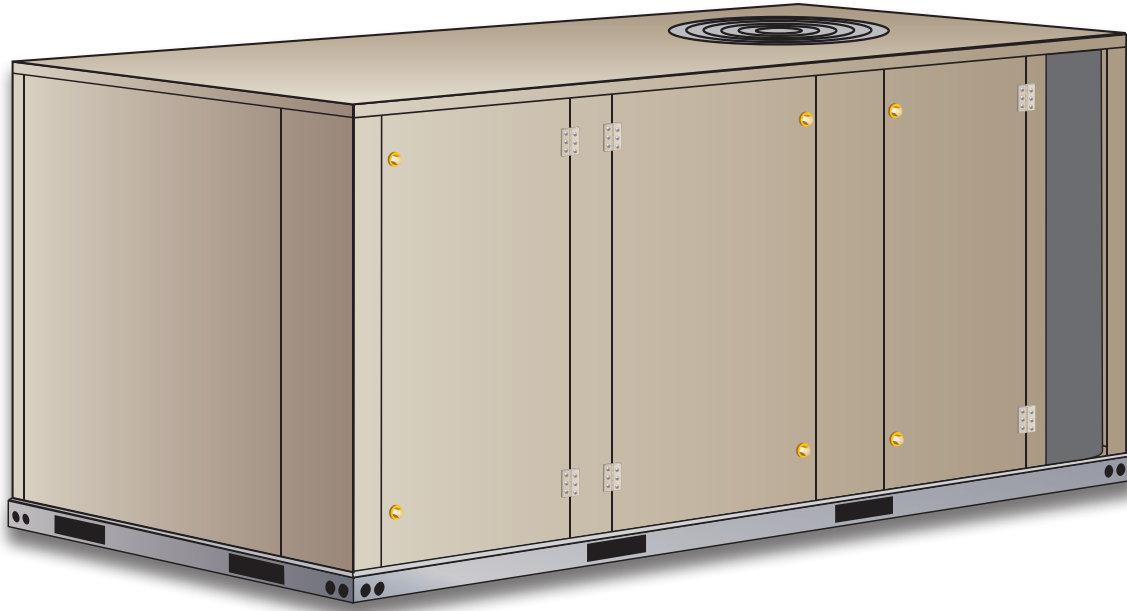


PRODUCT SPECIFICATIONS

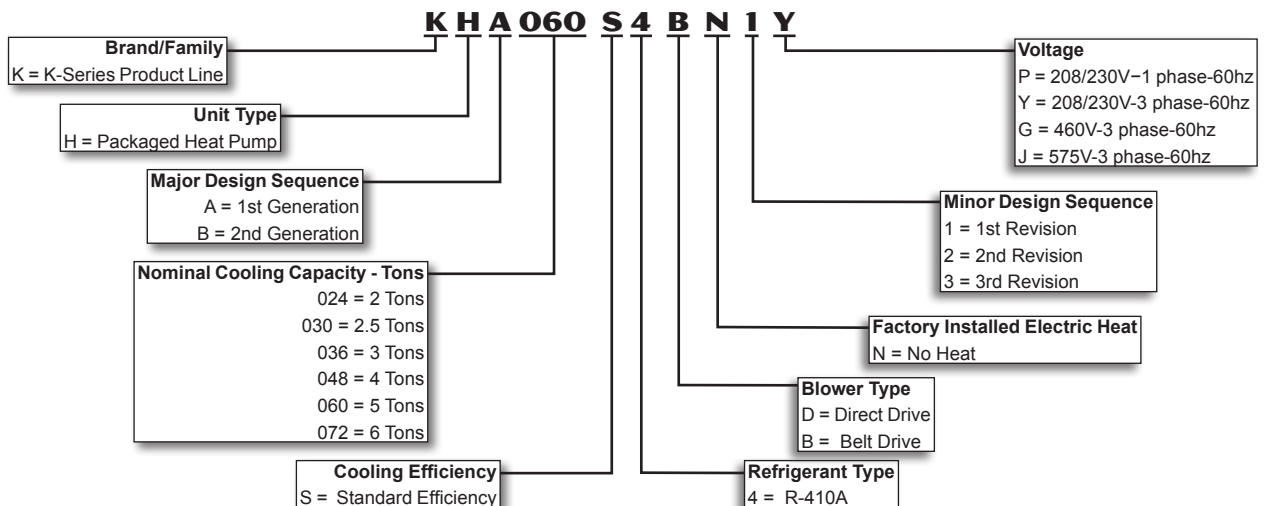
Bulletin No. KHA-024-072 (7/2014)



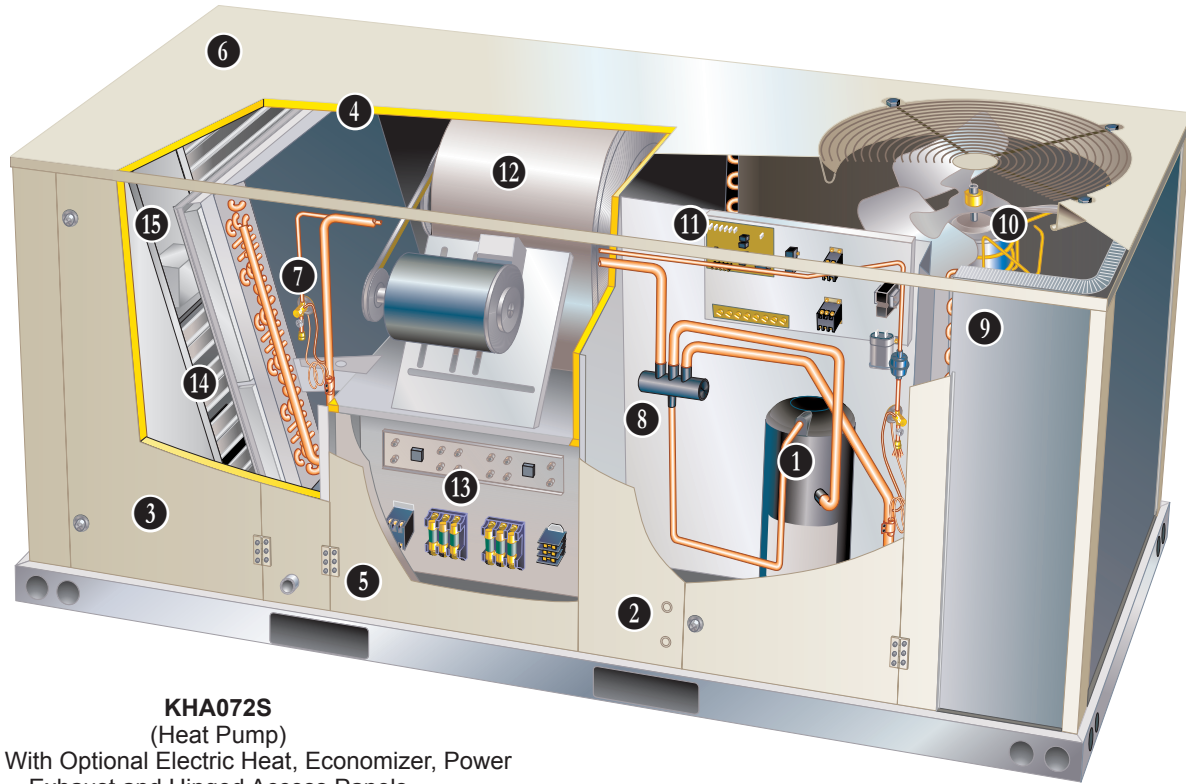
**ASHRAE 90.1
COMPLIANT**

2 to 6 Tons
Net Cooling Capacity – 22,800 to 69,000 Btuh
Net Heating Capacity – 24,000 to 70,000 Btuh
Optional Electric Heat – 7.5 to 30 kW

MODEL NUMBER IDENTIFICATION



FEATURES AND BENEFITS



KHA072S

(Heat Pump)

Shown With Optional Electric Heat, Economizer, Power Exhaust and Hinged Access Panels

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. K-Series™ rooftop units feature:

- **R-410A Refrigerant** - Environmentally friendly
- **Scroll Compressors** - Single speed scroll compressors are furnished on all models.
- **High Pressure Switches** - Protect compressor.
- **Isolated Compressor Compartment** - Allows performance check during normal compressor operation without disrupting airflow.
- **Direct or Belt Drive Blower Motors** - Direct drive (024, 030, 036 and 048 models). Belt drive motors (036, 048, 060 and 072 models) to maximize air performance.
- **Independent Motor Mounts** - Allows for easy and efficient service access without removing the top panel.
- **Downflow or Horizontal Airflow** - Easy field conversion.
- **Two Fork Lift Slots on Three Sides** - Easy to pick up and transport units from almost any angle.
- **Corrosion-Resistant Removable, Reversible Drain Pan** - Provides application flexibility, durability and improved serviceability.
- **Thermostatic Expansion Valves** - Provide peak cooling performance across the entire application range.
- **Common Components** - Many maintenance items are standard throughout the entire product line, reducing the need to carry different parts to the job or maintain in inventory.

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APPROVALS

AHRI Certified to AHRI Standard 210/240-2008 (2 thru 5 ton models) and AHRI Standard 340/360-2007 (6 ton models).

ETL listed.

CSA listed.

Components bonded for grounding to meet safety standards for servicing required by UL, ULC and National and Canadian Electrical Codes.

All models are ASHRAE 90.1 compliant

ISO 9001 Registered Manufacturing Quality System.

WARRANTY

Limited five years on compressors.

Limited five years Optional High Performance Economizers.

Limited one year all other covered components.

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, ozone friendly, R-410A.

Unit pre-charged with refrigerant. See Specification table.

1 Compressor

Resiliently mounted on rubber grommets for quiet operation.

Scroll compressors for high performance, reliability and quiet operation.

Compressor Crankcase Heater

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

High Pressure Switch

Protects the compressor from overload conditions such as dirty condenser coils, blocked refrigerant flow, or loss of outdoor fan operation.

2 Check/Thermal Expansion Valves

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

3 Reversing Valves

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

Defrost Control

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.

