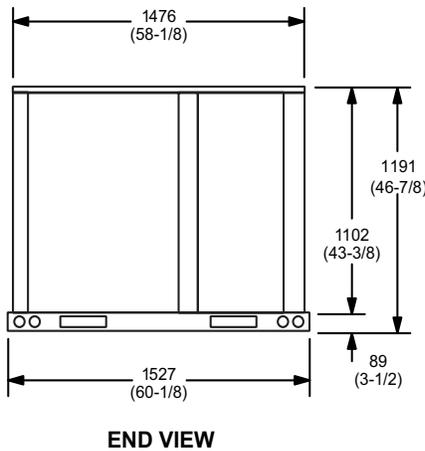
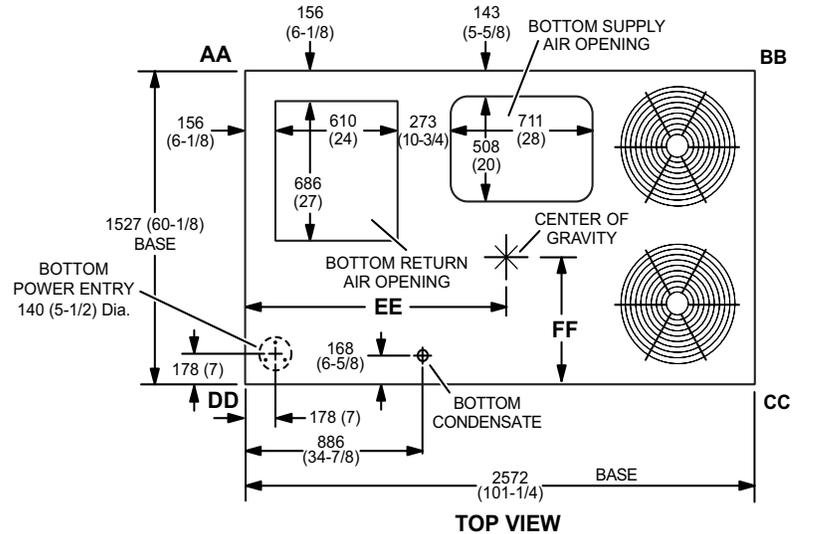
DIMENSIONS - UNIT

092-102-120 MODELS

Model No.	CORNER WEIGHTS														CENTER OF GRAVITY									
	AA				BB				CC				DD				EE				FF			
	Base		Max.		Base		Max.		Base		Max.		Base		Max.		Base		Max.		Base		Max.	
	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
KHA092	120	264	140	310	108	237	123	271	117	258	131	290	133	293	154	339	1181	46.5	1156	45.5	622	24.5	648	25.5
KHB092	129	283	150	331	108	237	126	277	113	249	132	290	138	304	161	355	1118	44	1092	43	686	27	711	28
KHA102	123	272	144	318	111	244	126	278	121	266	135	297	137	302	158	348	1181	46.5	1156	45.5	622	24.5	648	25.5
KHB102	129	284	151	332	108	237	126	277	113	249	132	291	138	304	161	355	1118	44	1092	43	686	27	711	28
KHA120	129	284	151	333	120	264	135	298	131	288	145	320	143	315	165	363	1181	46.5	1156	45.5	622	24.5	648	25.5

Std. Unit - The unit with NO INTERNAL OPTIONS.

