



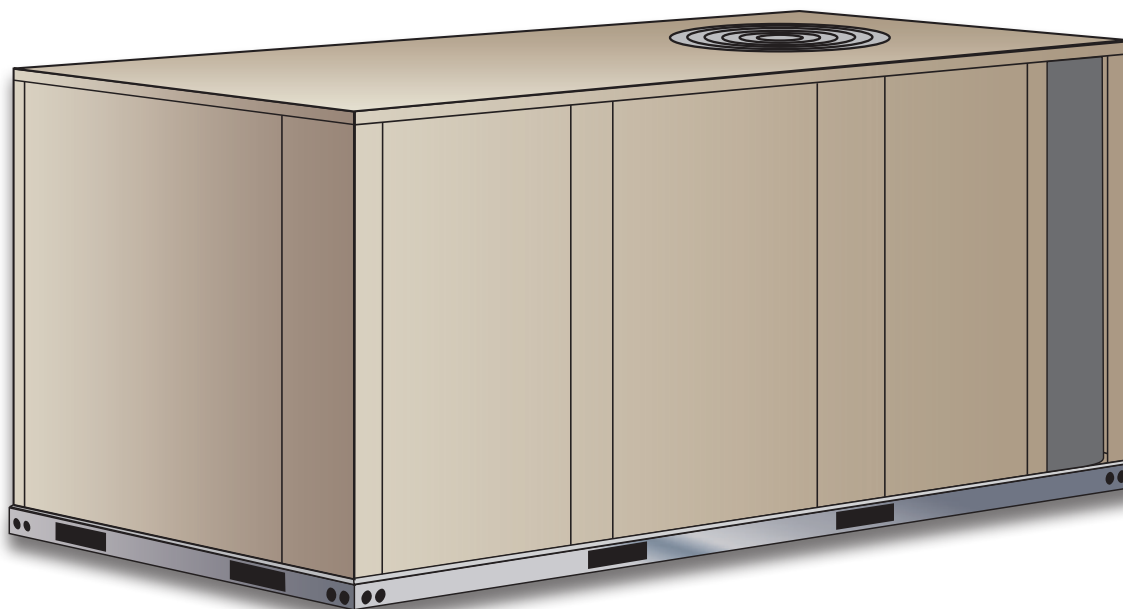
**COMMERCIAL
PRODUCT SPECIFICATIONS**

PACKAGED HEAT PUMP

KHA072

**K-Series Rooftop Units
Standard Efficiency - 60 Hz**

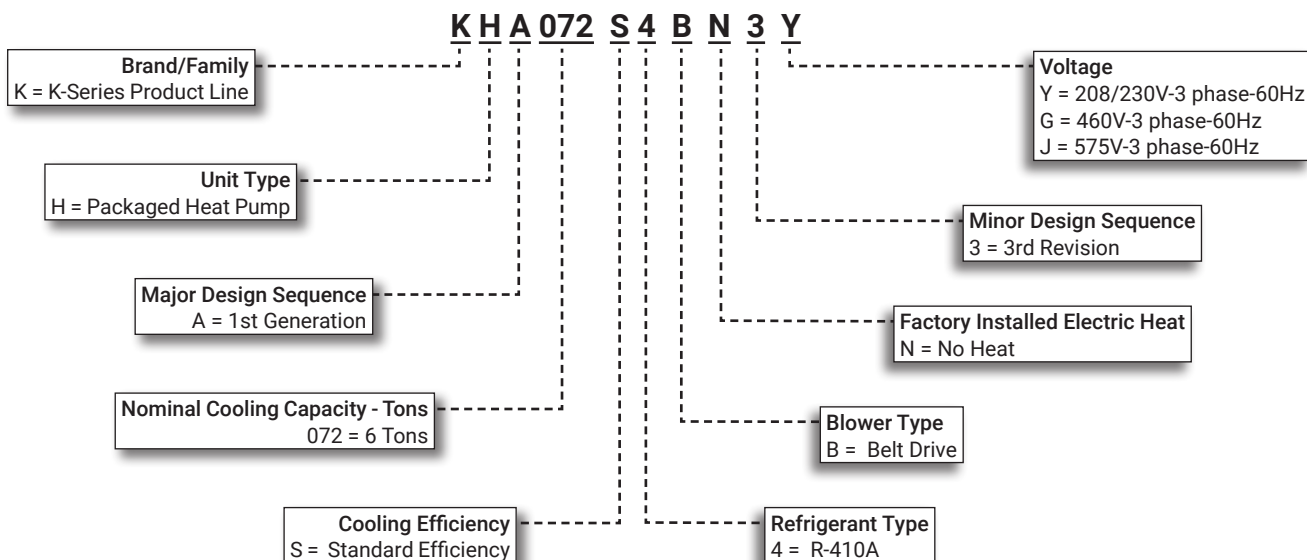
Bulletin No. 310897
May 2022
Supersedes March 2022



**ASHRAE 90.1
COMPLIANT**

6 Tons
Net Cooling Capacity – 68,000 Btuh
Net Heating Capacity – 70,000 Btuh
Optional Electric Heat – 7.5 to 30 kW

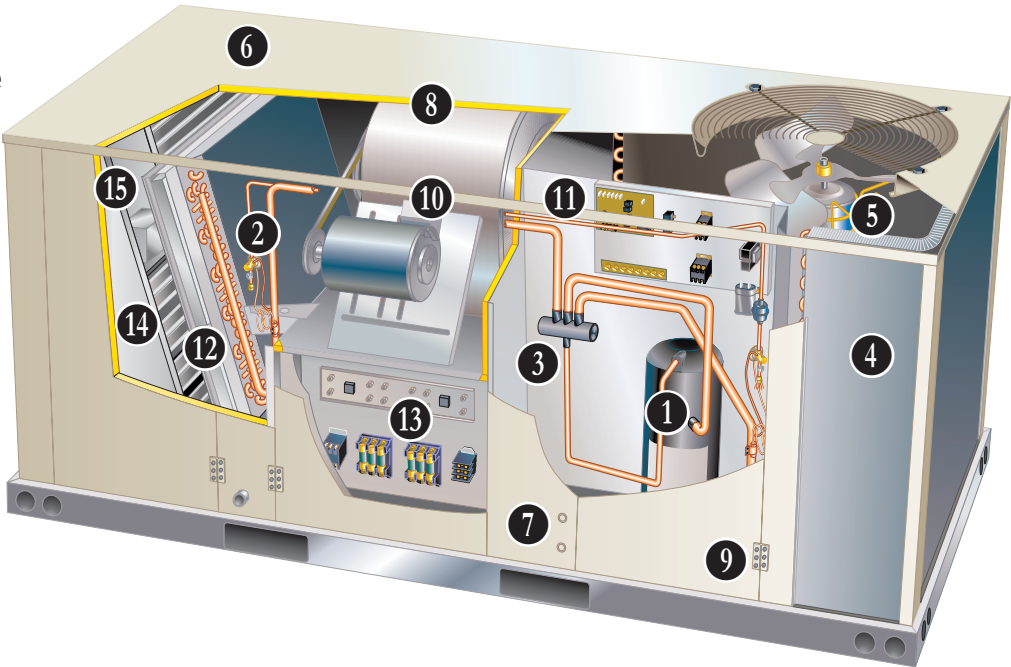
MODEL NUMBER IDENTIFICATION



FEATURE HIGHLIGHTS

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

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



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APPROVALS AND WARRANTY

APPROVALS

- AHRI Standard 340/360 certified
- ETL and CSA listed
- CSA certified energy ratings
- Unit and components ETL, NEC and CEC bonded for grounding to meet safety standards for servicing
- All models are ASHRAE 90.1 compliant
- ISO 9001 Registered Manufacturing Quality System

WARRANTY

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

FEATURES AND BENEFITS

COOLING / HEATING SYSTEM

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

R-410A Refrigerant

- Non-chlorine based
- Ozone-friendly

1 Single-Stage Scroll Compressor

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

Compressor Crankcase Heater

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

High Pressure Switch

- Protects the system from high pressure conditions

2 Check/Thermal Expansion Valves

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

3 Reversing Valve

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

Defrost Control

- Control furnished as standard
- Gives a demand defrost cycle whenever system heating performance falls below optimum levels
- Sensing element on coil determines when defrost cycle is required and when to terminate cycle
- Anti-short cycle (5 minutes) incorporated into the board
- Diagnostic LED's furnished as an aid in troubleshooting

Filter/Drier

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

Indoor Coil Freeze Protection

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

4 Coil Construction

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

Indoor Coil

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

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

5 Outdoor Coil Fan Motor

- Thermal overload protected
- Totally enclosed
- Permanently lubricated sleeve bearing (standard efficiency)
- Permanently lubricated ball bearings (high efficiency)
- Shaft up
- Wire basket mount

Outdoor Coil Fan

- PVC coated fan guard furnished

Required Selections

Cooling Capacity

- Specify nominal cooling capacity

FEATURES AND BENEFITS

COOLING / HEATING SYSTEM (continued)

Options/Accessories

Field Installed

Condensate Drain Trap

- Available in copper or PVC

Drain Pan Overflow Switch

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

Low Ambient Kit (0°F)

- Cycles the outdoor fan while allowing compressor operation in the cooling cycle
- Includes field installed pressure switch on the liquid line to determine when to operate the outdoor fan
- This intermittent fan operation allows the system to operate without icing the evaporator coil and losing capacity
- Designed for use in ambient temperatures no lower than 0°F
- If liquid line pressure drops below 240 psig outdoor fan stops until main pressure switch has reset to 450 psig to resume normal cooling operation
- If pressure drops below 180 psig outdoor fan stops until pressure rises to 300 psig, then fan operates at 25% normal fan speed unless main pressure switch has reset to 450 psig to resume normal cooling operation and full fan speed operation

CABINET

6 Construction

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

Airflow Choice

- Units are shipped in downflow (vertical) configuration
- Can be field converted to horizontal air flow configuration without the need of a kit

7 Power Entry

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

8 Insulation

- Fully insulated with non-hygroscopic fiberglass insulation (conditioned areas)
- Unit base is fully insulated
- Base insulation serves as an air seal to the roof curb, eliminating the need to add a seal during installation

Access Panels

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

NOTE - Include a filler panel for proper cabinet fit for optional K-Series KHA072 Packaged Heat Pump 6 Tons / Page 4

accessories (Economizers, Power Exhaust, Outdoor Air Dampers and Barometric Relief Dampers).