Filter/Drier

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

Freezestat

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

4 Coil Construction

Copper tube construction, enhanced rippled-edge aluminum fins, flared shoulder tubing connections, silver soldered construction for improved heat transfer. Factory leak tested.

Indoor Coil

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

Outdoor 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)

5 Outdoor Coil Fan Motor

Thermal overload protected, totally enclosed, permanently lubricated sleeve (024, 030, 036 and 048 models) or ball bearings (060 and 072 models), shaft up, wire basket mount.

Outdoor Coil Fan

PVC coated fan guard furnished.

Required Selections

Cooling Capacity

Specify nominal cooling capacity of the unit.

Options/Accessories

Field Installed

Condensate Drain Trap

Field installed only.

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

Cycles the outdoor fan while allowing compressor operation in the cooling cycle. This intermittent fan operation allows the system to operate without icing the evaporator coil and losing capacity. Designed for use in ambient temperatures no lower than 0°F.

CABINET

6 Construction

Heavy-gauge steel panels and full perimeter heavy-gauge galvanized steel base rail provides structural integrity for transportation, handling, and installation.

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 provide additional protection against water entering the building.

Airflow Choice

Units are shipped in down-flow (vertical) configuration, can be field converted to horizontal air flow configuration without the need of a kit.

7 Power Entry

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

8 Exterior Panels

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

9 Insulation

All panels adjacent to conditioned air are fully insulated with non-hygroscopic fiberglass insulation. Unit base is fully insulated. The insulation also serves as an air seal to the roof curb, eliminating the need to add a seal during installation.

Access Panels

Access panels are provided for the economizer/filter section, heating/blower section, and the compressor/controls section.

Options/Accessories

Factory Installed

Corrosion Protection

A completely flexible immersed coating with an 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 base

10 Hinged Access Panels

Large access panels are hinged and have quarter-turn latches for quick and easy access to maintenance areas (economizer / filter, compressor / controls, heating / blower).

Field Installed

Coil Guards

Painted, galvanized steel wire guards to protect outdoor coil. Not used with Hail Guards.

Hail Guards

Constructed of heavy gauge steel, painted to match cabinet, helps protect outdoor coils from hail damage. Not used with Coil Guards.

CONTROLS

11 Unit Control

All control voltage is provided via a 24V (secondary) transformer with built-in circuit breaker protection.

Heat/Cool Staging - Capable of up to 2 heat / 2 cool staging with a third party DDC control system or thermostat.

Low Voltage Terminal Block

Provides screw terminal connections for thermostat or controller wiring.

Night Setback Mode - Saves energy by closing outdoor air dampers and operating supply fan on thermostat demand only.

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.

FEATURES AND BENEFITS

12 BLOWER

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

Motor

Overload protected, equipped with ball bearings (belt drive) or sleeve bearings (direct drive).

Direct drive motors are offered on 024, 030, 036 and 048 models.

Belt drive motors are offered on 036, 048, 060 and 072 models and are available in several different sizes to maximize air performance.

Supply Air Blower

Forward curved blades, blower wheel is statically and dynamically balanced.

All belt drive motors have adjustable pulley for speed change.

Ordering Information

Specify direct drive or belt drive motor.

For belt drive, specify motor horsepower and drive kit number when base unit is ordered.

Required Selections

Supply Air Blower

Order one, belt drive or direct drive (See Blower Data Table for specifications).

Order one drive kit, belt drive only, see Drive Kit Specifications Table.

INDOOR AIR QUALITY

Air Filters

Disposable 2 inch filters furnished as standard.

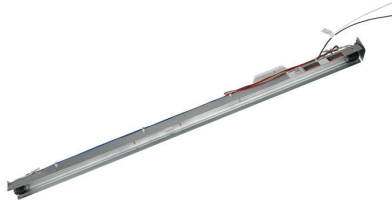
Options/Accessories

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



Helps eliminate mold and bacterial growth on the evaporator and drain pans. Improves indoor air quality and maintains efficiency of system by reducing fouling of evaporator coil.

Indoor Air Quality (CO₂) Sensor

Monitors CO₂ levels adjusts economizer dampers as needed for Demand Control Ventilation.

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. Main power to the unit is field connected to the disconnect which allows all power to be shut off for service. See Electrical/ Electric Heat tables for ordering information, page 25.

GFI Service Outlets (2)

115V ground fault circuit interrupter (GFCI) type, non-powered, field-wired.

Field Installed

13 Electric Heat

Helix wound nichrome elements, individual element limit controls, wiring harness. Unit fuse block is furnished as standard. 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.

ECONOMIZER OPTIONS

Factory or Field Installed

14 Economizer (Standard and High Performance Common Features)

Outdoor Air Hood is furnished.

Factory installed Economizer can be ordered with two exhaust options:

- Barometric Relief Dampers and Exhaust Hood.
- No Exhaust.

Field installed Economizer includes Barometric Relief Dampers with Exhaust Hood.

Barometric Relief Dampers allow relief of excess air, aluminum blade dampers prevent blow back and outdoor air infiltration during off cycle, bird screen furnished.

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. 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.

Horizontal Economizer Conversion kit is available for field installation.

Standard Economizer Features (Not for Title 24)

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

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



Economizer Controls:

- Damper Minimum Position - Can be set lower than traditional minimum air requirements resulting in cost savings.
- IAQ Sensor - Signals dampers to modulate and maintain 55°F when CO₂ is higher than the CO₂ setpoint.
- Demand Control Ventilation (DCV) LED - A steady green Demand Control Ventilation LED indicates the IAQ reading is higher than setpoint and requires more fresh air.
- Free Cool LED - A steady green LED indicates outdoor air is suitable for free cooling.

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

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

High Performance Economizer Features

Approved for California Title 24 building standards.

ASHRAE 90.1-2010 compliant.

Gear-driven action, high torque 24-volt fully-modulating spring return damper motor, return air and outdoor air dampers, plug-in connections to unit, nylon bearings, enhanced neoprene blade edge seals and flexible stainless steel jamb seals to minimize air leakage.

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

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)

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

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

OPTIONS / ACCESSORIES

ECONOMIZER OPTIONS

(continued)

Factory or Field Installed

Single Enthalpy Temperature Control

(Not for Title 24)

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.

Horizontal Economizer Conversion Kit

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

EXHAUST OPTION

Field Installed

15 Power Exhaust Fan

Installs internal fan to unit for downflow applications only with Economizer option. Provides exhaust air pressure relief. Interlocked to run when supply air blower is operating, fan runs when outdoor air dampers are 50% open (adjustable), motor is overload protected.

Fan is 16 in. diameter with 4 fan blades (C1PWRE10A) or 20 in. diameter with 5 blades (C1PWRE10AT). Both include a 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 the "No Exhaust" option and the Barometric Relief Dampers with Exhaust Hood must also be ordered separately for field installation.

OUTDOOR AIR OPTIONS

Factory or Field Installed

Outdoor Air Dampers - Downflow or Horizontal

Linked mechanical dampers, 0 to 35% (fixed) outdoor air adjustable, installs in unit.

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.

Outdoor Air Hood is furnished.

ROOF CURBS

Hybrid Roof Curbs, Downflow

Nailer strip furnished, mates to unit, U.S. National Roofing Contractors Approved, shipped knocked down.

Roof curb can be assembled using interlocking tabs to fasten corners together. No tools required.

Curb can also be fastened together with furnished hardware.

Available in 8, 14, 18, and 24 inch heights.

Full Perimeter Curbs, Downflow (072 Models Only)

Clip Curbs use interlocking tabs to fasten together. No tools required.

Hinged curb corners fasten together with furnished hinge pins.

Standard roof curb corners fasten together with furnished hardware.

NOTE - 072 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 40.

Adaptor Curbs (not shown)

Curbs are regionally sourced. Dimensions will vary based upon the source. Contact your local sales representative for a detailed cut sheet with applicable dimensions.

CEILING DIFFUSERS

Ceiling Diffusers (Flush and 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.

OPTIONS / ACCESSORIES

Item	Catalog No.	024	030	036	048	060	072
COOLING SYSTEM							
Condensate Drain Trap	PVC - C1TRAP20AD2	76W26	X	X	X	X	X
	Copper - C1TRAP10AD2	76W27	X	X	X	X	X
Drain Pan Overflow Switch	K1SNSR71AB1	74W42	X	X	X	X	X
Low Ambient Kit	K1SNSR13A-1	41W34	X	X	X	X	X
Efficiency	Standard		O	O	O	O	O
Refrigerant Type	R-410A		O	O	O	O	O
BLOWER - SUPPLY AIR							
Motors	Direct Drive - 0.25 hp		O	O			
	Direct Drive - 0.5 hp				O	O	
	¹ Belt Drive - 1 hp Standard Efficiency				O	O	O
	² Belt Drive - 1.5 hp Standard Efficiency				O	O	O
	¹ Belt Drive - 2 hp Standard Efficiency				O	O	O
Drive Kits See Blower Data Tables for selection	Kit A01 - T1DRKT001-1 - 673-1010 rpm	Factory			O		
	Kit A02 - T1DRKT002-1 - 745-1117 rpm	Factory				O	
	Kit A03 - T1DRKT003-1 - 833-1250 rpm	Factory					O
	Kit A04 - T1DRKT004-1 - 968-1340 rpm	Factory					O
	Kit A05 - T1DRKT005-1 - 897-1346 rpm	Factory			O		
	Kit A06 - T1DRKT006-1 - 1071-1429 rpm	Factory				O	
	Kit A07 - T1DRKT007-1 - 1212-1548 rpm	Factory					O
	Kit A08 - T1DRKT008-1 - 1193-1591 rpm	Factory					O
CABINET							
Coil Guards	T1GARD20A-1	17W87	X	X	X	X	
	T1GARD20N-1	17W88					X
	K1GARD20AP1	53W21					X
Corrosion Protection			O	O	O	O	O
Hail Guards	T1GARD10A-1	17W89	X	X	X	X	
	T1GARD10N-1	17W90					X
	K1GARD10AP1	53W22					X
Hinged Access Panels			O	O	O	O	O
CONTROLS							
Commercial Controls			X	X	X	X	X
BACnet®	K0CTRL31A-1	96W14	OX	OX	OX	OX	
	K0CTRL31AP1	12B99					OX OX
BACnet® Thermostat with Display	K0SNSR01FF1	97W23	X	X	X	X	X
BACnet® Thermostat without Display	K0SNSR00FF1	97W24	X	X	X	X	X
Novar® 2051	K0CTRL30A-1	96W11	OX	OX	OX	OX	
	K0CTRL30AP1	12B98					OX OX
Plenum Cable (75 ft.)	K0MISC00FF1	97W25	X	X	X	X	X
Smoke Detector - Supply or Return (Power board and one sensor)	C1SNSR44AP1	53W78	X	X	X	X	X
Smoke Detector - Supply and Return (Power board and two sensors)	C1SNSR43AP1	53W79	X	X	X	X	X

¹ 1 hp and 2 hp blower motors are not available for 208/230V-1ph applications.