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



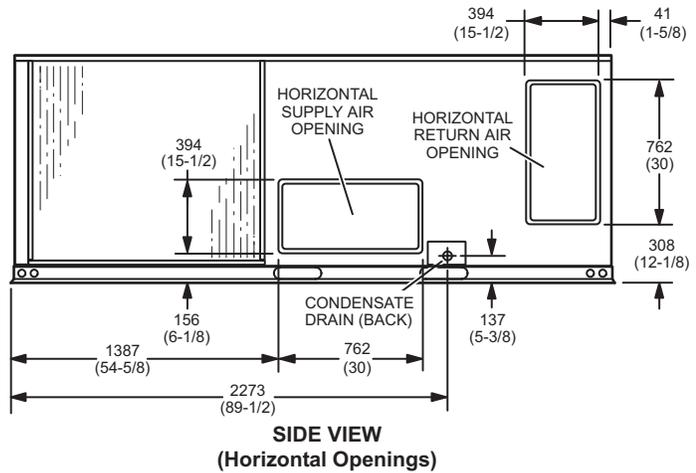
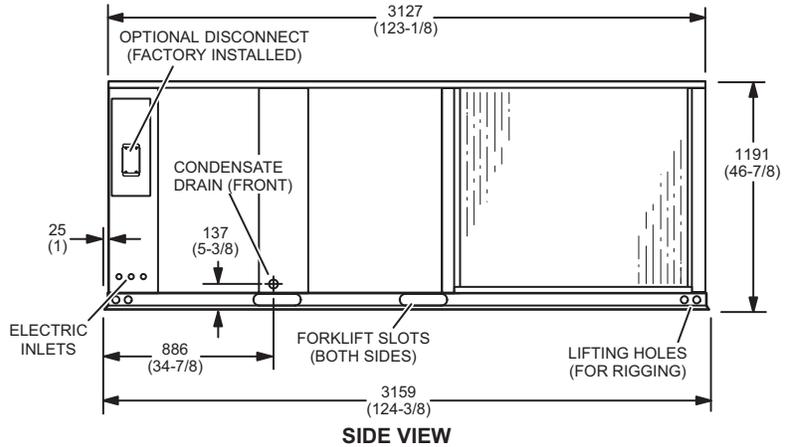
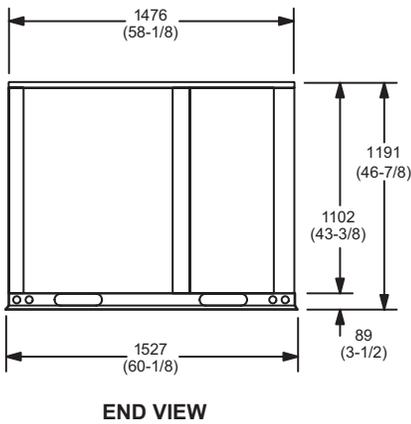
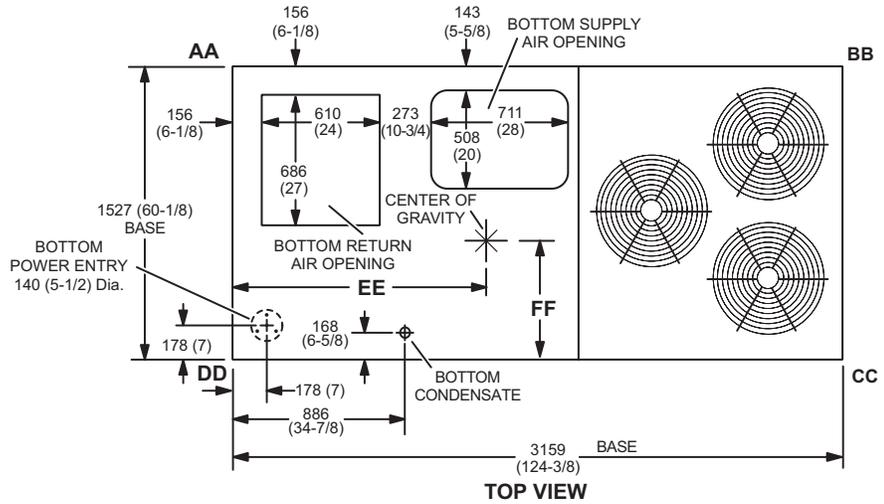
DIMENSIONS - UNIT

150 MODELS

Model No.	CORNER WEIGHTS												CENTER OF GRAVITY											
	AA				BB				CC				DD				EE				FF			
	Base		Max.		Base		Max.		Base		Max.		Base		Max.		Base		Max.		Base		Max.	
	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	mm	in.	mm	in.	mm	in.	mm	in.
KHA150	158	348	180	398	137	303	153	337	146	321	160	353	171	377	193	426	1181	46.5	1156	45.5	622	24.5	648	25.5

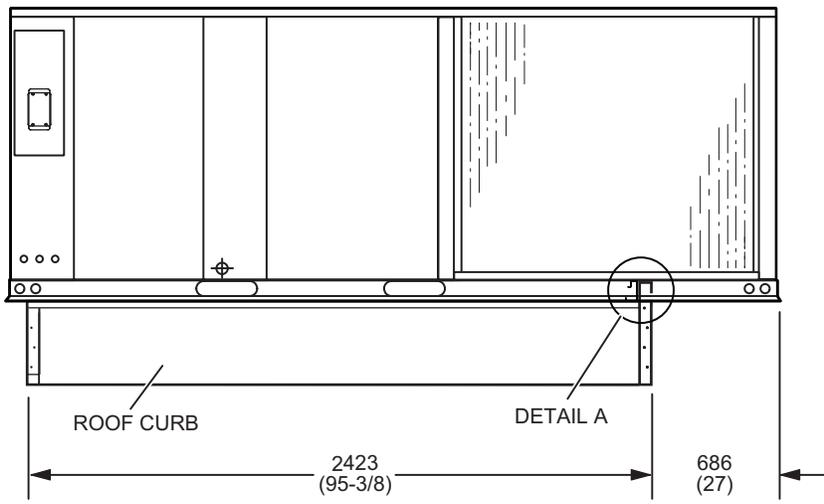
Std. Unit - The unit with NO INTERNAL OPTIONS.