Options/Accessories

Factory Installed

Corrosion Protection

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

9 Hinged Access Panels

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

Field Installed

Combination Coil/Hail Guards

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

BLOWER

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

10 Motor

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

Supply Air Blower

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

Required Selections

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

FEATURES AND BENEFITS

CONTROLS

11 Unit Control

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

Options/Accessories

Field Installed

Smoke Detector

- Photoelectric type
- Installed in supply air section, return air section or both sections
- Available with power board and single sensor (supply or return) or power board and two sensors (supply and return)
- Power board located in unit control compartment

Commercial Control Systems

Thermostats

- Control system and thermostat options see page 10

ELECTRICAL

Marked & Color-Coded Wiring

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

Electrical Plugs

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

Required Selections

Voltage Choice

- Specify when ordering base unit

Options/Accessories

Factory or Field Installed

Disconnect Switch up to 150 Amp

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

GFI Service Outlets (2)

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

Field Installed

12 Electric Heat

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

GFI Weatherproof Cover

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

FEATURES AND BENEFITS

INDOOR AIR QUALITY

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

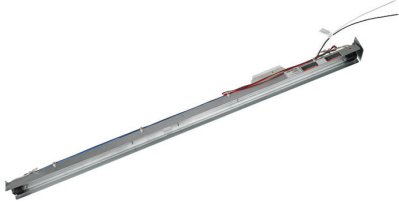
Options/Accessories

Field Installed

High Efficiency Air Filters

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

UVC Germicidal Lamps



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

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

- Approved by ETL

Options/Accessories (continued)

Field Installed

Indoor Air Quality (CO₂) Sensors

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

Needlepoint Bipolar Ionization (NPBI) Kit

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

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

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

OPTIONS/ACCESSORIES

ECONOMIZER

Factory or Field Installed

14 Standard Economizer (Not for Title 24)

NOTE - Factory Installed Economizer Includes -

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

Field Installed Economizer Does Not Include -

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

- Factory installed Economizer can be ordered with two exhaust options:
 - Barometric Relief Dampers
 - No Exhaust

Features:

- Gear-driven action
- Return air and outdoor air dampers
- Plug-in connections to unit
- Neoprene seals
- 24-volt, fully-modulating spring return motor
- Occupied/Unoccupied mode with field furnished setback thermostat
- Demand Control Ventilation (DCV) ready using optional CO₂ sensors
- Mixed Air Sensor is furnished for field installation in the rooftop unit

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

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

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

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

Standard Economizer Control Module

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

Economizer Controls:

- **Damper Minimum Position**
Can be set lower than traditional minimum air requirements resulting in cost savings
- **IAQ Sensor** - Signals dampers to modulate and maintain 55°F when CO₂ is higher than the CO₂ setpoint



- **Demand Control Ventilation (DCV) LED** - A steady green Demand Control Ventilation LED indicates the IAQ reading is higher than setpoint and requires more fresh air
- **Free Cool LED** - A steady green LED indicates outdoor air is suitable for free cooling
 - Free Cooling runs when outdoor air temperature is lower than the set temperature on the economizer control

NOTE: The Free Cooling default setting for outdoor air temperature sensor is 55°F.

High Performance Economizer

- Approved for California Title 24 building standards
- Low leakage dampers are Air Movement and Control Association International (AMCA) Class 1A Certified - Maximum 3 cfm per sq. ft. leakage at 1 in. w.g.
- ASHRAE 90.1 compliant

Features:

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

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

- Combination Outdoor Air/Exhaust Hood is furnished
- Field installed Economizer includes Barometric Relief Dampers with Combination Outdoor Air/Exhaust Hood
- Occupied/Unoccupied mode with field furnished setback thermostat
- Demand Control Ventilation (DCV) ready using optional CO₂ sensors
- Mixed Air Sensor is furnished for field installation in the rooftop unit

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

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

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

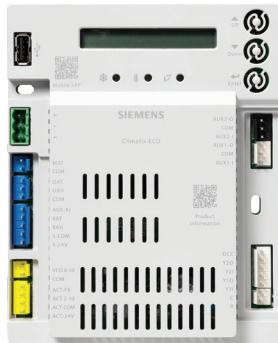
NOTE - Horizontal Barometric Dampers are required for horizontal Economizer applications and must be ordered separately.

OPTIONS/ACCESSORIES

ECONOMIZER (continued)

High Performance Economizer Control Module

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



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

- Module displays any alarm messages (fault detection and diagnostics) as an aid in troubleshooting
- RS485 port for BACnet MSTP or Modbus RTU communication
- USB port for firmware updates and WLAN connection for setup and commissioning
- QR codes on module for quick access to download Climatix Mobile App and user documentation
- User Interface for normal operation, parameter setup and alarm notifications with an LCD display and three operation buttons:

1. **Up Button** - Move to the previous value, step or category
2. **Down Button** - Move to the next value, step or category
3. **Enter Button** -
 - Press to edit the current value or option
 - Press to confirm a newly selected value or option
 - Press Enter + Up to jump up one category
 - Press Enter + Down to jump down one category

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

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

Factory or Field Installed

Single Enthalpy Temperature Control

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

Field Installed

Differential Enthalpy Control (Not for Title 24)

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

WLAN Stick

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

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

OPTIONS/ACCESSORIES

EXHAUST

Field Installed

Horizontal Barometric Relief Dampers

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

NOTE - Requires Horizontal Economizer Conversion Kit.

Horizontal Economizer Conversion Kit

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

15 Power Exhaust Fan

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

NOTE - Not available for 024 and 030 models.

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

OUTDOOR AIR

Factory or Field Installed

Outdoor Air Dampers - Downflow or Horizontal With Air Hood

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

ROOF CURBS

Field Installed

- Nailer strip furnished
- Mates to unit
- US National Roofing Contractors Approved
- Shipped knocked down

Hybrid Roof Curbs

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

Full Perimeter Curbs, Downflow (090 Models Only)

- Hybrid roof curbs can be assembled using interlocking tabs to fasten corners together
- No tools required.
- Can also be fastened together with furnished hardware
- Available in 8, 14, 18, and 24 inch heights

NOTE - 060H and 074 models can be used on smaller 79-3/4 in. Hybrid Roof Curbs (not full perimeter) with 15-3/4 in. overhang at condenser end of unit. See dimension drawing on page 26.

Adjustable Pitch Curb

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

Adaptor Curbs (not shown)

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

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

CEILING DIFFUSERS

Field Installed

Ceiling Diffusers (Flush or Step-Down)

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

Transitions (Supply and Return)

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

Bacnet Compatible Thermostat With Reheat Function



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

Description	Model No.	Catalog No.
BACnet Controls	¹ 7-Day BACnet Thermostat - - -	Y8241
	² BACnet Module (factory or field)	K0CTRL31A-2 16X70
³ BACnet Room Sensors	With Display	K0SNSR01FF1 97W23
	Without Display	K0SNSR00FF1 97W24

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

² Not compatible with units equipped with Dehumidification option.

³ Only compatible with BACnet Module (16X70).