² 1.5 hp blower motor is only available for 208/230V-1ph applications (024 thru 060 models only).

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

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

O - Configure to Order (Factory Installed)

X - Field Installed

OPTIONS / ACCESSORIES

Item	Catalog No.	024	030	036	048	060	072
ECONOMIZER							
Standard Economizer With Outdoor Air Hood (Sensible Control) (Not for Title 24)							
Standard Economizer - Includes Barometric Relief Dampers and Exhaust Hood	K1ECON30A-2-	90W61	OX	OX	OX	OX	
	K1ECON30AT2-	90W62				OX	OX
Economizer - No Exhaust	Factory	O	O	O	O	O	O
Standard Economizer Controls (Not for Title 24)							
Single Enthalpy Control	C1SNSR64FF1	53W64	OX	OX	OX	OX	OX
Differential Enthalpy Control (order 2)	C1SNSR64FF1	53W64	X	X	X	X	X
High Performance Economizer With Outdoor Air Hood (Sensible Control) (Approved for California Title 24 Building Standards)							
High Performance Economizer - Includes Barometric Relief Dampers and Exhaust Hood	K1ECON32A-1	10U56	OX	OX	OX	OX	
	K1ECON32AT-1	10U57				OX	OX
Hgh Performance Economizer - No Exhaust	Factory	O	O	O	O	O	O
High Performance Economizer Controls (Not for Title 24)							
Single Enthalpy Control	C1SNSR60FF1	10Z75	OX	OX	OX	OX	OX
Differential Enthalpy Control (order 2)	C1SNSR60FF1	10Z75	X	X	X	X	X
Economizer Accessories							
Horizontal Economizer Conversion Kit	T1HECK00AN1	17W45	X	X	X	X	X
OUTDOOR AIR							
Outdoor Air Dampers - Includes Outdoor Air Hood							
Manual	C1DAMP11A-1	53W34	OX	OX	OX	OX	
	C1DAMP11AT1	53W37				OX	OX
Motorized	K1DAMP21A-1	79W95	OX	OX	OX	OX	
	K1DAMP21AT1	79W96				OX	OX
POWER EXHAUST FAN							
Standard Static <i>NOTE - Order Barometric Relief Dampers with Exhaust Hood below if unit is ordered with factory installed Economizer with "No Exhaust" option</i>	208/230V-1 or 3ph - C1PWRE10A-1P	79W87			X	X	
	460V-3ph - C1PWRE10A-1G	79W88			X	X	
	575V-3ph - C1PWRE10A-1J	79W89			X	X	
	208/230V-1 or 3ph - C1PWRE10AT1P	79W90					X X
	460V-3ph - C1PWRE10AT1G	79W91					X X
	575V-3ph - C1PWRE10AT1J	79W92					X X
1 BAROMETRIC RELIEF							
Barometric Relief Dampers with Exhaust Hood	C1DAMP50A-1-	74W38	X	X	X	X	
	C1DAMP50AT1-	74W39					X X

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

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

O - Configure to Order (Factory Installed)

X - Field Installed

OPTIONS / ACCESSORIES

Item	Catalog No.	024	030	036	048	060	072
ELECTRICAL							
Disconnect	See Electrical/Electric Heat Tables for selection	OX	OX	OX	OX	OX	OX
Voltage 60 hz	208/230V - 1 phase	O	O	O	O	O	
	208/230V - 3 phase			O	O	O	O
	460V - 3 phase			O	O	O	O
	575V - 3 phase			O	O	O	O
GFI Service Outlets	15 amp non-powered, field-wired (208/230V, 460V only) LTAGFIK10/15	74M70	OX	OX	OX	OX	OX
	20 amp non-powered, field-wired (575V only) C1GFCI20FF1	67E01	X	X	X	X	X
Weatherproof Cover for GFI	C1GFCI99FF1	10C89	X	X	X	X	X
ELECTRIC HEAT							
7.5 kW	208/230V-1ph - T1EH0075AN1P	14W32	X	X	X	X	X
	208/230V-3ph - T1EH0075AN1Y	14W35			X	X	X
	460V-3ph - T1EH0075AN1G	14W39			X	X	X
	575V-3ph - T1EH0075AN1J	14W43			X	X	X
10 kW	208/230V-1ph - T1EH0100A1P	30W26	X	X			
15 kW	208/230V-1ph - T1EH0150AN1P	14W33			X	X	X
	208/230V-3ph - T1EH0150AN1Y	14W36			X	X	X
	460V-3ph - T1EH0150AN1G	14W40			X	X	X
	575V-3ph - T1EH0150AN1J	14W44			X	X	X
22.5 kW	208/230V-1ph - T1EH0225AN1P	14W34				X	
	208/230V-3ph - T1EH0225AN1Y	14W37				X	X
	460V-3ph - T1EH0225AN1G	14W41				X	X
	575V-3ph - T1EH0225AN1J	14W45				X	X
30 kW	208/230V-3ph - T1EH0300N-1Y	14W38					X
	460V-3ph - T1EH0300N-1G	14W42					X
	575V-3ph - T1EH0300N-1J	14W46					X

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

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

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

O - Configure to Order (Factory Installed)

X - Field Installed

OPTIONS / ACCESSORIES

Item	Catalog No.	024	030	036	048	060	072
INDOOR AIR QUALITY							
Air Filters							
High Efficiency Air Filters Order 4 per unit	MERV 8 (16 x 20 x 2) - C1FLTR15A-1-	54W20	X	X	X	X	
	MERV 13 (16 x 20 x 2) - T1FLTR40A-1-	52W37	X	X	X	X	
	MERV 8 (20 x 20 x 2) - C1FLTR15D-1-	54W21					X X
	MERV 13 (20 x 20 x 2) - C1FLTR40D-1-	52W39					X X
Indoor Air Quality (CO₂) Sensors							
Sensor - Wall-mount, off-white plastic cover with LCD display	C0SNSR50AS1L	77N39	X	X	X	X	X X
Sensor - Wall-mount, black plastic case, no display, rated for plenum mounting	C0SNSR53AE1L	87N54	X	X	X	X	X X
CO ₂ Sensor Duct Mounting Kit - for downflow applications		85L43	X	X	X	X	X X
Aspiration Box - for duct mounting non-plenum rated CO ₂ sensor (77N39)		90N43	X	X	X	X	X X
UVC Germicidal Lamps							
¹ UVC Light Kit (208/230v-1ph)	E1UVCL10AN1	50W90	X	X	X	X	X X
ROOF CURBS							
Hybrid Roof Curbs, Downflow							
8 in. height	C1CURB70A-1	11F50	X	X	X	X	X ² X
14 in. height	C1CURB71A-1	11F51	X	X	X	X	X ² X
18 in. height	C1CURB72A-1	11F52	X	X	X	X	X ² X
24 in. height	C1CURB73A-1	11F53	X	X	X	X	X ² X
Clip Curbs, Full Perimeter, Downflow							
8 in. height	K1CURB23AP1	52W20					X
14 in. height	K1CURB20AP1	52W21					X
18 in. height	K1CURB21AP1	52W22					X
24 in. height	K1CURB22AP1	52W23					X
Hinged, Full Perimeter, Downflow							
8 in. height	K1CURB30AP1	52W17					X
18 in. height	K1CURB32AP1	52W18					X
24 in. height	K1CURB33AP1	52W19					X
Standard, Full Perimeter, Downflow							
14 in. height	K1CURB10AP1	52W24					X
Adjustable Pitched Curb							
14 in. height	C1CURB55AT1	43W27	X	X	X	X	X X
CEILING DIFFUSERS							
Step-Down - Order one	RTD9-65-R	27G87	X	X	X	X	
	RTD11-95	29G04					X
Flush - Order one	FD9-65-R	27G86	X	X	X	X	
	FD11-95	29G08					X
Transitions (Supply and Return) - Order one	T1TRAN10AN1	17W53	X	X	X	X	
	T1TRAN20N-1	17W54					X

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

² 072 models will fit smaller roof curbs with overhang. See dimension drawing.