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

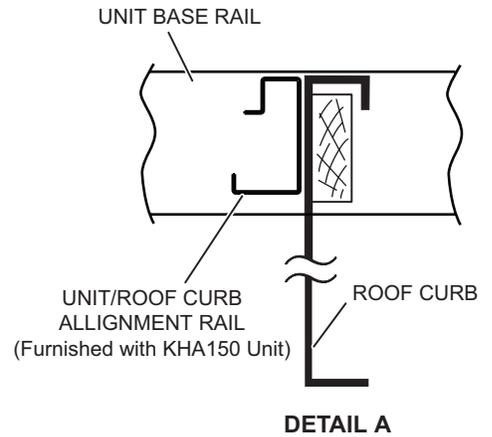


DIMENSIONS - ACCESSORIES

UNIT ON CURB LOCATION - KHA150

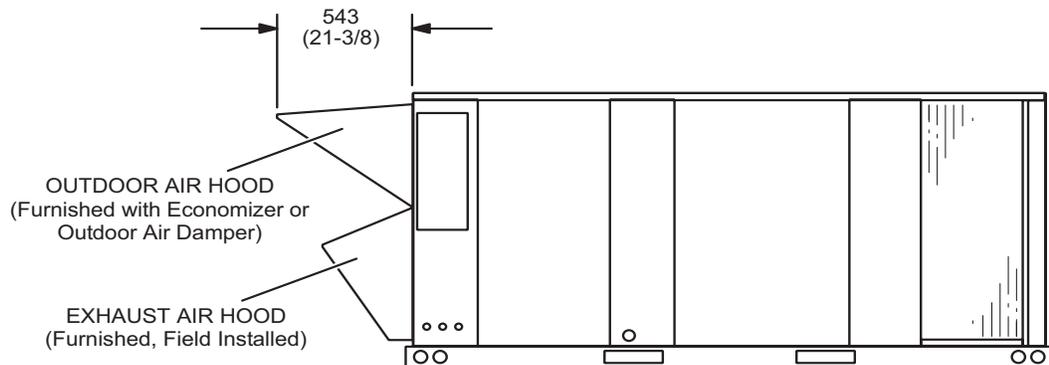


SIDE VIEW



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

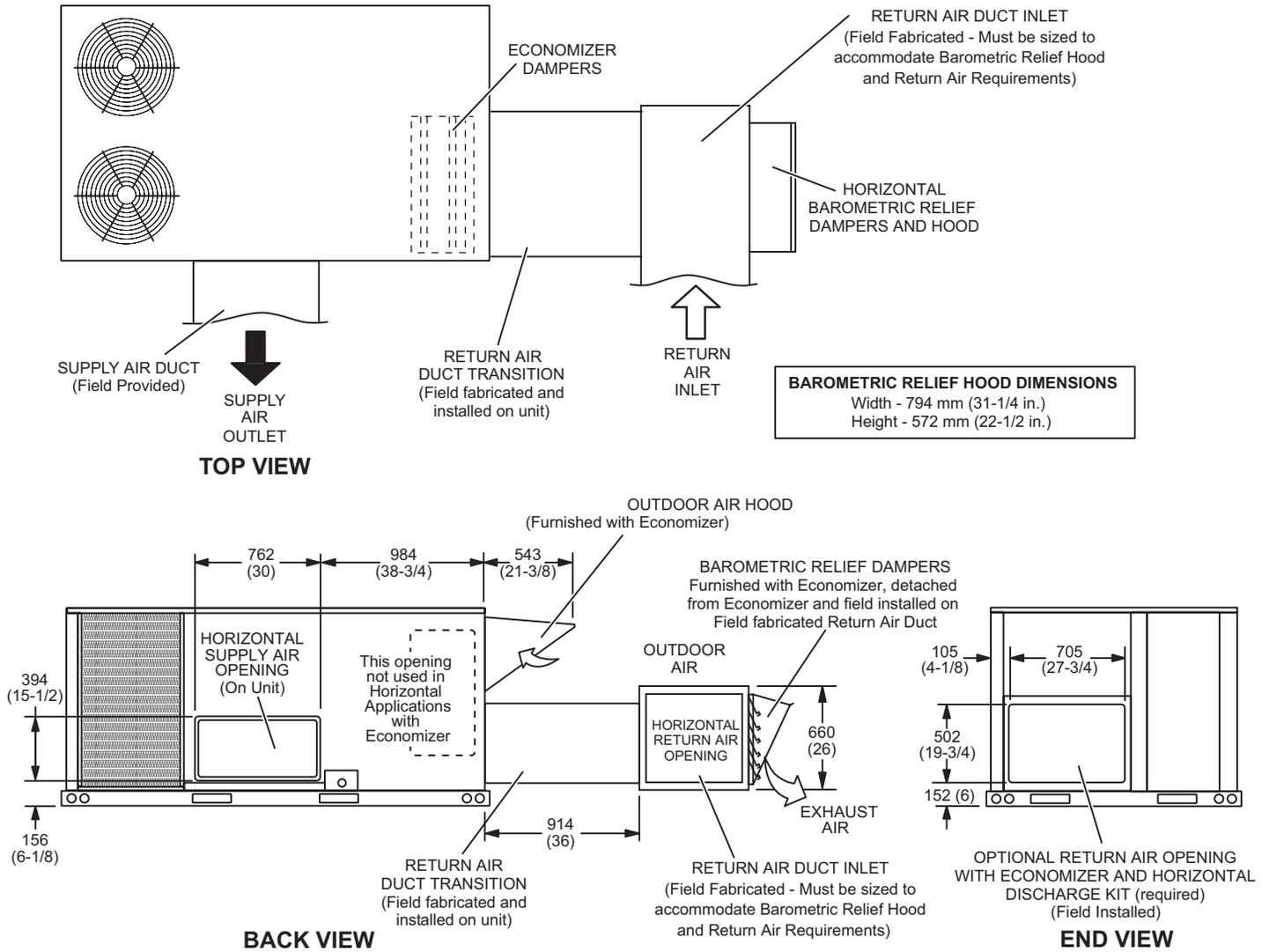
OUTDOOR AIR HOOD DETAIL



DIMENSIONS - ACCESSORIES

HORIZONTAL ECONOMIZER APPLICATION