OPTIONS / ACCESSORIES

Item	Catalog No.	KHA072
COOLING SYSTEM		
Condensate Drain Trap	PVC 22H54 Copper 76W27	X X
Drain Pan Overflow Switch	74W42	X
Low Ambient Kit	14D96	X
Efficiency	Standard	O
Refrigerant Type	R-410A	O
BLOWER - SUPPLY AIR		
Motors	Belt Drive - 1.5 hp (208/230V, 460V, 575V-3ph) Standard Efficiency	Factory O
	Belt Drive - 2 hp (208/230V, 460V, 575V-3ph) Standard Efficiency	Factory O
Drive Kits	Kit A04 - 968-1340 rpm	Factory O
See Blower Data Tables for selection	Kit A08 - 1193-1591 rpm	Factory O
CABINET		
Combination Coil/Hail Guards	13T17	X
Corrosion Protection		O
Hinged Access Panels		O
CONTROLS		
NOTE - Also see Conventional Thermostat Control Systems on page 10 for Additional Options.		
Smoke Detector - Supply or Return (Power board and one sensor)	21Z11	X
Smoke Detector - Supply and Return (Power board and two sensors)	21Z12	X
ECONOMIZER		
Standard Economizer With Outdoor Air Hood (Sensible Control) (Not for Title 24)		
Standard Economizer - Includes Barometric Relief Dampers and Exhaust Hood	14D90	OX
Economizer - No Exhaust	Factory	O
Standard Economizer Controls (Not for Title 24)		
Standard Economizer	23T20	OX
Factory Installed Economizer - Includes Barometric Relief Dampers, Combination Outdoor Air/Exhaust Hood and Harness		
Field Installed Economizer - Barometric Relief Dampers, Combination Outdoor Air/Exhaust Hood and Harness are not furnished and must be ordered separately (see below)		
Barometric Relief Dampers, Combination Hood and Harness for Field Installed Economizer	23B17	X
Differential Enthalpy Control (order 2)	21Z09	X
High Performance Economizer With Outdoor Air Hood (Sensible Control) (Approved for California Title 24 Building Standards / AMCA Class 1A Certified)		
High Performance Economizer (Includes Barometric Relief Dampers and Combination Outdoor Air/Exhaust Hood)	23G22	OX
High Performance Economizer - No Exhaust	Factory	O
High Performance Economizer Controls (Not for Title 24)		
Single Enthalpy Control	23G26	OX
Differential Enthalpy Control (order 2)	23G26	X
Economizer Accessories		
Horizontal Economizer Conversion Kit	17W45	X
OUTDOOR AIR		
Outdoor Air Dampers - Includes Outdoor Air Hood		
Motorized	15D17	OX
Manual	15D18	OX
POWER EXHAUST FAN		
Standard Static	208/230V-3ph 21Z13	X
<i>NOTE - Order Barometric Relief Dampers with Exhaust Hood below if unit is ordered with factory installed Economizer with "No Exhaust" option</i>	460V-3ph 21Z14	X
	575V-3ph 21Z15	X
¹ BAROMETRIC RELIEF		
Barometric Relief Dampers with Exhaust Hood	74W38	X

¹ Required when Economizer is factory installed (no exhaust option) with field installed Power Exhaust Fan option.

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

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

O - Configure to Order (Factory Installed)

X - Field Installed

OPTIONS / ACCESSORIES

Item	Catalog No.	KHA072
ELECTRICAL		
Disconnect	See Electrical/Electric Heat Tables for selection	OX
Voltage	208/230V - 3 phase	O
60 Hz	460V - 3 phase	O
	575V - 3 phase	O
GFI Service	15 amp non-powered, field-wired (208/230V, 460V only)	74M70 OX
Outlets	20 amp non-powered, field-wired (575V only)	67E01 X
Weatherproof Cover for GFI		10C89 X
ELECTRIC HEAT		
7.5 kW	208/230V-3ph	14W35 X
	460V-3ph	14W39 X
	575V-3ph	14W43 X
15 kW	208/230V-3ph	14W36 X
	460V-3ph	14W40 X
	575V-3ph	14W44 X
22.5 kW	208/230V-3ph	14W37 X
	460V-3ph	14W41 X
	575V-3ph	14W45 X
30 kW	208/230V-3ph	14W38 X
	460V-3ph	14W42 X
	575V-3ph	14W46 X
INDOOR AIR QUALITY		
Air Filters		
High Efficiency Air Filters (Order 4 per unit)	MERV 8 (20 x 20 x 2)	54W21 X
	MERV 13 (20 x 20 x 2)	52W39 X
Indoor Air Quality (CO₂) Sensors		
Sensor - Wall-mount, off-white plastic cover with LCD display		77N39 X
Sensor - Wall-mount, black plastic case, no display, rated for plenum mounting		87N54 X
CO ₂ Sensor Duct Mounting Kit - for downflow applications		85L43 X
Aspiration Box - for duct mounting non-plenum rated CO ₂ sensor (77N39)		90N43 X
Needlepoint Bipolar Ionization (NPBI)		
Needlepoint Bipolar Ionization Kit		22U14 X
UVC Germicidal Lamps		
¹ UVC Light Kit (110/230V-1ph)		21A92 x
Step-Down Transformers	460V primary, 230V secondary	10H20 X
	575V primary, 230V secondary	10H21 X
ROOF CURBS		
Hybrid Roof Curbs, Downflow		
8 in. height		11F50 ² X
14 in. height		11F51 ² X
18 in. height		11F52 ² X
24 in. height		11F53 ² X
Hybrid Roof Curbs, Full Perimeter, Downflow		
8 in. height		11S47 X
14 in. height		11S48 X
18 in. height		11T01 X
24 in. height		11T06 X
Adjustable Pitch Curb, Downflow		
14 in. height		43W27 X
CEILING DIFFUSERS		
Step-Down - Order one	RTD11-95S	13K61 X
Flush - Order one	FD11-95S	13K56 X
Transitions (Supply and Return) - Order one	T1TRAN20N-1	17W54 X

¹ Lamps operate on 110-230V single-phase power supply. Step-down transformer may be ordered separately for 460V and 575V units. Alternately, 110V power supply may be used to directly power the UVC ballast(s).

² KHA072 model will fit smaller roof curbs with overhang. See dimension drawing.

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

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

O - Configure to Order (Factory Installed)

X - Field Installed

SPECIFICATIONS

General Data		Nominal Tonnage	6 Ton
		Model No.	KHA072S4B
		Efficiency Type	Standard
		Blower Type	Single-Speed Belt Drive
Cooling Performance	Gross Cooling Capacity - Btuh		71,300
	¹ Net Cooling Capacity - Btuh		69,000
	¹ AHRI Rated Air Flow - cfm		2060
	² Sound Rating Number (SRN) (dBA)		83
	Total Unit Power - kW		6.3
	¹ IEER (Btuh/Watt)		12.2
	¹ EER (Btuh/Watt)		1.0
Refrigerant		Type	R-410A
		Charge Furnished	20 lbs. 8 oz.
Heating Performance	Total High Heating Capacity - Btuh		70,000
	Total Unit Power - kW		6.2
	¹ COP		3.3
	Total Low Heating Capacity - Btuh		40,000
	Total Unit Power - kW		5.7
	¹ COP		2.25
Electric Heating Options - See page 12			7.5, 15, 22.5, 30 kW
Compressor Type (one per unit)			Scroll
Outdoor Coil	Net face area - sq. ft.		28.0
	Tube diameter - in.		3/8
	Number of rows		2
	Fins / inch		20
Outdoor Coil Fan	Motor - (No.) HP		(1) 1/2
	Motor rpm		1075
	Total Motor Input - watts		680
	Diameter - (No.) in. / No. of blades		(1) 24 - 4
	Total air volume - cfm		5735
Indoor Coil	Net face area - sq. ft.		9.7
	Tube diameter - in.		3/8
	Number of rows		4
	Fins / inch		14
	Drain Connection (no.) and size - in.		(1) 1 NPT
	Expansion device type		Balanced Port Thermostatic Expansion Valve, removable power head
³ Indoor Blower & Drive Selection	Nominal Motor HP		1.5 hp, 2 hp
	Maximum Usable Motor HP		1.7 hp, 2.3 hp
	Available Drive Kits		A04
			968 - 1340 rpm
			A08
			1193 - 1591 rpm
Filters	Wheel nom. diameter x width - in.		(1) 10 x 10
	Type		Disposable
	Number and size - in.		(4) 20 x 20 x 2
Electrical Characteristics - 60 Hz			208/230V, 460V & 575V 3 phase

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

¹ AHRI Certified to AHRI Standard 340/360:

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

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

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

² Sound Rating Number (SRN) rated in accordance with test conditions included in ARI Standard 270-95.

³ Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor hp required. Maximum usable hp of motors furnished are shown. In Canada, nominal motor hp is also maximum usable motor hp. If motors of comparable hp are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

COOLING / HEATING RATINGS

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

6 TON COOLING STANDARD EFFICIENCY KHA072S4

Entering Wet Bulb Tem- perature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																							
		85°F						95°F						105°F						115°F					
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)						
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb						
				75°F	80°F	85°F			75°F	80°F	85°F			75°F	80°F	85°F			75°F	80°F	85°F				
cfm	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F					
63°F	1920	69.2	4.52	0.69	0.85	1	64.7	5.02	0.7	0.87	1	59.9	5.59	0.71	0.91	1	54.6	6.22	0.74	0.95	1				
	2400	73.3	4.52	0.74	0.94	1	68.5	5.03	0.76	0.97	1	63.8	5.59	0.79	1	1	58.7	6.22	0.82	1	1				
	2880	76.8	4.53	0.81	1	1	72.5	5.03	0.83	1	1	67.8	5.59	0.87	1	1	62.6	6.23	0.91	1	1				
67°F	1920	74.3	4.53	0.53	0.67	0.81	69.5	5.03	0.54	0.68	0.83	64.5	5.59	0.54	0.69	0.86	58.9	6.23	0.54	0.71	0.9				
	2400	78.3	4.53	0.57	0.72	0.9	73.3	5.03	0.58	0.74	0.94	67.8	5.59	0.58	0.76	0.97	62.1	6.23	0.59	0.79	1				
	2880	81.2	4.54	0.6	0.79	0.98	76.1	5.03	0.61	0.81	1	70.4	5.59	0.62	0.84	1	64.1	6.22	0.64	0.88	1				
71°F	1920	79.6	4.54	0.4	0.52	0.64	74.6	5.03	0.39	0.53	0.65	69.3	5.59	0.38	0.53	0.67	63.5	6.23	0.38	0.53	0.69				
	2400	83.4	4.54	0.41	0.56	0.7	78.2	5.03	0.41	0.56	0.72	72.7	5.59	0.41	0.57	0.74	66.7	6.23	0.4	0.59	0.77				
	2880	86.4	4.55	0.43	0.6	0.76	81.1	5.04	0.43	0.6	0.78	75.3	5.6	0.42	0.62	0.81	69	6.23	0.42	0.63	0.85				

6 TON HEATING STANDARD EFFICIENCY KHA072S4

Indoor Coil Air Volume 70°F Dry Bulb cfm	Air Temperature Entering Outdoor Coil									
	65°F		45°F		25°F		5°F		-15°F	
	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input
	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW
1920	87.4	5.55	66.5	4.89	45.3	4.18	27.8	3.70	13.50	2.82
2400	89.7	5.25	68.9	4.59	47.7	3.88	30.1	3.40	15.80	2.52
2880	91.3	5.07	70.5	4.41	49.3	3.70	31.7	3.21	17.40	2.33

BLOWER DATA**BELT DRIVE - DOWNFLOW - 6 TON**

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

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (economizer, wet coil, etc.).

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

See page 17 for blower motors and drives and page 17 for wet coil and options/accessory air resistance data.

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1900	826	0.36	859	0.41	894	0.45	928	0.50	964	0.56	1000	0.61	1036	0.66	1072	0.70
2000	857	0.42	889	0.47	920	0.52	952	0.57	986	0.62	1020	0.68	1055	0.73	1091	0.77
2100	878	0.49	909	0.54	940	0.59	973	0.64	1006	0.70	1041	0.75	1076	0.80	1112	0.85
2200	897	0.55	929	0.61	961	0.66	994	0.72	1028	0.78	1063	0.83	1099	0.89	1134	0.93
2300	918	0.62	950	0.68	983	0.74	1017	0.80	1052	0.86	1087	0.92	1122	0.97	1157	1.02
2400	941	0.70	974	0.77	1008	0.83	1042	0.90	1077	0.96	1111	1.01	1146	1.06	1181	1.11
2500	966	0.79	1000	0.86	1034	0.93	1068	1.00	1103	1.06	1137	1.11	1171	1.16	1205	1.20
2600	994	0.90	1028	0.97	1062	1.04	1096	1.10	1130	1.16	1164	1.21	1197	1.26	1231	1.30
2700	1023	1.01	1057	1.08	1091	1.15	1125	1.22	1159	1.27	1192	1.32	1225	1.37	1258	1.41
2800	1053	1.13	1088	1.21	1122	1.27	1155	1.33	1188	1.39	1221	1.43	1253	1.48	1286	1.53
2900	1085	1.26	1119	1.33	1153	1.40	1186	1.45	1218	1.51	1250	1.55	1281	1.61	1313	1.66

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1900	1109	0.75	1146	0.79	1183	0.82	1221	0.86	1260	0.90	1294	0.94	1323	0.98	1349	1.02
2000	1128	0.82	1164	0.86	1201	0.89	1239	0.93	1276	0.97	1310	1.01	1336	1.06	1362	1.10
2100	1148	0.89	1185	0.93	1221	0.97	1258	1.01	1294	1.05	1325	1.09	1351	1.14	1376	1.19
2200	1170	0.97	1206	1.01	1242	1.05	1277	1.09	1311	1.14	1341	1.18	1365	1.23	1390	1.28
2300	1193	1.06	1228	1.09	1262	1.14	1295	1.19	1327	1.24	1355	1.29	1380	1.33	1406	1.37
2400	1216	1.15	1250	1.19	1282	1.24	1313	1.30	1343	1.36	1371	1.40	1396	1.44	1423	1.48
2500	1240	1.24	1273	1.29	1302	1.36	1331	1.42	1360	1.48	1388	1.52	1414	1.55	1441	1.58
2600	1265	1.34	1296	1.40	1324	1.47	1352	1.54	1381	1.60	1408	1.64	1434	1.67	1460	1.70
2700	1291	1.46	1321	1.52	1347	1.60	1374	1.67	1403	1.72	1429	1.76	1455	1.79	1481	1.82
2800	1317	1.58	1346	1.66	1372	1.74	1399	1.80	1426	1.85	1451	1.89	1477	1.92	1503	1.95
2900	1343	1.72	1371	1.80	1397	1.88	1424	1.95	1450	1.99	1475	2.02	1500	2.05	1526	2.08

BLOWER DATA

BELT DRIVE - HORIZONTAL - 6 TON

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

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (economizer, wet coil, etc.).

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

See page 17 for blower motors and drives and page 17 for wet coil and options/accessory air resistance data.

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1900	853	0.41	886	0.46	919	0.50	952	0.55	986	0.60	1021	0.64	1056	0.69	1091	0.73
2000	883	0.48	913	0.53	944	0.57	976	0.62	1009	0.67	1043	0.71	1078	0.76	1112	0.80
2100	906	0.56	936	0.60	967	0.65	999	0.70	1033	0.75	1067	0.79	1101	0.84	1135	0.88
2200	930	0.64	960	0.68	991	0.73	1024	0.78	1058	0.83	1092	0.88	1126	0.92	1160	0.96
2300	954	0.72	985	0.77	1017	0.82	1051	0.87	1085	0.92	1119	0.96	1152	1.00	1186	1.04
2400	981	0.81	1013	0.86	1046	0.91	1079	0.96	1113	1.00	1146	1.05	1180	1.09	1213	1.13
2500	1010	0.91	1042	0.96	1075	1.00	1109	1.05	1142	1.09	1175	1.14	1207	1.18	1239	1.23
2600	1040	1.01	1073	1.05	1106	1.10	1139	1.14	1171	1.19	1203	1.23	1235	1.28	1266	1.33
2700	1072	1.10	1104	1.15	1137	1.20	1169	1.24	1201	1.29	1232	1.34	1263	1.40	1293	1.46
2800	1105	1.21	1137	1.25	1168	1.30	1200	1.35	1231	1.40	1261	1.46	1291	1.52	1321	1.59
2900	1138	1.32	1169	1.37	1200	1.42	1231	1.47	1261	1.53	1291	1.60	1321	1.66	1350	1.73

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1900	1126	0.77	1163	0.81	1200	0.85	1237	0.88	1273	0.92	1306	0.96	1339	1.00	1371	1.04
2000	1148	0.84	1183	0.88	1220	0.92	1257	0.96	1291	1.00	1323	1.04	1354	1.08	1385	1.12
2100	1170	0.92	1206	0.96	1242	1.00	1277	1.04	1310	1.08	1340	1.13	1371	1.17	1401	1.21
2200	1195	1.00	1230	1.04	1265	1.08	1299	1.13	1330	1.18	1359	1.23	1388	1.27	1418	1.31
2300	1220	1.08	1254	1.13	1288	1.17	1320	1.23	1350	1.28	1378	1.34	1406	1.38	1435	1.42
2400	1245	1.18	1278	1.22	1311	1.28	1341	1.33	1370	1.40	1397	1.45	1425	1.50	1454	1.54
2500	1271	1.28	1303	1.33	1334	1.39	1363	1.45	1391	1.52	1418	1.57	1446	1.62	1474	1.66
2600	1297	1.39	1328	1.45	1357	1.52	1385	1.58	1412	1.64	1439	1.70	1467	1.74	1495	1.78
2700	1323	1.52	1353	1.58	1382	1.65	1409	1.72	1435	1.77	1462	1.82	1490	1.86	1517	1.90
2800	1351	1.65	1380	1.72	1407	1.78	1434	1.85	1460	1.90	1486	1.95	1513	1.99	1541	2.02
2900	1379	1.79	1407	1.86	1434	1.92	1460	1.98	1485	2.04	1511	2.08	1538	2.12	1565	2.15

OUTDOOR SOUND DATA

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

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

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

BLOWER DATA

BELT DRIVE KIT SPECIFICATIONS

Model No.	Motor HP		No. of Speeds	Drive Kits and RPM Range	
	Nominal	Maximum		A04	A08
072	1	1.5	1	968-1340	1193-1591
	2	2.3	1	968-1340	1193-1591