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

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

O - Configure to Order (Factory Installed)

X - Field Installed

SPECIFICATIONS - DIRECT DRIVE BLOWER

General Data		Nominal Tonnage	2 Ton	2.5 Ton	3 Ton	4 Ton
		Model No.	KHA024S4D	KHA030S4D	KHA036S4D	KHA048S4D
		Efficiency Type	Standard	Standard	Standard	Standard
Cooling Performance	Gross Cooling Capacity - Btuh	23,600	30,000	37,100	49,000	
	¹ Net Cooling Capacity - Btuh	22,800	29,000	35,600	47,000	
	AHRI Rated Air Flow - cfm	800	1000	1160	1600	
	² Sound Rating Number (SRN) (dBA)	75	75	75	75	
	Total Unit Power - kW	2.0	2.6	3.3	4.4	
	¹ SEER (Btuh/Watt)	13.0	13.0	13.0	13.0	
	¹ EER (Btuh/Watt)	11.2	11.3	10.9	10.7	
Refrigerant	Type	R-410A	R-410A	R-410A	R-410A	
	Charge Furnished	13 lbs. 0 oz.	13 lbs. 0 oz.	12 lbs. 8 oz.	13 lbs. 2 oz.	
Heating Performance	Total High Heating Capacity - Btuh	24,000	29,200	36,400	48,000	
	Total Unit Power - kW	2.1	2.5	3.0	4.0	
	¹ COP	3.4	3.5	3.6	3.5	
	¹ HSPF - Region IV (Region V)	7.7 (6.7)	7.7 (6.7)	7.7 (6.7)	7.7 (6.7)	
	Total Low Heating Capacity - Btuh	14,400	17,600	22,000	29,500	
	Total Unit Power - kW	1.8	2.3	2.8	3.6	
	COP	2.3	2.3	2.3	2.4	
Electric Heating Options		See Electrical/Electric Heat Tables page 25				
Compressor Type (no.)		Scroll (1)	Scroll (1)	Scroll (1)	Scroll (1)	
Outdoor Coil	Net face area - sq. ft.	15.6	15.6	15.6	15.6	
	Tube diameter - in.	3/8	3/8	3/8	3/8	
	Number of rows	2.0	2.0	2.0	2.0	
	Fins / inch	20	20	20	20	
Outdoor Coil Fan	Motor HP	1/4	1/4	1/4	1/4	
	Motor rpm	825	825	825	825	
	Total motor watts	250	250	250	250	
	Diameter - in. / No. of blades	24 - 3	24 - 3	24 - 3	24 - 3	
	Total air volume - cfm	3300	3300	3300	3300	
Indoor Coil	Net face area - sq. ft.	7.78	7.78	7.78	7.78	
	Tube diameter - in.	3/8	3/8	3/8	3/8	
	Number of rows	3	3	3	3	
	Fins / inch	14	14	14	14	
	Drain Connection (no. and size) - in.	(1) 1 NPT	(1) 1 NPT	(1) 1 NPT	(1) 1 NPT	
	Expansion device type	Balanced Port Thermostatic Expansion Valve, removeable power head				
Indoor Blower	Nominal Motor HP	.25	.25	.5	.5	
	Wheel nom. diameter x width - in.	10 x 10	10 x 10	10 x 10	10 x 10	
Filters	Type	Disposable		Disposable		
	Number and size - in.	(4) 16 x 20 x 2		(4) 16 x 20 x 2		
Electrical Characteristics - 60 hz		208/230V - 1 phase		208/230V 1 phase	208/230V 1 phase	
				208/230V, 460V & 575V 3 phase	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 210/240:

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

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

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

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

SPECIFICATIONS - BELT DRIVE BLOWER

General Data		Nominal Tonnage	3 Ton	4 Ton	5 Ton	6 Ton
		Model No.	KHA036S4B	KHA048S4B	KHA060S4B	KHA072S4B
		Efficiency Type	Standard	Standard	Standard	Standard
Cooling Performance	Gross Cooling Capacity - Btuh		37,100	49,000	61,500	71,300
	Net Cooling Capacity - Btuh		¹ 35,600	¹ 47,000	¹ 59,000	² 69,000
	AHRI Rated Air Flow - cfm		1160	1600	1985	2060
	³ Sound Rating Number (SRN) (dBA)		75	75	82	83
	Total Unit Power - kW		3.3	4.4	5.4	6.3
	SEER (Btuh/Watt)		¹ 13.0	¹ 13.0	¹ 13.0	---
	IEER (Btuh/Watt)		---	---	---	² 11.2
	EER (Btuh/Watt)		¹ 10.9	¹ 10.7	¹ 10.9	² 11.0
Refrigerant	Type		R-410A	R-410A	R-410A	R-410A
	Charge Furnished		12 lbs. 8 oz.	13 lbs. 2 oz.	16 lbs. 0 oz.	20 lbs. 8 oz.
Heating Performance	Total High Heating Capacity - Btuh		36,400	48,000	60,500	70,000
	Total Unit Power - kW		3.0	4.0	4.9	6.2
	¹ COP		3.6	3.5	3.6	3.3
	HSPF - Region IV (Region V)		7.7 (6.7)	7.7 (6.7)	7.7 (6.7)	---
	Total Low Heating Capacity - Btuh		22,000	29,500	36,000	40,000
	Total Unit Power - kW		2.8	3.6	4.5	5.7
	¹ COP		2.3	2.4	2.4	2.25
Electric Heating Options		See Electrical/Electric Heat Tables page 25				
Compressor Type (no.)			Scroll (1)	Scroll (1)	Scroll (1)	Scroll (1)
Outdoor Coil	Net face area - sq. ft.		15.6	15.6	19.27	28.00
	Tube diameter - in.		3/8	3/8	3/8	3/8
	Number of rows		2	2	2	2
	Fins / inch		20	20	20	20
Outdoor Coil Fan	Motor HP		1/4	1/4	1/3	1/2
	Motor rpm		825	825	1075	1075
	Total motor watts		250	250	405	680
	Diameter - in. / No. of blades		24 - 3	24 - 3	24 - 3	24 - 4
	Total air volume - cfm		3300	3300	4800	5735
Indoor Coil	Net face area - sq. ft.		7.78	7.78	9.7	9.7
	Tube diameter - in.		3/8	3/8	3/8	3/8
	Number of rows		3	3	4	4
	Fins / inch		14	14	14	14
	Drain Connection (no. and size) - in.		(1) 1 NPT	(1) 1 NPT	(1) 1 NPT	(1) 1 NPT
	Expansion device type		Balanced Port Thermostatic Expansion Valve, removeable power head			
⁴ Indoor Blower & Drive Selection	Nominal Motor HP		⁵ 1 hp, ⁶ 1.5 hp, ⁵ 2 hp		⁵ 1 hp, ⁶ 1.5 hp, ⁵ 2 hp	
	Maximum Usable Motor HP		1.15 hp, 1.7 hp, 2.3 hp		1.15 hp, 1.7 hp, 2.3 hp	
	Available Drive Kits		A01	A02	A03	A04
			673 - 1010 rpm	745 - 1117 rpm	833 - 1250 rpm	968 - 1340 rpm
			A05	A06	A07	A08
		897 - 1346 rpm	1071 - 1429 rpm	1212 - 1548 rpm	1193 - 1591 rpm	
	Wheel nom. diameter x width - in.		10 x 10	10 x 10	10 x 10	10 x 10
Filters	Type		Disposable		Disposable	
	Number and size - in.		(4) 16 x 20 x 2		(4) 20 x 20 x 2	
Electrical Characteristics - 60 Hz			208/230V 1 phase	208/230V 1 phase	208/230V 1 phase	208/230V, 460V & 575V 3 phase
			208/230V, 460V & 575V 3 phase	208/230V, 460V & 575V 3 phase	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.

^{1,2} AHRI Certified to AHRI Standard ¹ 210/240 or ² 340/360:

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.

³ Sound Rating Number (SRN) rated in accordance with test conditions included in ARI Standard 270-95.

⁴ 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.

⁵ 1 hp and 2 hp blower motors are not available for 208/230V-1ph applications.

⁶ 1.5 hp blower motor only available for 208/230V-1ph applications.

COOLING / HEATING RATINGS

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

2 TON COOLING STANDARD EFFICIENCY KHA024S4

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		85°F					95°F					105°F					115°F				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb		
cfm	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	
63°F	640	22.4	1.34	0.75	0.9	1	20.1	1.54	0.75	0.91	1	17.8	1.76	0.76	0.93	1	15.3	2.01	0.77	0.96	1
	800	24.1	1.34	0.82	0.96	1	21.7	1.55	0.84	0.98	1	19.3	1.77	0.85	1	1	17	2.02	0.87	1	1
	960	25.6	1.34	0.88	1	1	23.4	1.55	0.89	1	1	21	1.77	0.91	1	1	18.6	2.02	0.94	1	1
67°F	640	24.4	1.34	0.57	0.73	0.87	22	1.55	0.56	0.74	0.88	19.6	1.77	0.54	0.74	0.9	17	2.02	0.52	0.75	0.93
	800	26.1	1.35	0.62	0.81	0.94	23.6	1.55	0.61	0.82	0.96	21	1.77	0.6	0.83	0.98	18.3	2.02	0.6	0.85	1
	960	27.3	1.35	0.66	0.86	1	24.7	1.55	0.67	0.88	1	22	1.78	0.66	0.9	1	19.2	2.03	0.67	0.93	1
71°F	640	26.4	1.35	0.41	0.56	0.71	24	1.55	0.39	0.55	0.72	21.4	1.77	0.35	0.54	0.72	18.8	2.02	0.31	0.52	0.73
	800	28.2	1.35	0.44	0.62	0.79	25.6	1.55	0.42	0.61	0.8	22.9	1.78	0.39	0.6	0.81	20.1	2.03	0.36	0.6	0.83
	960	29.4	1.35	0.46	0.66	0.84	26.7	1.56	0.45	0.67	0.86	23.9	1.78	0.42	0.67	0.88	21	2.03	0.4	0.68	0.91

2 TON HEATING STANDARD EFFICIENCY KHA024S4

Indoor Coil Air Volume 70°F Dry Bulb cfm	Air Temperature Entering Outdoor Coil									
	65°F		45°F		25°F		5°F		-15°F	
	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input
cfm	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW
640	29.2	1.85	22.3	1.67	15.1	1.49	10.3	1.33	5.0	1.01
800	29.8	1.72	22.9	1.54	15.7	1.36	10.9	1.20	5.6	0.88
960	30.2	1.64	23.3	1.46	16.1	1.28	11.3	1.12	6.0	0.80