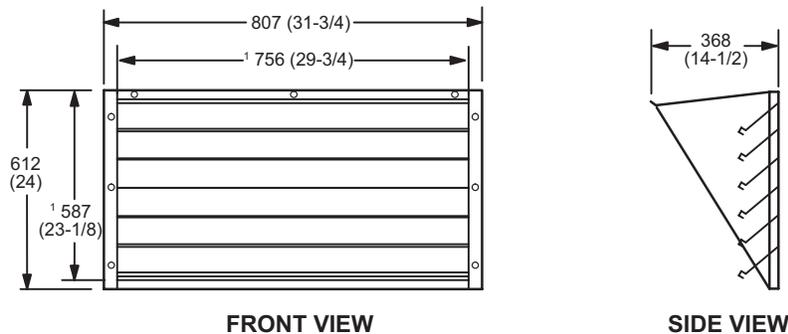
(With Furnished Barometric Relief Dampers and Optional Horizontal Discharge Kit - Required)



NOTE - Return Air Duct and Transition must be supported.

BAROMETRIC RELIEF DAMPERS (Furnished with Economizer)

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

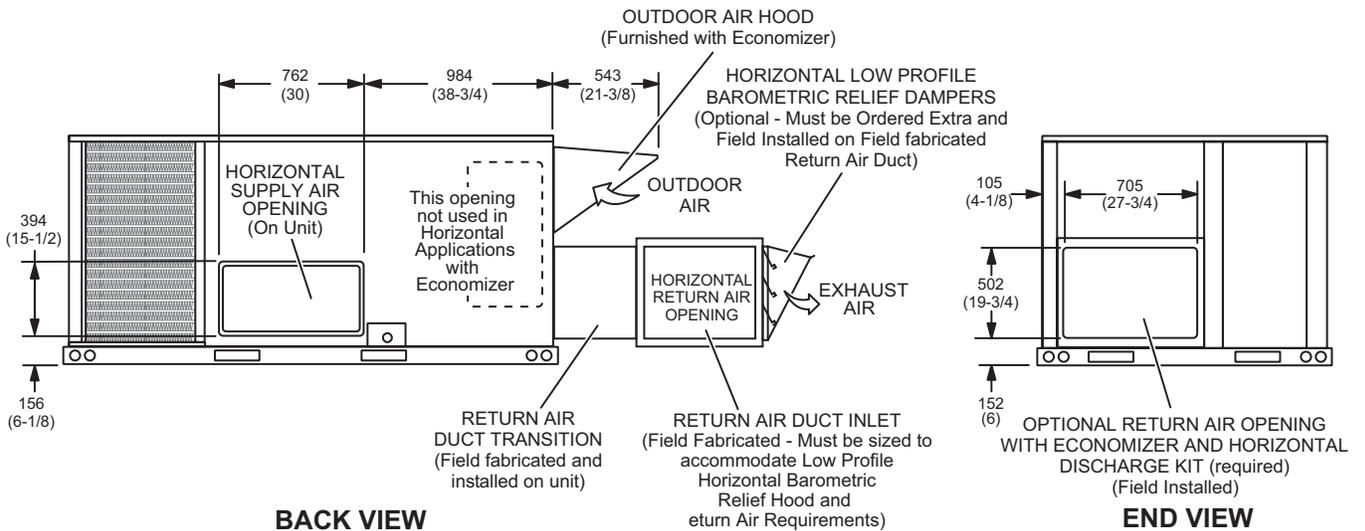
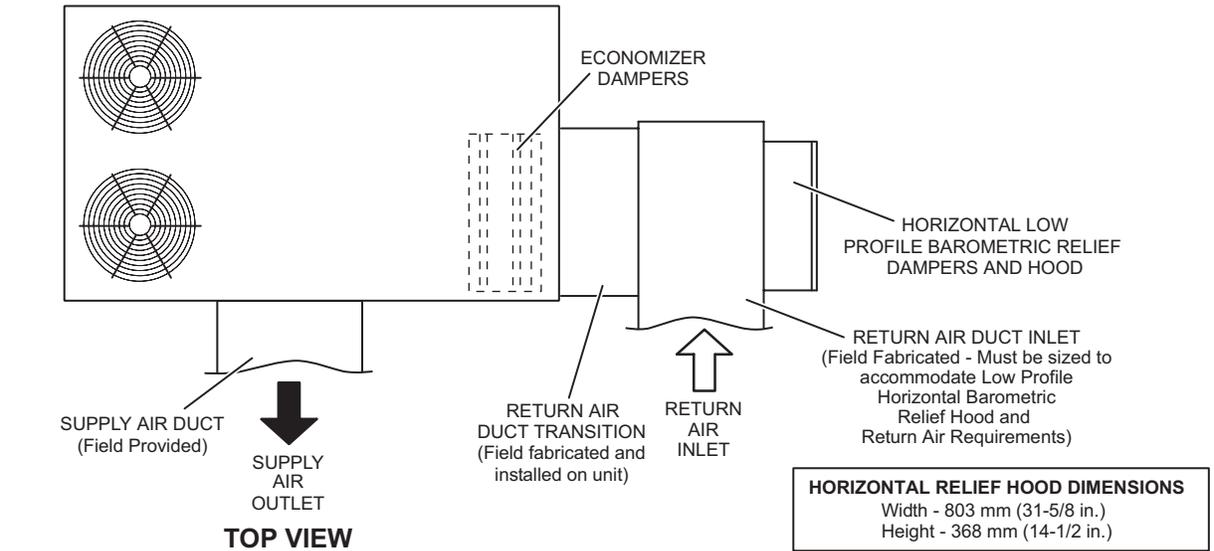