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

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

Air Volume cfm	Wet Indoor Coil	Economizer	Electric Heat	Filters	
				MERV 8	MERV 13
1800	0.04	0.05	0.15	0.05	0.07
2000	0.05	0.05	0.18	0.05	0.08
2200	0.06	0.05	0.20	0.05	0.08
2400	0.07	0.05	0.22	0.05	0.08
2600	0.08	0.06	0.24	0.05	0.08
2800	0.09	0.06	0.26	0.05	0.08
3000	0.10	0.06	0.28	0.05	0.08

POWER EXHAUST FAN PERFORMANCE

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

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

Air Volume cfm	RTD11-95S Step-Down Diffuser			FD11-95S Flush Diffuser
	2 Ends Open	1 Side & 2 Ends Open	All Ends & Sides Open	
1800	0.13	0.11	0.09	0.09
2000	0.15	0.13	0.11	0.10
2200	0.18	0.15	0.12	0.12
2400	0.21	0.18	0.15	0.14
2600	0.24	0.21	0.18	0.17
2800	0.27	0.24	0.21	0.20
3000	0.32	0.29	0.25	0.25

CEILING DIFFUSER AIR THROW DATA

Air Volume - cfm	1 Effective Throw - ft.	
Model No.	RTD11-95S	FD11-95S
2600	• 24 - 29	• 19 - 24
2800	• 25 - 30	• 20 - 28
3000	• 27 - 33	• 21 - 29

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

ELECTRICAL/ELECTRIC HEAT DATA

6 TON

KHA072S - BELT DRIVE BLOWER

1 Voltage - 60Hz		208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph	
Compressor	Rated Load Amps	19		9.7		7.4	
	Locked Rotor Amps	123		62		50	
Outdoor Fan Motor	Full Load Amps	3		1.5		1.2	
Power Exhaust (1) 0.33 HP	Full Load Amps	2.4		1.3		1	
Service Outlet 115V GFI (amps)		15		15		20	
Indoor Blower Motor	Horsepower	1.5	2	1.5	2	1.5	2
	Type	Belt	Belt	Belt	Belt	Belt	Belt
	Full Load Amps	6.6	7.5	3	3.4	2.4	2.7
² Maximum Overcurrent Protection	Unit Only	50	50	25	25	20	20
	With (1) 0.33 HP Power Exhaust	50	50	25	25	20	20
³ Minimum Circuit Ampacity	Unit Only	34	35	17	18	13	14
	With (1) 0.33 HP Power Exhaust	36	37	18	19	14	15

ELECTRIC HEAT DATA

Electric Heat Voltage				208	240	208	240	480	480	600	600
² Maximum Overcurrent Protection	Unit+ Electric Heat	7.5 kW		60	70	60	70	35	35	25	25
		15 kW		80	80	80	80	40	40	35	35
		22.5 kW		100	110	100	110	60	60	40	45
		30 kW		125	125	125	125	70	70	50	50
³ Minimum Circuit Ampacity	Unit+ Electric Heat	7.5 kW		53	56	54	57	28	29	22	23
		15 kW		73	79	74	80	40	40	31	32
		22.5 kW		92	102	93	102	51	51	40	41
		30 kW		112	124	113	125	62	63	49	50
² Maximum Overcurrent Protection	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	7.5 kW		70	70	70	70	35	35	25	25
		15 kW		80	90	80	90	45	45	35	35
		22.5 kW		100	110	100	110	60	60	45	45
		30 kW		125	150	125	150	70	70	50	60
³ Minimum Circuit Ampacity	Unit+ Electric Heat and (1) 0.33 HP Power Exhaust	7.5 kW		56	59	57	60	30	30	23	24
		15 kW		75	81	76	82	41	41	32	33
		22.5 kW		95	104	96	105	52	53	41	42
		30 kW		114	126	115	127	64	64	50	51

ELECTRICAL ACCESSORIES

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

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

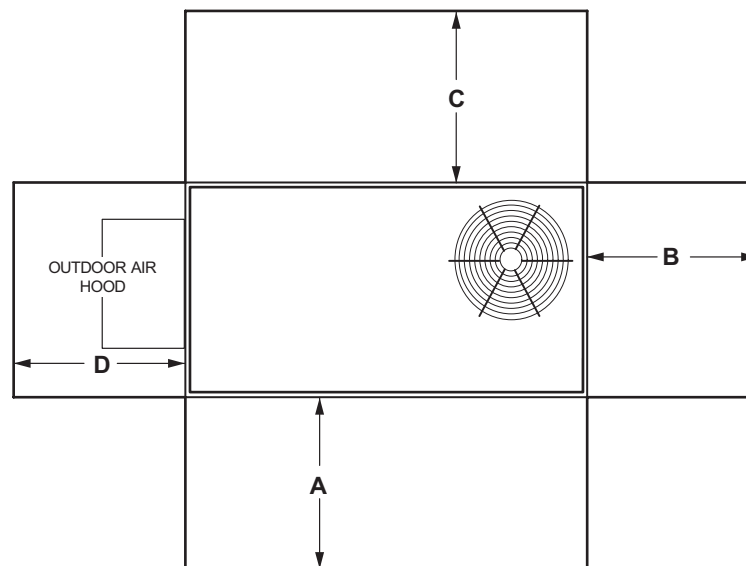
¹ Extremes of operating range are plus and minus 10% of line voltage.² HACR type breaker or fuse.³ Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRIC HEAT CAPACITIES

Input Voltage	7.5 kW			15 kW		
	No of Stages	kW input	Btuh Output	No of Stages	kW input	Btuh Output
208	1	5.6	19,200	1	11.2	38,400
220	1	6.3	21,500	1	12.6	43,000
230	1	6.9	23,500	1	13.8	47,000
240	1	7.5	25,600	1	15.0	51,200
440	1	6.3	21,500	1	12.6	43,000
460	1	6.9	23,500	1	13.8	47,000
480	1	7.5	25,600	1	15.0	51,200
550	1	6.3	21,500	1	12.6	43,000
575	1	6.9	23,500	1	13.8	47,000
600	1	7.5	25,600	1	15.0	51,200

Input Voltage	22.5 kW			30 kW		
	No of Stages	kW input	Btuh Output	No of Stages	kW input	Btuh Output
208	1	16.9	57,700	1	22.5	76,800
220	1	18.9	64,500	1	25.2	86,000
230	1	20.7	70,700	1	27.5	93,900
240	1	22.5	76,800	1	30.0	102,400
440	1	18.9	64,500	1	25.2	86,000
460	1	20.7	70,700	1	27.5	93,900
480	1	22.5	76,800	1	30.0	102,400
550	1	18.9	64,500	1	25.2	86,000
575	1	20.7	70,700	1	27.5	93,900
600	1	22.5	76,800	1	30.0	102,400

UNIT CLEARANCES



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

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

¹ Service Clearance - Required for removal of serviceable parts.

Minimum Operation Clearance - Required clearance for proper unit operation.

WEIGHT DATA

Model Number	Net				Shipping			
	Base		Max.		Base		Max.	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
KHA072S	750	340	862	391	810	367	931	422

Base Unit - The unit with NO OPTIONS.

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

OPTIONS / ACCESSORIES

		Shipping Weights	
		lbs.	kg
ECONOMIZER / OUTDOOR AIR / Exhaust			
Economizer			
Economizer - Includes Barometric Relief Dampers and Exhaust Hood		131	59
Outdoor Air Dampers			
Motorized		40	18
Manual		30	14
Power Exhaust			
Standard Static		35	16
ELECTRIC HEAT			
5 kW		31	14
7.5 kW		31	14
10 kW		31	14
15 kW		31	14
22.5 kW		35	16
30 kW		35	16
ROOF CURBS			
Hybrid Roof Curbs, Downflow			
8 in. height		50	23
14 in. height		70	32
18 in. height		80	36
24 in. height		100	45
Hybrid Curbs, Full Perimeter, Downflow			
8 in. height		57	26
14 in. height		60	27
18 in. height		91	41
24 in. height		114	52
Adjustable Pitch Curb, Downflow			
14 in. height		113	51
CEILING DIFFUSERS			
Step-Down	RTD11-95S	118	54
Flush	FD11-95S	118	54
Transitions (Supply and Return)	T1TRAN20N-1	21	10