2.5 TON COOLING STANDARD EFFICIENCY KHA030S4

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		85°F					95°F					105°F					115°F				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb		
cfm	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	
63°F	800	28.5	1.76	0.71	0.87	1	25.9	2	0.72	0.88	1	23.1	2.27	0.72	0.91	1	20.2	2.59	0.73	0.94	1
	1000	30.5	1.76	0.78	0.95	1	27.8	2	0.79	0.97	1	25	2.28	0.8	1	1	22.3	2.59	0.83	1	1
	1200	32.2	1.77	0.84	1	1	29.7	2.01	0.86	1	1	27	2.28	0.88	1	1	24.3	2.59	0.91	1	1
67°F	800	30.9	1.77	0.54	0.69	0.83	28.1	2	0.53	0.7	0.85	25.4	2.28	0.52	0.7	0.87	22.3	2.59	0.51	0.71	0.9
	1000	32.8	1.77	0.59	0.76	0.91	30	2.01	0.58	0.77	0.94	27.1	2.28	0.57	0.78	0.97	23.9	2.6	0.57	0.81	1
	1200	34.4	1.78	0.63	0.82	0.98	31.4	2.02	0.63	0.83	1	28.4	2.29	0.63	0.86	1	25.1	2.6	0.63	0.89	1
71°F	800	33.3	1.77	0.39	0.54	0.67	30.5	2.01	0.37	0.53	0.68	27.6	2.28	0.34	0.52	0.69	24.6	2.6	0.31	0.51	0.69
	1000	35.4	1.78	0.42	0.58	0.74	32.5	2.02	0.4	0.58	0.75	29.4	2.29	0.38	0.58	0.76	26.2	2.6	0.36	0.58	0.78
	1200	36.8	1.79	0.43	0.62	0.8	33.8	2.02	0.42	0.63	0.82	30.6	2.29	0.41	0.63	0.84	27.2	2.6	0.38	0.63	0.87

2.5 TON HEATING STANDARD EFFICIENCY KHA030S4

Indoor Coil Air Volume 70°F Dry Bulb cfm	Air Temperature Entering Outdoor Coil									
	65°F		45°F		25°F		5°F		-15°F	
	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input
cfm	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW
800	35.6	2.15	27.3	2.00	18.6	1.85	12.7	1.68	6.30	1.26
1000	36.2	2.00	27.9	1.86	19.2	1.70	13.3	1.53	6.90	1.11
1200	36.6	1.91	28.3	1.77	19.6	1.61	13.7	1.44	7.30	1.02

COOLING / HEATING RATINGS

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

3 TON COOLING STANDARD EFFICIENCY KHA036S4

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																				
		85°F						95°F					105°F					115°F				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb			
cfm	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F		
63°F	960	35.4	2.25	0.7	0.85	0.99	33	2.56	0.71	0.87	1	30.4	2.9	0.73	0.9	1	27.7	3.31	0.75	0.94	1	
	1200	37.7	2.27	0.76	0.93	1	35	2.57	0.78	0.96	1	32.3	2.91	0.8	0.99	1	29.6	3.31	0.83	1	1	
	1440	39.3	2.28	0.82	1	1	36.9	2.58	0.84	1	1	34.3	2.93	0.87	1	1	31.6	3.33	0.9	1	1	
67°F	960	37.9	2.27	0.55	0.68	0.82	35.4	2.57	0.55	0.69	0.83	32.7	2.92	0.55	0.71	0.86	29.7	3.32	0.55	0.72	0.9	
	1200	39.9	2.28	0.58	0.74	0.9	37.2	2.58	0.59	0.76	0.93	34.4	2.93	0.59	0.77	0.96	31.3	3.33	0.6	0.8	0.99	
	1440	41.4	2.29	0.62	0.8	0.97	38.7	2.59	0.62	0.82	1	35.8	2.94	0.64	0.84	1	32.6	3.34	0.65	0.88	1	
71°F	960	40.2	2.28	0.41	0.54	0.66	37.7	2.58	0.4	0.54	0.67	34.9	2.93	0.39	0.54	0.68	32	3.33	0.39	0.55	0.7	
	1200	42.4	2.3	0.43	0.57	0.72	39.7	2.6	0.42	0.58	0.73	36.8	2.95	0.42	0.59	0.75	33.6	3.34	0.41	0.6	0.78	
	1440	44	2.31	0.44	0.61	0.77	41.1	2.61	0.44	0.62	0.79	38.1	2.96	0.43	0.63	0.82	34.7	3.35	0.43	0.65	0.86	

3 TON HEATING STANDARD EFFICIENCY KHA036S4

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	kBtuh	kW
960	44.3	2.62	33.6	2.44	22.2	2.26	15.7	2.05	7.70	1.54	
1200	45.3	2.45	34.6	2.27	23.2	2.09	16.7	1.88	8.70	1.37	
1440	46.1	2.34	35.4	2.17	24	1.98	17.5	1.77	9.50	1.26	

4 TON COOLING STANDARD EFFICIENCY KHA048S4

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																				
		85°F						95°F					105°F					115°F				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb			
cfm	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F		
63°F	1280	46.9	3.08	0.71	0.86	1	43.1	3.5	0.71	0.88	1	39.2	3.97	0.73	0.91	1	35.1	4.5	0.74	0.95	1	
	1600	49.9	3.1	0.77	0.94	1	45.9	3.52	0.78	0.97	1	41.7	3.99	0.81	1	1	37.7	4.52	0.83	1	1	
	1920	52.2	3.1	0.83	1	1	48.4	3.54	0.85	1	1	44.4	4.01	0.88	1	1	40.4	4.55	0.91	1	1	
67°F	1280	50.5	3.1	0.55	0.69	0.83	46.4	3.52	0.54	0.69	0.85	42.3	3.99	0.54	0.7	0.87	37.9	4.53	0.53	0.72	0.91	
	1600	53.2	3.11	0.59	0.75	0.91	49	3.54	0.58	0.76	0.94	44.6	4.01	0.59	0.79	0.97	40.1	4.55	0.59	0.81	1	
	1920	55.3	3.11	0.62	0.81	0.98	51	3.56	0.63	0.83	1	46.5	4.03	0.63	0.85	1	41.8	4.57	0.64	0.89	1	
71°F	1280	53.9	3.11	0.4	0.54	0.67	49.8	3.55	0.39	0.53	0.67	45.6	4.02	0.38	0.53	0.69	41	4.55	0.36	0.53	0.7	
	1600	56.9	3.12	0.42	0.58	0.73	52.5	3.56	0.41	0.58	0.74	48.1	4.04	0.4	0.59	0.76	43.3	4.58	0.39	0.59	0.79	
	1920	59.1	3.12	0.44	0.62	0.79	54.5	3.58	0.43	0.62	0.81	49.8	4.05	0.42	0.63	0.83	44.7	4.59	0.41	0.64	0.87	

4 TON HEATING STANDARD EFFICIENCY KHA048S4

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	kBtuh	kW
1280	58.0	3.58	44.2	3.30	29.3	3.00	21.4	2.69	10.50	2.02	
1600	59.1	3.36	45.3	3.08	30.4	2.78	22.5	2.47	11.60	1.80	
1920	60.1	3.23	46.3	2.95	31.4	2.65	23.5	2.34	12.60	1.67	

COOLING / HEATING RATINGS

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

5 TON COOLING STANDARD EFFICIENCY KHA060S4

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		85°F					95°F					105°F					115°F				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb					Dry Bulb					Dry Bulb							
cfm	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	
63°F	1600	58.6	3.65	0.7	0.85	0.99	53.9	4.12	0.71	0.87	1	49	4.67	0.72	0.9	1	43.7	5.29	0.74	0.94	1
	2000	62.4	3.68	0.76	0.93	1	57.4	4.15	0.77	0.96	1	52.2	4.69	0.8	0.99	1	47	5.31	0.82	1	1
	2400	65.4	3.7	0.82	1	1	60.5	4.18	0.84	1	1	55.7	4.73	0.87	1	1	50.4	5.35	0.9	1	1
67°F	1600	63.2	3.68	0.54	0.68	0.82	58.3	4.16	0.54	0.69	0.83	53.1	4.7	0.53	0.7	0.86	47.4	5.32	0.53	0.72	0.9
	2000	66.8	3.71	0.58	0.74	0.9	61.5	4.19	0.58	0.75	0.93	56.1	4.73	0.58	0.77	0.96	50.1	5.35	0.59	0.8	1
	2400	69.4	3.73	0.62	0.8	0.97	63.9	4.21	0.62	0.82	1	58.2	4.75	0.62	0.84	1	52.1	5.37	0.64	0.88	1
71°F	1600	67.8	3.72	0.4	0.53	0.66	62.6	4.19	0.39	0.53	0.67	57.2	4.74	0.37	0.53	0.68	51.4	5.36	0.35	0.52	0.7
	2000	71.5	3.75	0.42	0.57	0.72	66	4.23	0.41	0.57	0.73	60.2	4.76	0.4	0.58	0.75	54.1	5.39	0.38	0.59	0.78
	2400	74.1	3.78	0.44	0.61	0.78	68.4	4.25	0.43	0.62	0.8	62.4	4.79	0.42	0.62	0.82	55.9	5.4	0.41	0.64	0.86

5 TON HEATING STANDARD EFFICIENCY KHA060S4

Indoor Coil Air Volume 70°F Dry Bulb cfm	Air Temperature Entering Outdoor Coil									
	65°F		45°F		25°F		5°F		-15°F	
	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input
cfm	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW
1600	74.6	4.19	56.5	3.92	37.4	3.65	25.7	3.24	12.70	2.43
2000	76.0	3.92	57.9	3.65	38.8	3.38	27.1	2.97	14.10	2.16
2400	77.5	3.75	59.4	3.48	40.3	3.21	28.6	2.80	15.60	1.99

6 TON COOLING STANDARD EFFICIENCY KHA072S4

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		85°F					95°F					105°F					115°F				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb					Dry Bulb					Dry Bulb							
cfm	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	
63°F	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
cfm	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 - DIRECT DRIVE - KHA024-030

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

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (economizer, wet coil, etc.) See page 24.

2 - Any field installed accessories air resistance (electric heat, duct resistance, diffuser, etc.) See page 24.