1 NOTE - Opening size required in return air duct

DIMENSIONS - ACCESSORIES

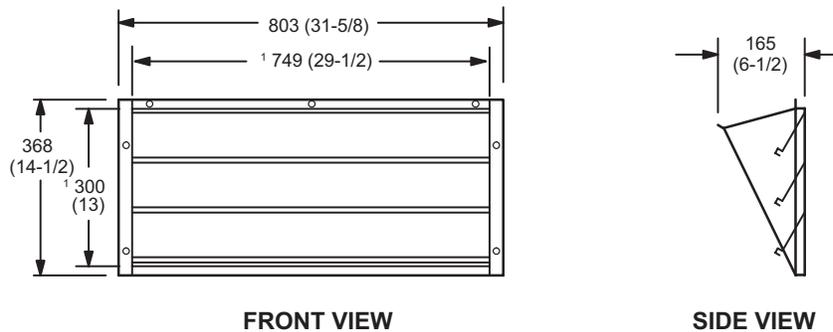
HORIZONTAL ECONOMIZER APPLICATION

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



NOTE - Return Air Duct and Transition must be supported.

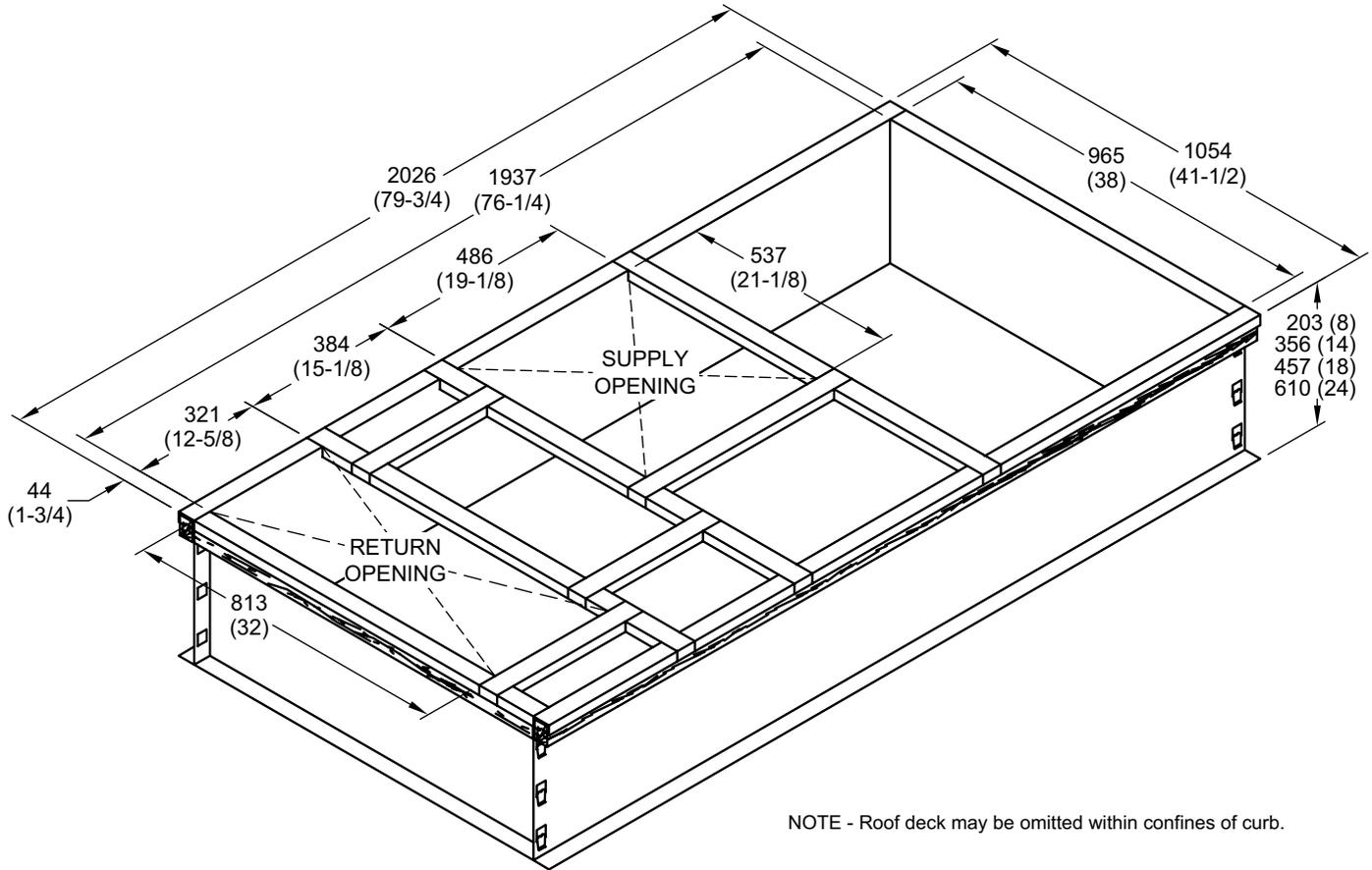
HORIZONTAL LOW PROFILE BAROMETRIC RELIEF DAMPERS (Field installed in horizontal return air duct adjacent to unit)