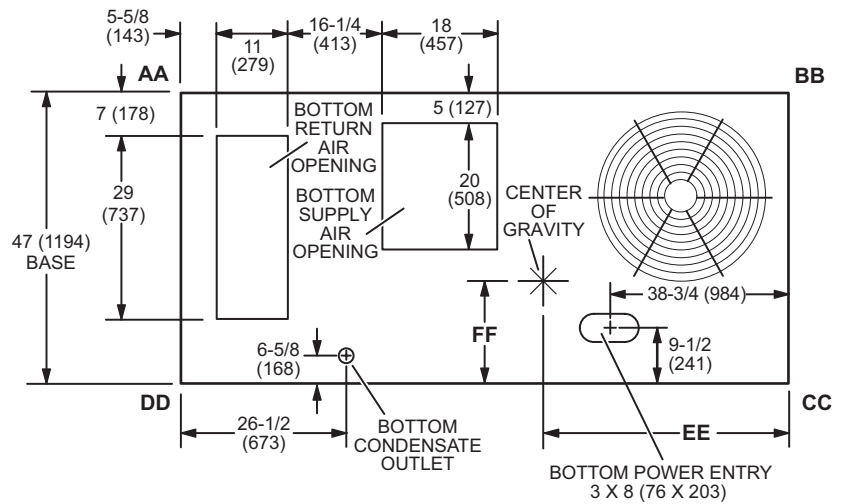
DIMENSIONS

UNIT

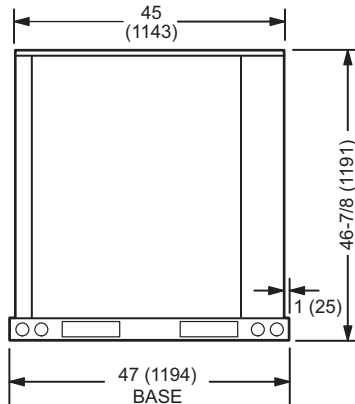
Model No.	CORNER WEIGHTS								CENTER OF GRAVITY							
	AA		BB		CC		DD		EE		FF					
	Base	Max.	Base	Max.	Base	Max.	Base	Max.	Base	Max.	Base	Max.	Base	Max.	Base	Max.
	lbs. kg	lbs. kg	lbs. kg	lbs. kg	lbs. kg	lbs. kg	lbs. kg	lbs. kg	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm	in. mm
072	160 73	185 84	180 82	208 94	233 106	269 122	207 94	239 108	46-1/4 1174	46-1/4 1174	20-1/2 521	20-1/2 521				

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

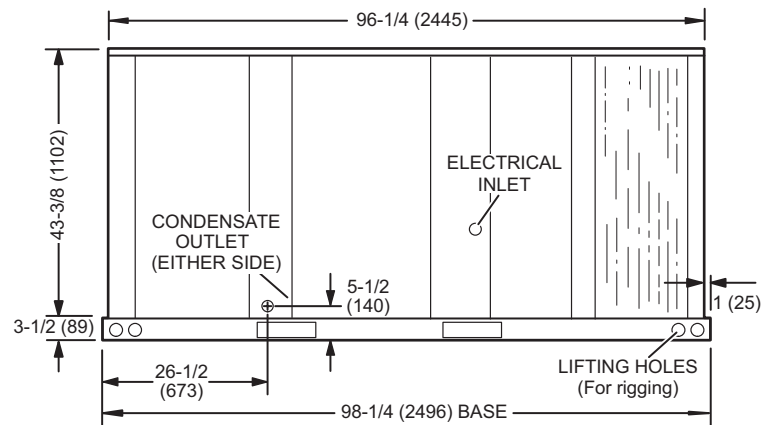
Max. Unit - The unit with ALL OPTIONS Installed (Economizer, etc.).



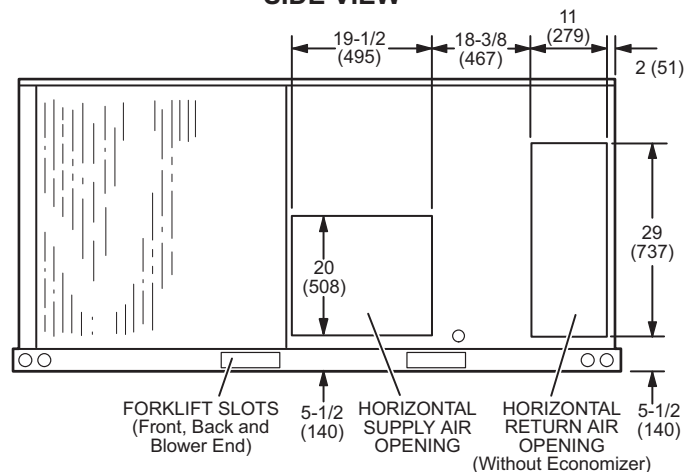
TOP VIEW (Base)



END VIEW



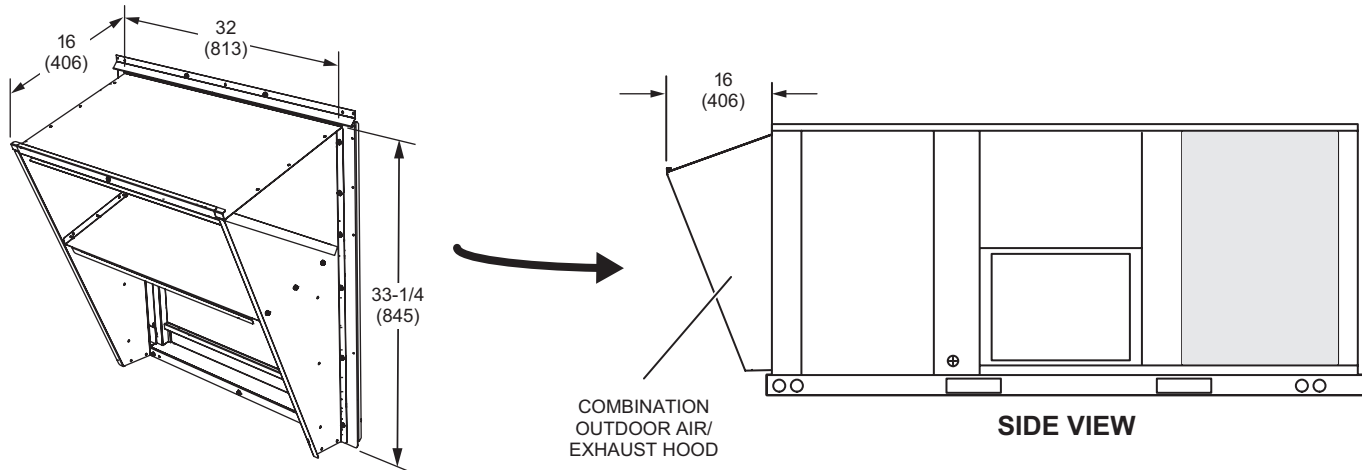
SIDE VIEW



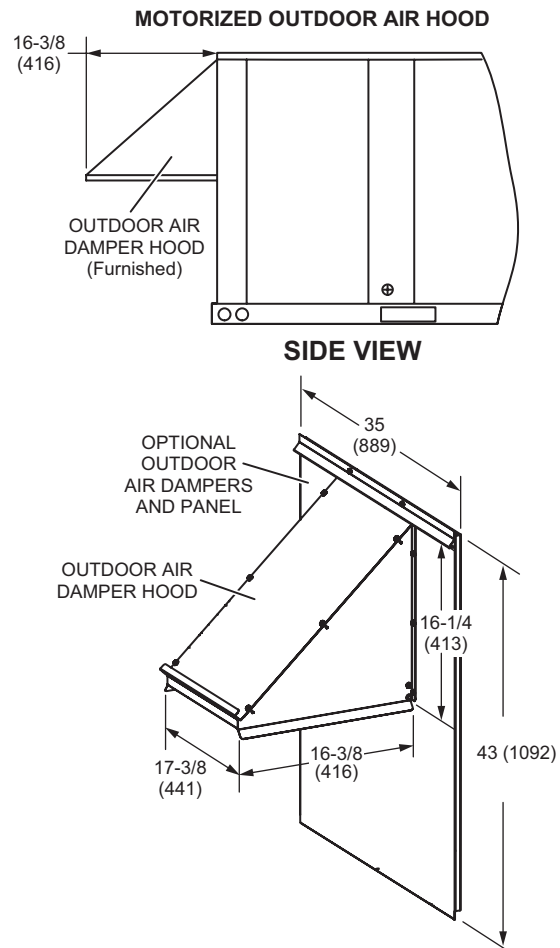
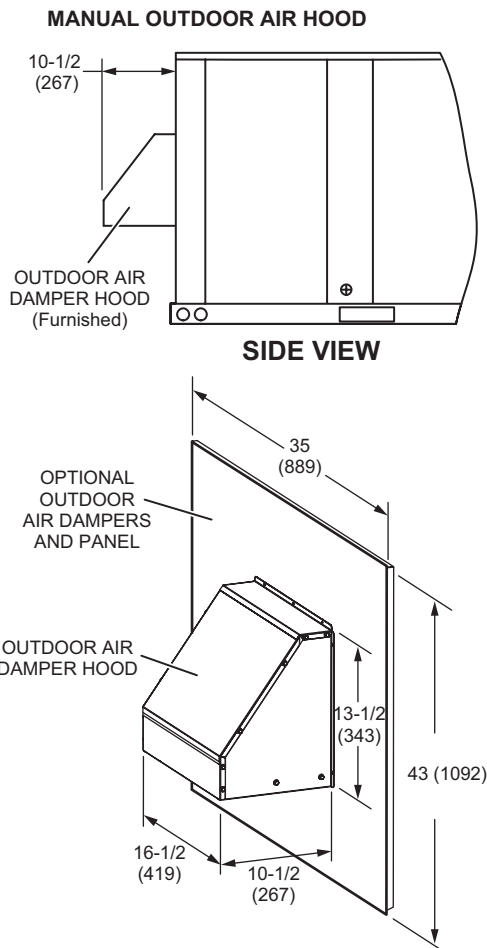
BACK VIEW