External Static Pressure (in. w.g.)	Air Volume (cfm) at Various Blower Speeds					
	208 VOLTS			230 VOLTS		
	High	Medium	Low	High	Medium	Low
2 and 2.5 Ton Standard Efficiency (Downflow)				KHA024S and KHA030S		
0.0	1199	928	838	1379	1085	877
0.1	1229	926	813	1409	1086	872
0.2	1206	928	782	1367	1094	850
0.3	1183	881	742	1350	1047	820
0.4	1159	843	686	1321	1009	783
0.5	1136	812	643	1282	981	762
0.6	1103	766	569	1242	921	705
0.7	1046	728	496	1195	888	625
0.8	953	648	432	1134	792	583
0.9	909	584	335	1037	738	492
1.0	783	465	247	926	592	411
2 and 2.5 Ton Standard Efficiency (Horizontal)				KHA024S and KHA030S		
0.0	1152	909	801	1325	1063	838
0.1	1152	893	770	1321	1048	826
0.2	1136	866	734	1288	1021	798
0.3	1104	826	697	1260	982	771
0.4	1072	787	643	1222	942	734
0.5	1041	747	589	1175	903	698
0.6	1009	707	534	1137	850	662
0.7	946	654	467	1081	797	588
0.8	861	588	396	1024	718	535
0.9	798	508	319	911	642	468
1.0	715	443	237	846	564	394

BLOWER DATA - DIRECT DRIVE - KHA036-048

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

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (economizer, wet coil, etc.) See page 24.

2 - Any field installed accessories air resistance (electric heat, duct resistance, diffuser, etc.) See page 24.

External Static Pressure (in. w.g.)	Air Volume (cfm) at Various Blower Speeds								
	208 VOLTS			230 VOLTS			460/575 VOLTS		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
3 and 4 Ton Standard Efficiency (Downflow)					KHA036S and KHA048S				
0.0	1938	1552	1119	2167	1772	1317	2136	1716	1212
0.1	1992	1586	1128	2167	1780	1315	2104	1728	1208
0.2	1915	1592	1137	2100	1792	1307	2052	1684	1197
0.3	1865	1536	1083	2043	1735	1266	1994	1647	1172
0.4	1813	1495	1033	1986	1678	1204	1918	1597	1134
0.5	1762	1444	976	1909	1621	1164	1861	1534	1096
0.6	1694	1391	899	1814	1535	1082	1765	1485	1059
0.7	1609	1331	817	1718	1478	1000	1689	1410	996
0.8	1471	1220	730	1603	1364	918	1613	1335	920
0.9	1368	1066	522	1488	1250	755	1498	1235	848
1.0	1108	869	402	1259	1021	640	1345	1036	763
3 and 4 Ton Standard Efficiency (Horizontal)					KHA036S and KHA048S				
0.0	1862	1520	1070	2082	1736	1259	2085	1745	1247
0.1	1867	1530	1069	2031	1717	1246	2070	1744	1257
0.2	1804	1485	1067	1978	1672	1227	2016	1690	1225
0.3	1741	1440	1018	1907	1627	1190	1944	1643	1192
0.4	1677	1396	968	1837	1567	1128	1890	1596	1160
0.5	1614	1329	894	1749	1492	1066	1800	1533	1111
0.6	1550	1284	844	1660	1417	1016	1727	1455	1062
0.7	1455	1195	769	1554	1327	941	1655	1377	996
0.8	1329	1106	670	1448	1237	842	1511	1283	865
0.9	1202	927	496	1307	1087	718	1403	1190	784
1.0	1012	828	385	1150	973	613	1222	1002	670

BLOWER DATA - BELT DRIVE - KHA036

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 23 for blower motors and drives and page 24 for wet coil and options/accessory air resistance data.

DOWNFLOW

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
	Field Furnished						Kit A01									
900	486	0.12	554	0.16	623	0.20	695	0.22	767	0.23	836	0.25	897	0.28	953	0.30
1000	508	0.15	576	0.19	643	0.22	713	0.24	783	0.26	848	0.28	907	0.30	961	0.33
1100	533	0.18	599	0.22	665	0.25	733	0.27	800	0.28	863	0.31	919	0.34	971	0.36
1200	560	0.21	625	0.25	689	0.28	755	0.30	820	0.32	879	0.34	932	0.37	983	0.40
1300	591	0.24	654	0.28	716	0.31	779	0.33	841	0.35	897	0.38	948	0.41	996	0.44
1400	631	0.26	690	0.30	748	0.34	807	0.36	864	0.39	916	0.42	964	0.46	1011	0.49
1500	676	0.28	729	0.33	782	0.36	835	0.40	887	0.43	935	0.47	981	0.50	1028	0.54

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Kit A01		Kit A05													
900	1004	0.33	1055	0.35	1106	0.37	1152	0.40	1193	0.43	1232	0.46	1269	0.49	1305	0.52
1000	1011	0.36	1062	0.38	1111	0.41	1157	0.43	1199	0.47	1238	0.50	1276	0.53	1311	0.56
1100	1020	0.39	1070	0.41	1118	0.44	1163	0.47	1206	0.51	1245	0.54	1282	0.58	1318	0.61
1200	1031	0.43	1079	0.45	1127	0.48	1171	0.52	1213	0.55	1252	0.59	1289	0.62	1324	0.66
1300	1044	0.47	1091	0.49	1137	0.53	1181	0.56	1221	0.60	1259	0.64	1296	0.68	1330	0.71
1400	1058	0.51	1105	0.54	1150	0.57	1191	0.61	1231	0.65	1268	0.69	1303	0.73	1337	0.77
1500	1074	0.56	1120	0.59	1163	0.63	1203	0.67	1241	0.71	1277	0.75	1312	0.79	1345	0.82

HORIZONTAL

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
	Field Furnished						Kit A01									
900	485	0.11	554	0.14	627	0.16	703	0.18	780	0.21	841	0.23	888	0.27	935	0.30
1000	509	0.13	578	0.16	649	0.19	722	0.21	796	0.23	854	0.26	900	0.29	947	0.33
1100	537	0.16	605	0.19	674	0.21	744	0.24	813	0.26	868	0.29	913	0.33	959	0.36
1200	567	0.19	633	0.22	700	0.24	768	0.27	833	0.30	884	0.33	928	0.37	974	0.40
1300	599	0.22	664	0.25	729	0.28	793	0.30	853	0.33	902	0.37	945	0.41	990	0.44
1400	634	0.26	697	0.29	758	0.31	819	0.34	875	0.38	921	0.42	964	0.46	1008	0.49
1500	669	0.30	730	0.33	789	0.36	846	0.39	897	0.42	941	0.47	983	0.51	1028	0.54

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Kit A01		Kit A05													
900	986	0.32	1039	0.35	1090	0.37	1137	0.40	1177	0.43	1214	0.46	1248	0.49	1280	0.51
1000	997	0.35	1048	0.38	1098	0.41	1143	0.44	1184	0.47	1221	0.50	1255	0.53	1287	0.56
1100	1008	0.39	1059	0.41	1107	0.44	1150	0.47	1191	0.51	1228	0.54	1263	0.57	1295	0.60
1200	1022	0.43	1071	0.45	1117	0.48	1160	0.52	1200	0.55	1237	0.59	1271	0.62	1303	0.66
1300	1037	0.47	1085	0.50	1130	0.53	1171	0.57	1210	0.60	1246	0.64	1280	0.68	1312	0.71
1400	1054	0.52	1100	0.54	1144	0.58	1183	0.62	1221	0.66	1256	0.70	1290	0.73	1321	0.77
1500	1073	0.57	1117	0.60	1159	0.64	1197	0.67	1234	0.71	1268	0.75	1301	0.79	1332	0.83

BLOWER DATA - BELT DRIVE - KHA048

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 23 for blower motors and drives and page 24 for wet coil and options/accessory air resistance data.

DOWNFLOW

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
	Field Furnished						Kit A02									
1200	560	0.21	625	0.25	689	0.28	755	0.30	820	0.32	879	0.34	932	0.37	983	0.40
1300	591	0.24	654	0.28	716	0.31	779	0.33	841	0.35	897	0.38	948	0.41	996	0.44
1400	631	0.26	690	0.30	748	0.34	807	0.36	864	0.39	916	0.42	964	0.46	1011	0.49
1500	675	0.28	729	0.33	782	0.36	835	0.40	887	0.43	935	0.47	981	0.50	1028	0.54
1600	718	0.31	766	0.35	814	0.40	862	0.44	910	0.48	955	0.52	1000	0.55	1046	0.59
1700	756	0.34	799	0.39	843	0.44	887	0.49	932	0.53	976	0.57	1020	0.61	1066	0.64
1800	787	0.40	828	0.45	870	0.50	912	0.55	955	0.59	999	0.63	1043	0.67	1089	0.70
1900	815	0.46	855	0.51	897	0.57	939	0.62	981	0.66	1024	0.69	1068	0.73	1113	0.76
2000	843	0.53	884	0.59	925	0.64	968	0.68	1009	0.72	1052	0.76	1095	0.79	1138	0.83

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
	Kit A02						Kit A06									
1200	1031	0.43	1079	0.45	1127	0.48	1171	0.52	1213	0.55	1252	0.59	1289	0.62	1324	0.66
1300	1044	0.47	1091	0.49	1137	0.53	1181	0.56	1221	0.60	1259	0.64	1296	0.68	1330	0.71
1400	1058	0.51	1105	0.54	1150	0.57	1191	0.61	1231	0.65	1268	0.69	1303	0.73	1337	0.77
1500	1074	0.56	1120	0.59	1163	0.63	1203	0.67	1241	0.71	1277	0.75	1312	0.79	1345	0.82
1600	1092	0.61	1137	0.65	1178	0.68	1216	0.72	1253	0.76	1288	0.80	1321	0.84	1354	0.88
1700	1112	0.67	1155	0.70	1193	0.75	1230	0.79	1265	0.83	1299	0.87	1332	0.91	1364	0.95
1800	1133	0.73	1174	0.77	1209	0.81	1244	0.85	1278	0.90	1311	0.94	1343	0.98	1375	1.02
1900	1156	0.80	1193	0.84	1226	0.89	1260	0.93	1293	0.97	1325	1.01	1356	1.06	1388	1.10
2000	1178	0.87	1213	0.92	1243	0.97	1275	1.02	1307	1.06	1339	1.10	1370	1.14	1402	1.18