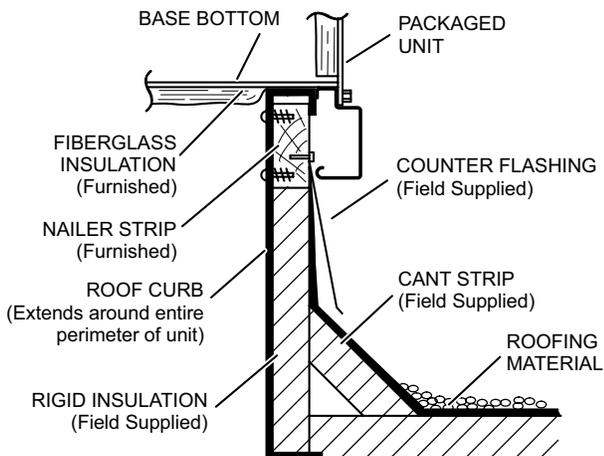
¹ NOTE - Opening size required in return air duct.

DIMENSIONS - ACCESSORIES

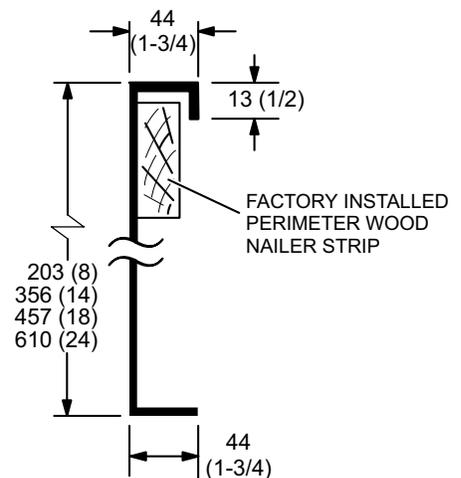
HYBRID ROOF CURBS - DOUBLE DUCT OPENING



TYPICAL FLASHING DETAIL FOR ROOF CURB

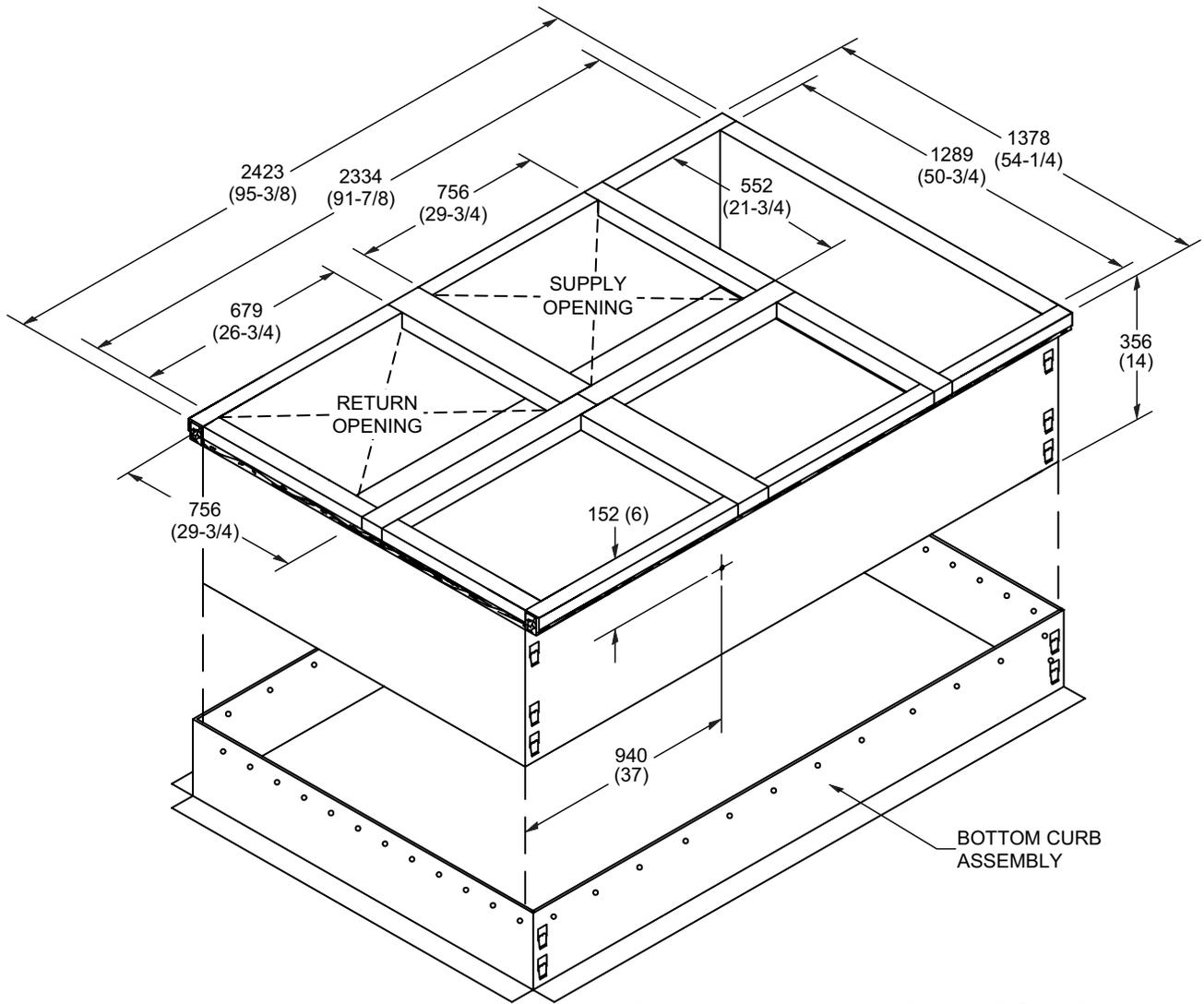


DETAIL ROOF CURB



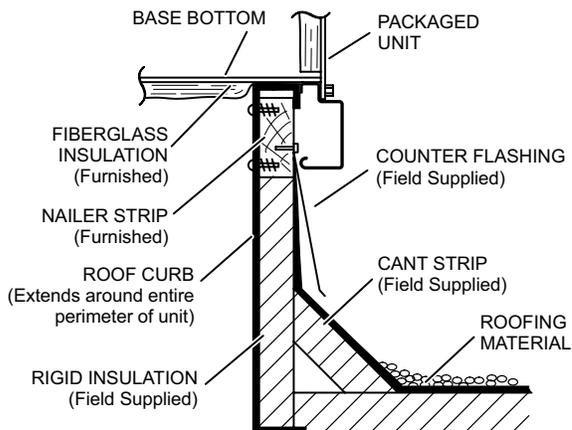
DIMENSIONS - ACCESSORIES

ADJUSTABLE PITCH CURBS - DOUBLE DUCT OPENING