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

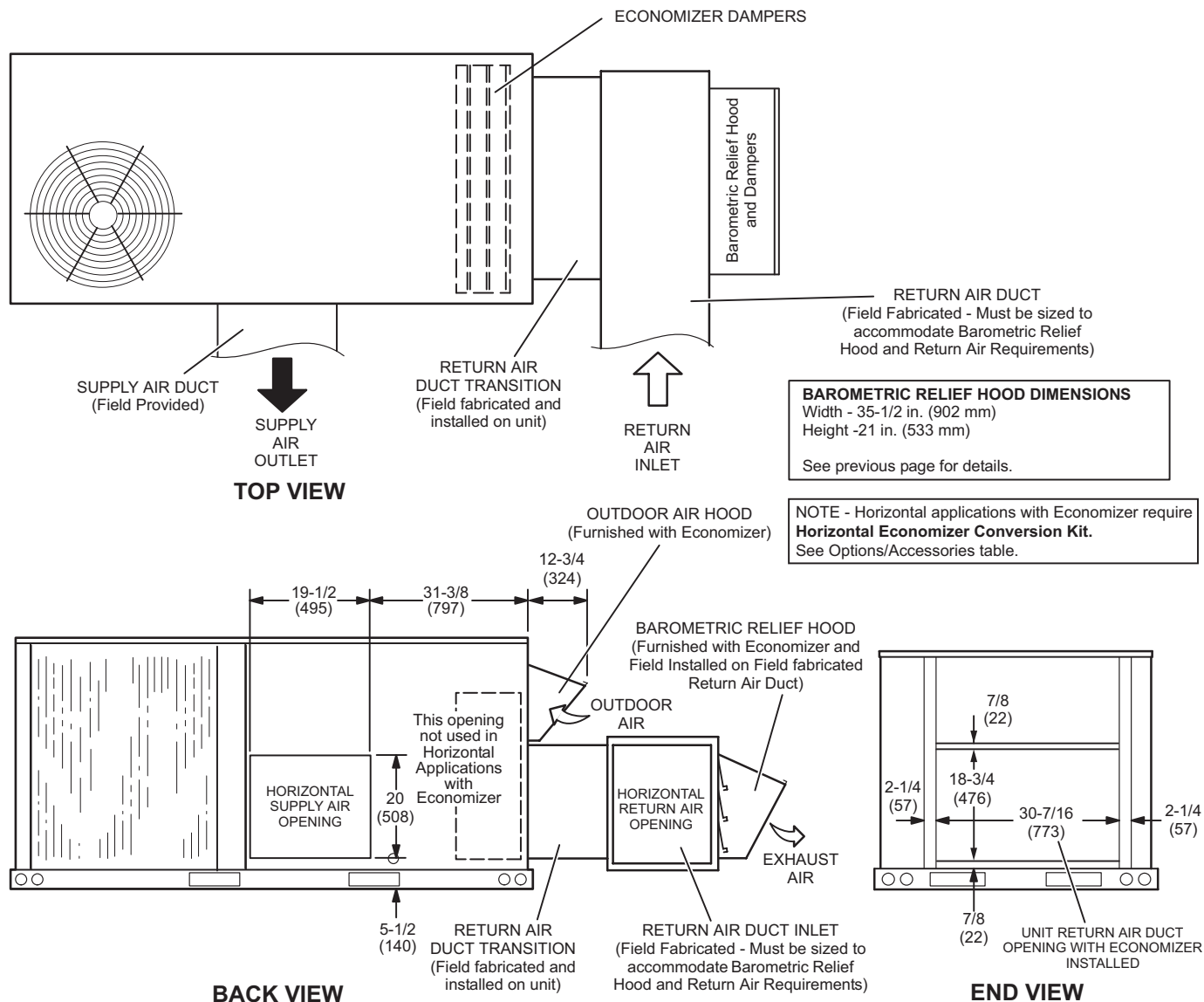
- Furnished with Factory Installed Standard Economizer
- Optional for Field Installed Standard Economizer - Order Separately
- Furnished with Factory and Field Installed High Performance Economizer



OUTDOOR AIR DAMPER HOOD DETAIL (Downflow or Horizontal Applications)

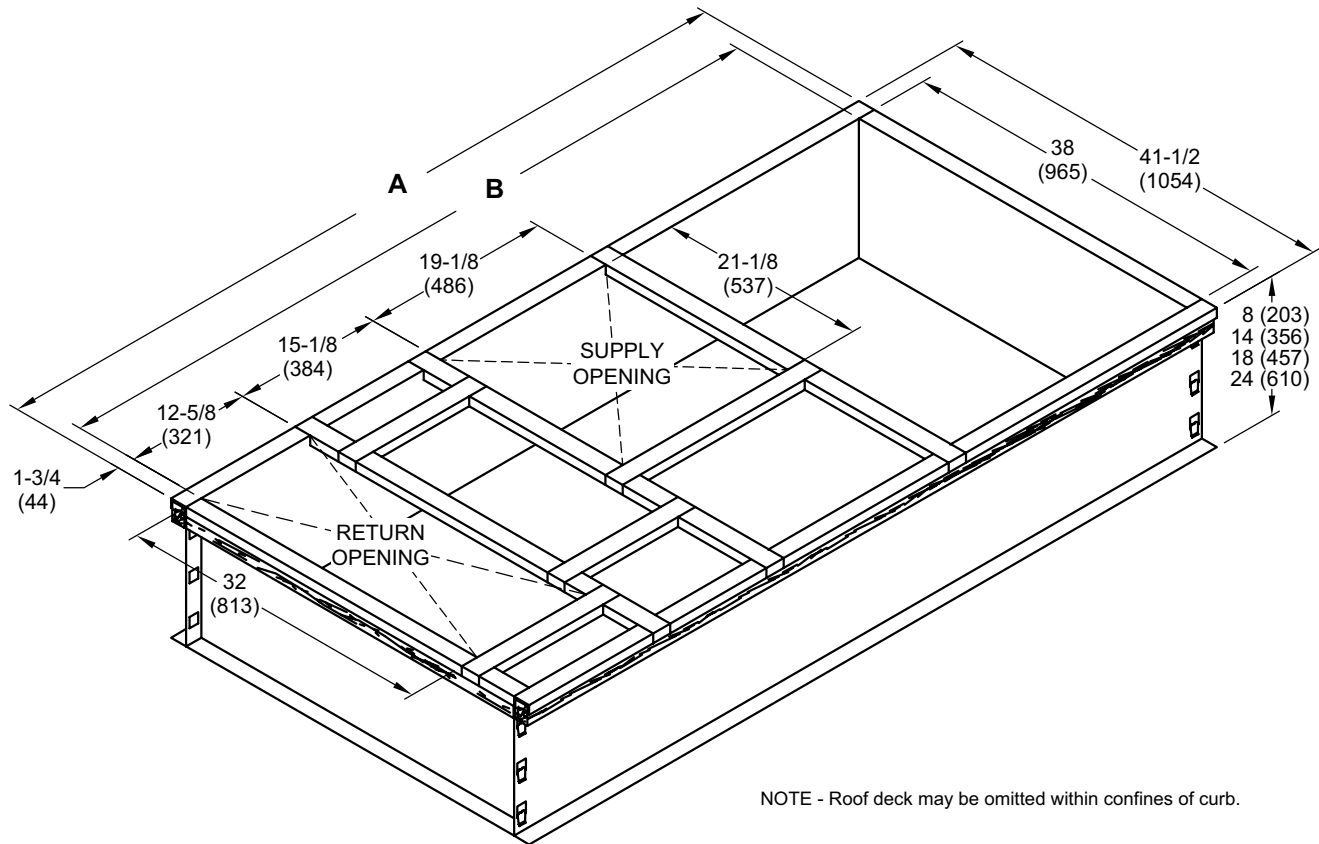


**OUTDOOR AIR HOOD DETAIL WITH OPTIONAL ECONOMIZER AND BAROMETRIC RELIEF DAMPERS
(Horizontal Applications)**



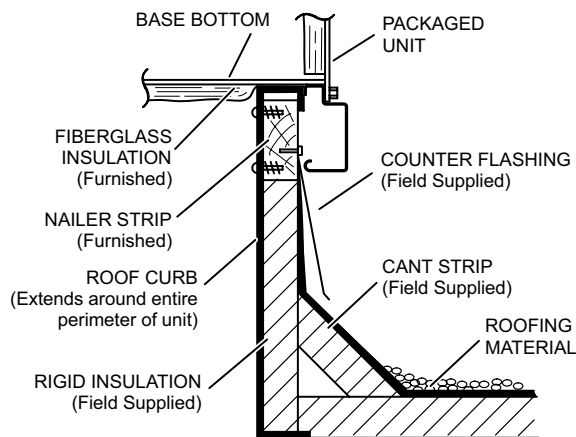
NOTE - Return Air Duct and Transition must be supported.

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

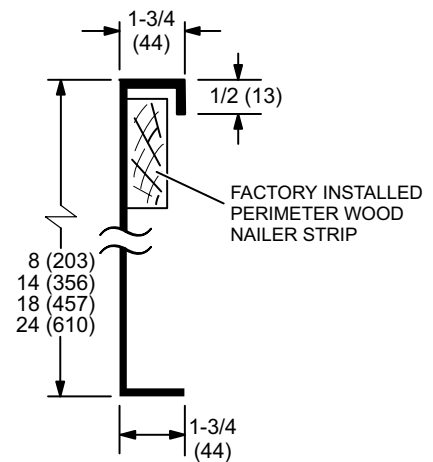


NOTE - Roof deck may be omitted within confines of curb.