HORIZONTAL

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
	Field Furnished						Kit A02									
1200	567	0.19	633	0.22	700	0.24	768	0.27	833	0.30	884	0.33	928	0.37	974	0.40
1300	599	0.22	664	0.25	729	0.28	793	0.30	853	0.33	902	0.37	945	0.41	990	0.44
1400	634	0.26	697	0.29	758	0.31	819	0.34	875	0.38	921	0.42	964	0.46	1008	0.49
1500	669	0.30	730	0.33	789	0.36	846	0.39	897	0.42	941	0.47	983	0.51	1028	0.54
1600	705	0.34	763	0.37	819	0.40	873	0.43	921	0.48	963	0.52	1004	0.56	1048	0.59
1700	741	0.38	796	0.41	850	0.45	900	0.49	945	0.53	985	0.58	1026	0.62	1070	0.65
1800	776	0.43	829	0.46	880	0.51	927	0.55	970	0.60	1009	0.64	1050	0.68	1093	0.71
1900	812	0.48	862	0.52	910	0.57	955	0.62	996	0.66	1035	0.71	1076	0.74	1118	0.78
2000	847	0.54	895	0.59	941	0.64	984	0.69	1023	0.74	1062	0.78	1103	0.81	1144	0.85

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
	Kit A02						Kit A06									
1200	1022	0.43	1071	0.45	1117	0.48	1160	0.52	1200	0.55	1237	0.59	1271	0.62	1303	0.66
1300	1037	0.47	1085	0.50	1130	0.53	1171	0.57	1210	0.60	1246	0.64	1280	0.68	1312	0.71
1400	1054	0.52	1100	0.54	1144	0.58	1183	0.62	1221	0.66	1256	0.70	1290	0.73	1321	0.77
1500	1073	0.57	1117	0.60	1159	0.64	1197	0.67	1234	0.71	1268	0.75	1301	0.79	1332	0.83
1600	1093	0.62	1136	0.66	1175	0.70	1212	0.74	1247	0.78	1281	0.82	1313	0.86	1344	0.90
1700	1114	0.68	1155	0.72	1192	0.76	1227	0.80	1262	0.85	1295	0.89	1327	0.93	1358	0.97
1800	1136	0.75	1175	0.79	1210	0.83	1245	0.88	1278	0.92	1311	0.97	1342	1.01	1373	1.05
1900	1159	0.82	1197	0.86	1229	0.92	1263	0.97	1296	1.01	1328	1.06	1359	1.10	1390	1.14
2000	1183	0.90	1218	0.95	1249	1.01	1282	1.06	1314	1.11	1346	1.15	1377	1.20	1408	1.24

BLOWER DATA - BELT DRIVE - KHA060

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 23 for blower motors and drives and page 24 for wet coil and options/accessory air resistance data.

DOWNFLOW

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
	Field Furnished								Kit A03							
1600	665	0.30	716	0.34	768	0.38	819	0.41	879	0.44	937	0.46	985	0.49	1022	0.52
1700	723	0.31	768	0.35	814	0.39	860	0.43	910	0.47	959	0.50	1001	0.54	1037	0.58
1800	779	0.32	818	0.37	857	0.41	897	0.46	939	0.50	980	0.55	1018	0.59	1054	0.64
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

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
	Kit A03								Kit A07							
1600	1059	0.57	1098	0.61	1138	0.65	1177	0.68	1218	0.71	1257	0.75	1290	0.79	1319	0.83
1700	1074	0.62	1113	0.66	1152	0.70	1190	0.74	1231	0.77	1268	0.80	1299	0.84	1328	0.89
1800	1091	0.68	1129	0.72	1167	0.76	1205	0.80	1244	0.83	1280	0.87	1310	0.91	1338	0.95
1900	1109	0.75	1146	0.79	1183	0.82	1221	0.86	1260	0.90	1294	0.94	1323	0.98	1349	1.02
2000	1128	0.82	1164	0.86	1201	0.89	1239	0.93	1276	0.97	1310	1.01	1336	1.06	1362	1.10
2100	1148	0.89	1185	0.93	1221	0.97	1258	1.01	1294	1.05	1325	1.09	1351	1.14	1376	1.19
2200	1170	0.97	1206	1.01	1242	1.05	1277	1.09	1311	1.14	1341	1.18	1365	1.23	1390	1.28
2300	1193	1.06	1228	1.09	1262	1.14	1295	1.19	1327	1.24	1355	1.29	1380	1.33	1406	1.37
2400	1216	1.15	1250	1.19	1282	1.24	1313	1.30	1343	1.36	1371	1.40	1396	1.44	1423	1.48

HORIZONTAL

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
	Field Furnished								Kit A03							
1600	712	0.29	758	0.32	807	0.36	855	0.39	906	0.43	955	0.46	997	0.50	1035	0.54
1700	766	0.32	808	0.36	850	0.40	892	0.44	936	0.47	978	0.51	1016	0.56	1052	0.60
1800	814	0.36	851	0.40	888	0.44	925	0.49	963	0.53	1000	0.57	1035	0.62	1071	0.66
1900	853	0.41	886	0.46	919	0.50	952	0.55	986	0.60	1021	0.64	1056	0.69	1091	0.73
2000	883	0.48	913	0.53	944	0.57	976	0.62	1009	0.67	1043	0.71	1078	0.76	1112	0.80
2100	906	0.56	936	0.60	967	0.65	999	0.70	1033	0.75	1067	0.79	1101	0.84	1135	0.88
2200	930	0.64	960	0.68	991	0.73	1024	0.78	1058	0.83	1092	0.88	1126	0.92	1160	0.96
2300	954	0.72	985	0.77	1017	0.82	1051	0.87	1085	0.92	1119	0.96	1152	1.00	1186	1.04
2400	981	0.81	1013	0.86	1046	0.91	1079	0.96	1113	1.00	1146	1.05	1180	1.09	1213	1.13

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Kit A03								Kit A07							
1600	1071	0.58	1109	0.62	1147	0.66	1186	0.69	1225	0.72	1263	0.76	1299	0.80	1334	0.83
1700	1088	0.64	1126	0.68	1164	0.72	1202	0.75	1240	0.78	1276	0.82	1311	0.86	1345	0.90
1800	1107	0.70	1143	0.74	1181	0.78	1219	0.81	1256	0.85	1291	0.89	1324	0.93	1357	0.97
1900	1126	0.77	1163	0.81	1200	0.85	1237	0.88	1273	0.92	1306	0.96	1339	1.00	1371	1.04
2000	1148	0.84	1183	0.88	1220	0.92	1257	0.96	1291	1.00	1323	1.04	1354	1.08	1385	1.12
2100	1170	0.92	1206	0.96	1242	1.00	1277	1.04	1310	1.08	1340	1.13	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

BLOWER DATA - BELT DRIVE - DOWNFLOW - KHA072

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 23 for blower motors and drives and page 24 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
	Field Furnished										Kit A04					
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
	Kit A04												Kit A08			
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 - KHA072

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 23 for blower motors and drives and page 24 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
	Field Furnished								Kit A04							
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
	Kit A04														Kit A08	
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

BELT DRIVE KIT SPECIFICATIONS

Model No.	Blower Motor Choice (HP)						Drive Kit No.	RPM Range
	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum		
036	1	1.15	1.5	1.7	2	2.3	A01	673 - 1010 rpm
							A05	897 - 1346 rpm
048	1	1.15	1.5	1.7	2	2.3	A02	745 - 1117 rpm
							A06	1071 - 1429 rpm
060	1	1.15	1.5	1.7	2	2.3	A03	833 - 1250 rpm
							A07	1212 - 1548 rpm
072	---	---	1.5	1.7	2	2.3	A04	968 - 1340 rpm
							A08	1193 - 1591 rpm

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.

BLOWER DATA

POWER EXHAUST FAN PERFORMANCE

Return Air System Static Pressure - in. w.g.	Air Volume Exhausted cfm	Return Air System Static Pressure - in. w.g.	Air Volume Exhausted cfm
036-048 MODELS		060-072 MODEL	
0.00	2000	0.00	3175
0.05	1990	0.05	2955
0.10	1924	0.10	2685
0.15	1810	0.15	2410
0.20	1664	0.20	2165
0.25	1507	0.25	1920
0.30	1350	0.30	1420
0.35	1210	0.35	1200

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

Air Volume cfm	Wet Indoor Coil		Economizer	Electric Heat	Filters	
	036-048	060-072			MERV 8	MERV 13
800	0.01	0.01	0.04	0.01	0.04	0.05
1000	0.02	0.01	0.04	0.03	0.04	0.07
1200	0.02	0.01	0.04	0.06	0.04	0.07
1400	0.03	0.02	0.04	0.09	0.04	0.07
1600	0.04	0.03	0.04	0.12	0.04	0.07
1800	0.05	0.04	0.05	0.15	0.05	0.07
2000	0.06	0.05	0.05	0.18	0.05	0.08
2200	0.08	0.06	0.05	0.20	0.05	0.08
2400	0.09	0.07	0.05	0.22	0.05	0.08
2600	0.10	0.08	0.06	0.24	0.05	0.08
2800	0.11	0.09	0.06	0.26	0.05	0.08
3000	0.13	0.10	0.06	0.28	0.05	0.08