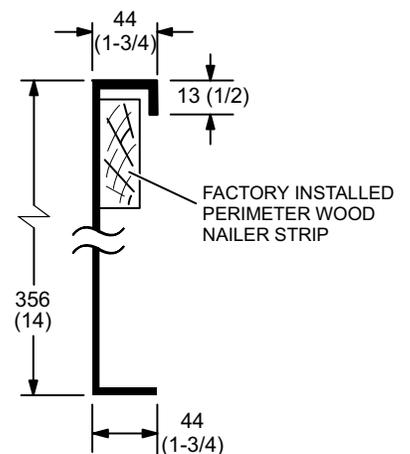


NOTE - Maximum slope pitch is 19 mm per 305 mm (3/4 in. per 1 foot) in any one direction.

TYPICAL FLASHING DETAIL FOR ROOF CURB



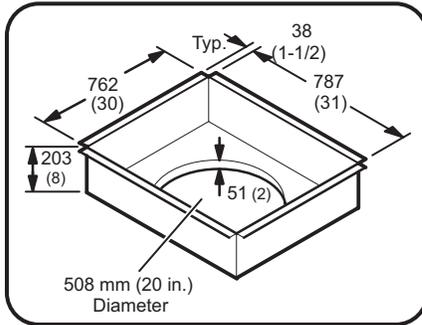
DETAIL ROOF CURB



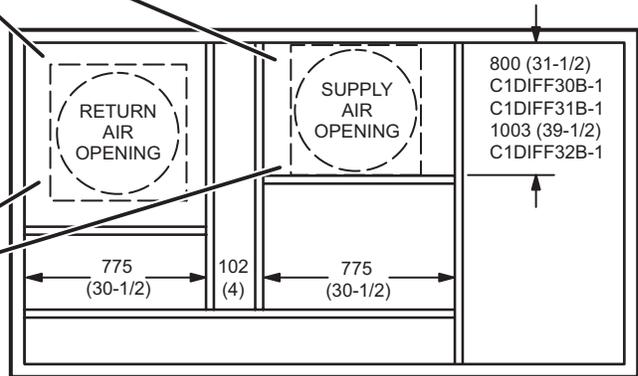
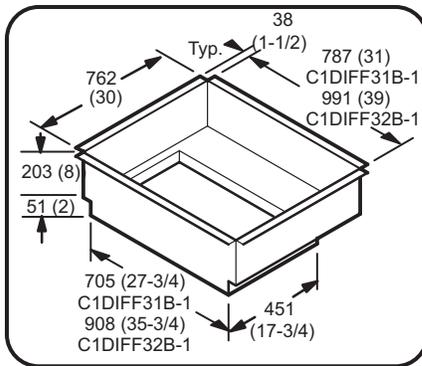
DIMENSIONS - ACCESSORIES

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)