TYPICAL FLASHING DETAIL FOR ROOF CURB



DETAIL ROOF CURB



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

¹ 072 models can be used on smaller 79-3/4 in. (2026 mm) roof curbs (not full perimeter) with 15-3/4 in. (400 mm) overhang at condenser end of unit. See dimension drawing on page 26.

Technical drawing of a curb assembly, showing dimensions and components. The drawing is a perspective view of a rectangular curb assembly with a top frame and a bottom curb assembly.

Dimensions (inches / millimeters):

- Overall length: 79-3/4 (2026)
- Overall width: 41-1/2 (1054)
- Top frame length: 76-1/4 (1937)
- Top frame width: 38 (965)
- Top frame height: 14 (356)
- Top frame internal length: 76-1/4 (1937)
- Top frame internal width: 38 (965)
- Top frame internal height: 14 (356)
- Top frame internal width (left side): 15-1/8 (384)
- Top frame internal width (right side): 21-1/8 (537)
- Top frame internal width (center): 19-1/8 (486)
- Top frame internal width (left side): 12-5/8 (321)
- Top frame internal width (right side): 32 (813)

Components and Labels:

- RETURN OPENING**: Indicated by a dashed line on the left side of the top frame.
- SUPPLY OPENING**: Indicated by a dashed line on the right side of the top frame.
- PRE-INSTALLED WOOD STRIP**: Indicated by a dashed line on the left side of the top frame.
- BOTTOM CURB ASSEMBLY**: Indicated by a dashed line on the bottom of the curb assembly.

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

A detailed cross-section diagram of a roof curb assembly. The diagram shows a vertical wall (curb) and a horizontal roof surface. Key components and their supply status are labeled as follows:

- BASE BOTTOM**: The bottom edge of the curb wall.
- PACKAGED UNIT**: A rectangular unit mounted on the roof surface, partially overlapping the curb.
- FIBERGLASS INSULATION (Furnished)**: A layer of insulation on the roof surface, indicated as furnished.
- COUNTER FLASHING (Field Supplied)**: A metal flashing piece that overlaps the fiberglass insulation and the curb wall, indicated as field supplied.
- NAILER STRIP (Furnished)**: A strip of material on the curb wall, indicated as furnished.
- ROOF CURB (Extends around entire perimeter of unit)**: The vertical wall of the curb, indicated as extending around the unit.
- CANT STRIP (Field Supplied)**: A strip of material at the base of the curb wall, indicated as field supplied.
- ROOFING MATERIAL**: The material on the roof surface, shown as a layer of gravel or similar material.
- RIGID INSULATION (Field Supplied)**: A thick layer of insulation at the base of the curb wall, indicated as field supplied.

1-3/4 (44)

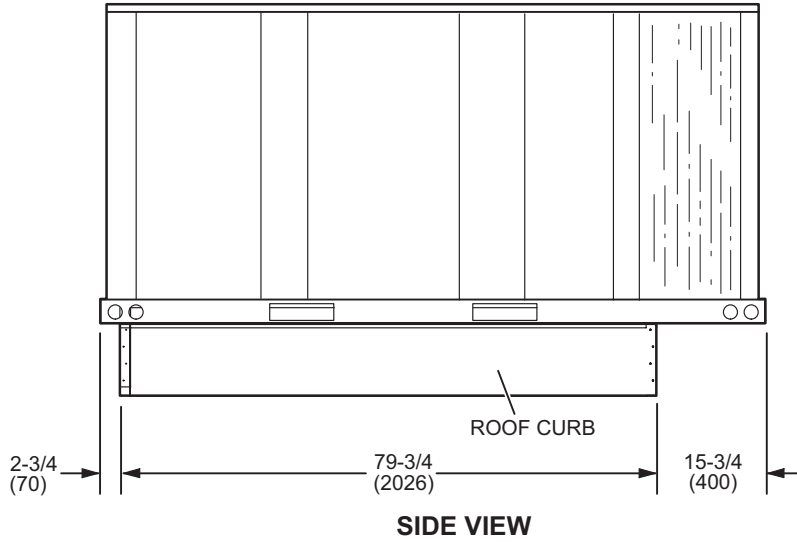
1/2 (13)

14 (356)

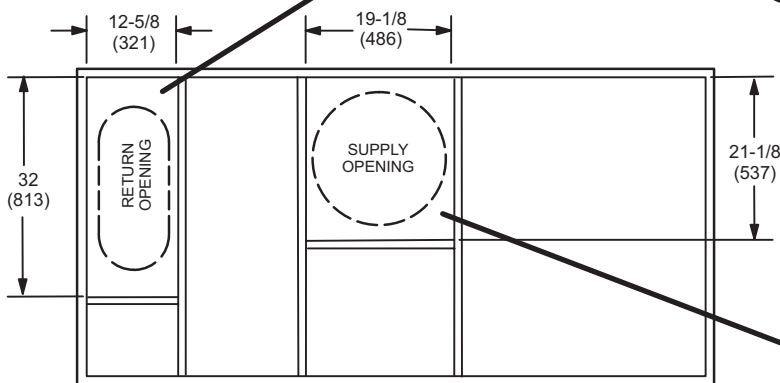
1-3/4 (44)

FACTORY INSTALLED PERIMETER WOOD NAILER STRIP

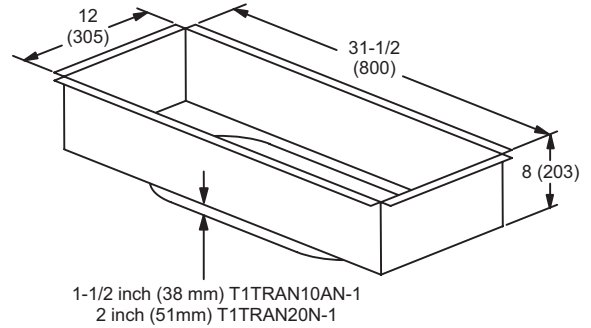
**072 MODELS - SHOWING OVERHANG ON SMALLER 79-3/4 INCH LENGTH ROOF CURBS
(Not Full Perimeter)**



TRANSITIONS

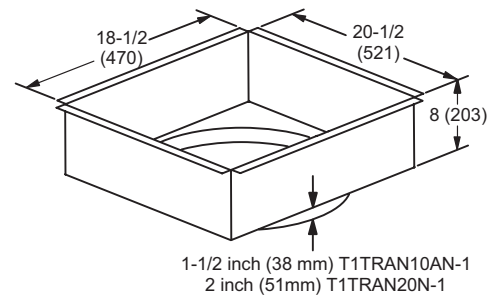


**T1TRAN10AN-1 - FOR 18 INCH (457 MM) DUCT
T1TRAN20N-1 - FOR 20 INCH (508 MM) DUCT**



RETURN TRANSITION

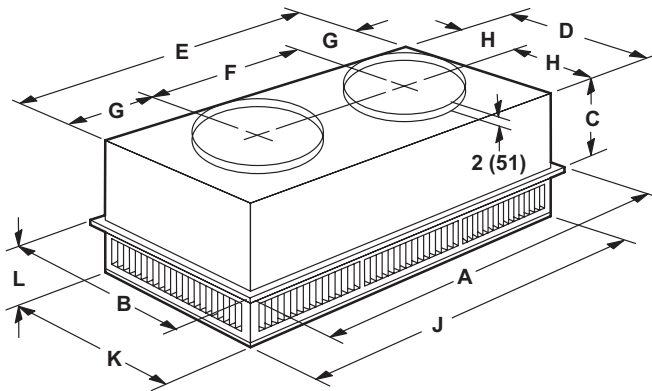
**T1TRAN10AN-1 - FOR 18 INCH (457 MM) DUCT
T1TRAN20N-1 - FOR 20 INCH (508 MM) DUCT**



SUPPLY TRANSITION

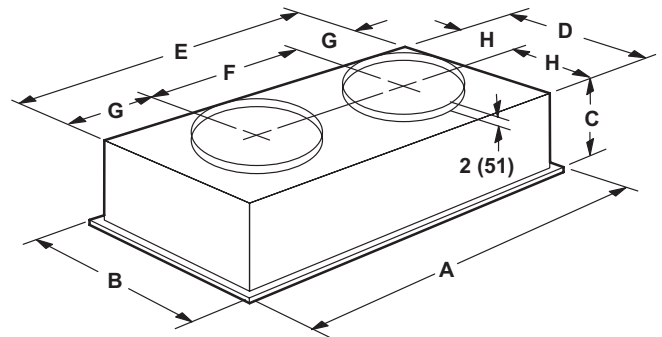
COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

STEP-DOWN CEILING DIFFUSER



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

FLUSH CEILING DIFFUSER



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

REVISIONS

Sections	Description of Change
Options/Accessories	Economizer information updated.



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