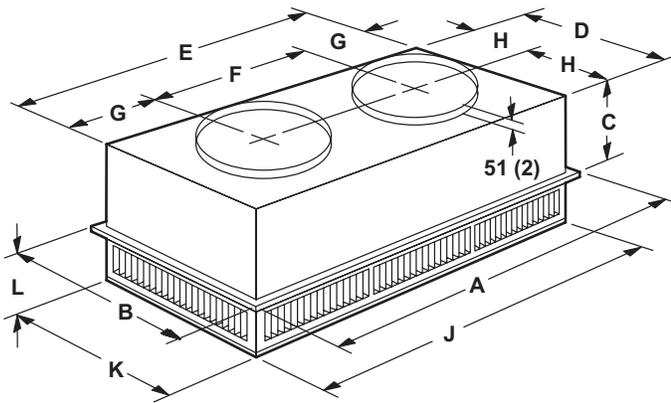


TOP VIEW

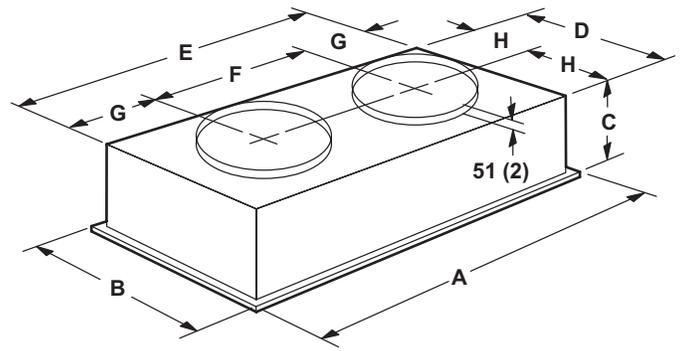
DIMENSIONS - ACCESSORIES

COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

STEP-DOWN CEILING DIFFUSER



FLUSH CEILING DIFFUSER



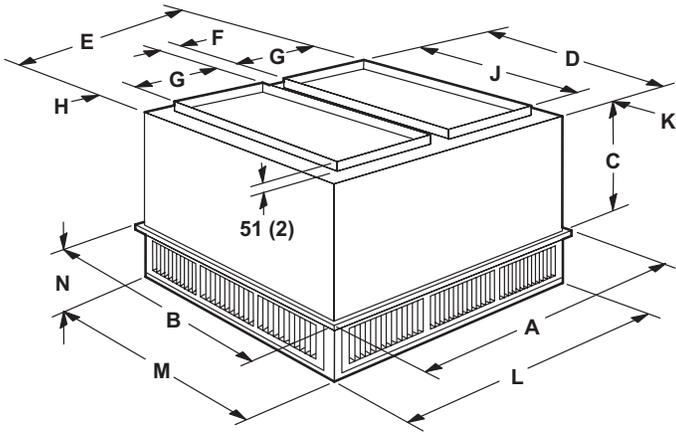
Model Number	RTD11-95S	
A	mm	1159
	in.	47-5/8
B	mm	752
	in.	29-5/8
C	mm	365
	in.	14-3/8
D	mm	699
	in.	27-1/2
E	mm	1158
	in.	45-1/2
F	mm	572
	in.	22-1/2
G	mm	292
	in.	11-1/2
H	mm	349
	in.	13-3/4
J	mm	1156
	in.	45-1/2
K	mm	699
	in.	27-1/2
L	mm	206
	in.	8-1/8
Duct Size	mm	508 round
	in.	20 round

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

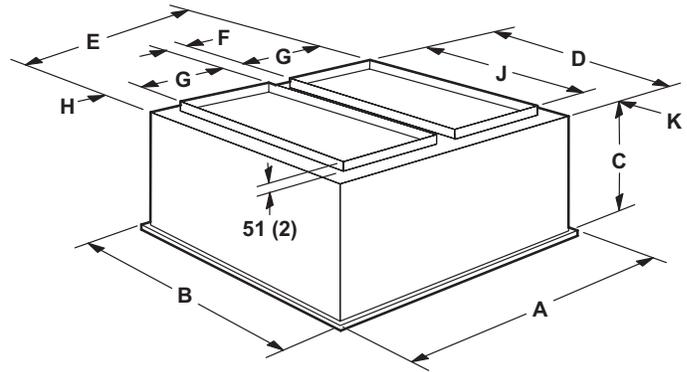
DIMENSIONS - ACCESSORIES

COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

STEP-DOWN CEILING DIFFUSER



FLUSH CEILING DIFFUSER



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

Model Number		FD11-135S	FD11-185S
A	mm	1210	1210
	in.	47-5/8	47-5/8
B	mm	905	1210
	in.	35-5/8	47-5/8
C	mm	591	743
	in.	23-1/4	29-1/4
D	mm	838	1143
	in.	33	45
E	mm	1143	1143
	in.	45	45
F	mm	112	112
	in.	4-1/2	4-1/2
G	mm	457	457
	in.	18	18
H	mm	57	57
	in.	2-1/4	2-1/4
J	mm	711	914
	in.	28	36
K	mm	64	114
	in.	2-1/2	4-1/2
Duct Size	mm	457 x 711	457 x 914
	in.	18 x 28	18 x 36

REVISIONS

Sections	Description of Change
Options/Accessories	Catalog numbers revised for: Economizers Single Enthalpy



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