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

Air Volume cfm	RTD9-65 Step-Down Diffuser			FD9-65 Flush Diffuser	RTD11-95 Step-Down Diffuser			FD11-95 Flush Diffuser
	2 Ends Open	1 Side & 2 Ends Open	All Ends & Sides Open		2 Ends Open	1 Side & 2 Ends Open	All Ends & Sides Open	
800	0.15	0.13	0.11	0.11	---	---	---	---
1000	0.19	0.16	0.14	0.14	---	---	---	---
1200	0.25	0.20	0.17	0.17	---	---	---	---
1400	0.33	0.26	0.20	0.20	---	---	---	---
1600	0.43	0.32	0.20	0.24	---	---	---	---
1800	0.56	0.40	0.30	0.30	0.13	0.11	0.09	0.09
2000	0.73	0.50	0.36	0.36	0.15	0.13	0.11	0.10
2200	0.95	0.63	0.44	0.44	0.18	0.15	0.12	0.12
2400	---	----	---	---	0.21	0.18	0.15	0.14
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.	FD9-65
800	10 - 17	14 - 18
1000	10 - 17	15 - 20
1200	11 - 18	16 - 22
1400	12 - 19	17 - 24
1600	12 - 20	18 - 25
1800	13 - 21	20 - 28
2000	14 - 23	21 - 29
2200	16 - 25	22 - 30
Model No.	RTD11-95	FD11-95
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**2 - 2.5 TON**

DIRECT DRIVE BLOWER		KHA024S	KHA030S
¹ Voltage - 60hz		208/230V - 1 Ph	208/230V - 1 Ph
Compressor 1	Rated Load Amps	13.5	14.1
	Locked Rotor Amps	58.3	73
Outdoor Fan Motors (1)	Full Load Amps (total)	1.7	1.7
Service Outlet 115V GFI (amps)		15	15
Indoor Blower Motor	Horsepower	.25	.25
	Full Load Amps	1.8	1.8
² Maximum Overcurrent Protection	Unit Only	30	35
³ Minimum Circuit Ampacity	Unit Only	21	22

ELECTRIC HEAT DATA

		Electric Heat Voltage	208	240	208	240
² Maximum Overcurrent Protection	Unit + 7.5 kW	Electric Heat	60	60	60	70
	10 kW		70	80	70	80
³ Minimum Circuit Ampacity	Unit + 7.5 kW	Electric Heat	55	60	55	61
	10 kW		66	73	67	74

ELECTRICAL ACCESSORIES

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

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

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

ELECTRICAL/ELECTRIC HEAT DATA

3 TON

KHA036S

¹ Voltage - 60hz		208/230V - 1 Ph		208/230V - 3 Ph			460V - 3 Ph			575V - 3 Ph		
Compressor 1	Rated Load Amps	16.7		10.4			5.8			3.8		
	Locked Rotor Amps	79		73			38			36.5		
Outdoor Fan Motors (1)	Full Load Amps (total)	1.7		1.7			1.1			0.7		
Power Exhaust (1) 0.33 HP	Full Load Amps (total)	2.4		2.4			1.3			1		
Service Outlet 115V GFI (amps)		15		15			15			20		
Indoor Blower Motor	Horsepower	.5	1.5	.5	1	2	.5	1	2	.5	1	2
	Full Load Amps	3.9	11.5	3.9	4.6	7.5	2	2.1	3.4	2	1.7	2.7
² Maximum Overcurrent Protection	Unit Only	40	50	25	25	30	15	15	15	15	15	15
	with (1) 0.33 HP Power Exhaust	45	50	30	30	35	15	15	15	15	15	15
³ Minimum Circuit Ampacity	Unit Only	27	34	19	20	23	11	11	12	8	8	9
	with (1) 0.33 HP Power Exhaust	29	36	21	22	25	12	12	14	9	9	10

ELECTRIC HEAT DATA

Electric Heat Voltage			208	240	208	240	208	240	208	240	208	240	480	480	480	600	600	600
² Maximum Overcurrent Protection	Unit + Electric Heat	7.5 kW	70	70	70	80	40	45	45	45	45	50	25	25	25	20	20	20
		15 kW	100	110	110	125	60	70	60	70	70	70	35	35	35	30	30	30
³ Minimum Circuit Ampacity	Unit + Electric Heat	7.5 kW	61	66	68	73	39	42	39	42	42	45	22	22	24	17	17	18
		15 kW	95	105	102	112	58	64	59	65	62	68	33	34	35	26	26	27
² Maximum Overcurrent Protection	Unit + Electric Heat	7.5 kW	70	70	70	80	45	45	45	50	50	50	25	25	25	20	20	20
	and (1) 0.33 HP Power Exhaust	15 kW	100	110	110	125	70	70	70	70	70	70	35	35	40	30	30	30
³ Minimum Circuit Ampacity	Unit + Electric Heat	7.5 kW	63	68	70	76	41	44	42	45	45	48	23	24	25	18	18	19
	and (1) 0.33 HP Power Exhaust	15 kW	97	108	104	115	61	67	61	67	64	70	35	35	36	27	27	28

ELECTRICAL ACCESSORIES

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

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

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

² HACR type breaker or fuse.

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

ELECTRICAL/ELECTRIC HEAT DATA

4 TON

KHA048S

¹ Voltage - 60hz		208/230V - 1 Ph		208/230V - 3 Ph			460V - 3 Ph			575V - 3 Ph		
Compressor 1	Rated Load Amps	21.8		13.7			6.2			4.8		
	Locked Rotor Amps	117		83.1			41			33		
Outdoor Fan Motors (1)	Full Load Amps (total)	1.7		1.7			1.1			0.7		
Power Exhaust (1) 0.33 HP	Full Load Amps (total)	2.4		2.4			1.3			1		
Service Outlet 115V GFI (amps)		15		15			15			20		
Indoor Blower Motor	Horsepower	.5	1.5	.5	1	2	.5	1	2	.5	1	2
	Full Load Amps	3.9	11	3.9	4.6	7.5	2	2.1	3.4	2	1.7	2.7
² Maximum Overcurrent Protection	Unit Only	50	60	35	35	40	15	15	15	15	15	15
	with (1) 0.33 HP Power Exhaust	50	60	35	35	40	15	15	15	15	15	15
³ Minimum Circuit Ampacity	Unit Only	33	40	23	24	27	11	11	13	9	9	10
	with (1) 0.33 HP Power Exhaust	36	43	26	26	29	13	13	14	10	10	11

ELECTRIC HEAT DATA

Electric Heat Voltage			208	240	208	240	208	240	208	240	208	240	480	480	480	600	600	600
² Maximum Overcurrent Protection	Unit + 7.5 kW	Electric Heat	80	80	80	90	50	50	50	50	50	50	25	25	25	20	20	20
	Unit + 15 kW	Electric Heat	110	125	110	125	70	70	70	70	70	80	35	35	35	30	30	30
³ Minimum Circuit Ampacity	Unit + 7.5 kW	Electric Heat	67	72	74	80	43	46	43	46	46	49	23	23	24	18	18	19
	Unit + 15 kW	Electric Heat	101	111	108	119	62	68	63	69	66	72	34	34	35	27	27	28
² Maximum Overcurrent Protection	Unit + 7.5 kW	Electric Heat and (1) 0.33 HP Power Exhaust	80	80	90	90	50	50	50	50	50	60	25	25	25	20	20	20
	Unit + 15 kW	Electric Heat and (1) 0.33 HP Power Exhaust	110	125	125	125	70	80	70	80	70	80	35	35	40	30	30	30
³ Minimum Circuit Ampacity	Unit + 7.5 kW	Electric Heat and (1) 0.33 HP Power Exhaust	70	75	77	82	45	48	46	49	49	52	24	24	25	19	19	20
	Unit + 15 kW	Electric Heat and (1) 0.33 HP Power Exhaust	103	114	111	121	65	71	65	71	68	74	35	35	37	28	28	29

ELECTRICAL ACCESSORIES

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

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

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

² HACR type breaker or fuse.

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

ELECTRICAL/ELECTRIC HEAT DATA
5 TON
KHA060S

¹ Voltage - 60hz		208/230V - 1 Ph	208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph	
Compressor 1	Rated Load Amps	26.3	15.6		7.8		5.8	
	Locked Rotor Amps	134	110		52		38.9	
Outdoor Fan Motors (1)	Full Load Amps (total)	2.4	2.4		1.3		1	
Power Exhaust (1) 0.33 HP	Full Load Amps (total)	2.4	2.4		1.3		1	
Service Outlet 115V GFI (amps)		15	15		15		20	
Indoor Blower Motor	Horsepower	1.5	1	2	1	2	1	2
	Full Load Amps	11.5	4.6	7.5	2.1	3.4	1.7	2.7
² Maximum Overcurrent Protection	Unit Only	70	40	45	20	20	15	15
	with (1) 0.33 HP Power Exhaust	70	40	45	20	20	15	15
³ Minimum Circuit Ampacity	Unit Only	47	27	30	14	15	10	11
	with (1) 0.33 HP Power Exhaust	49	29	32	15	16	11	12

ELECTRIC HEAT DATA

Electric Heat Voltage		208	240	208	240	208	240	480	480	600	600
² Maximum Overcurrent Protection	Unit + 7.5 kW	90	100	50	60	60	60	25	30	20	20
	Electric Heat 15 kW	125	125	70	80	70	80	40	40	30	30
	22.5 kW	150	175	90	100	90	100	50	50	40	40
³ Minimum Circuit Ampacity	Unit + 7.5 kW	81	86	47	50	49	52	25	26	19	20
	Electric Heat 15 kW	114	125	66	72	69	75	36	38	28	29
	22.5 kW	148	164	86	95	89	98	47	49	38	39
² Maximum Overcurrent Protection	Unit + 7.5 kW	100	100	60	60	60	60	30	30	20	25
	Electric Heat 15 kW	125	150	70	80	80	80	40	40	30	30
	and (1) 0.33 HP Power Exhaust 22.5 kW	175	175	90	100	100	100	50	50	40	40
³ Minimum Circuit Ampacity	Unit + 7.5 kW	83	88	49	52	52	55	26	28	20	21
	Electric Heat 15 kW	117	127	68	75	71	77	38	39	29	30
	and (1) 0.33 HP Power Exhaust 22.5 kW	151	166	88	97	91	100	49	50	39	40

ELECTRICAL ACCESSORIES

Disconnect Kit	Standard Access - 0-15 kW	20W19	20W18	20W18	20W18	20W18
	22.5 kW	---	20W19	20W19	20W18	20W18
	Hinged Access - 0-15 kW	20W25	20W24	20W24	20W24	20W24
	22.5 kW	---	20W25	20W25	20W24	20W24

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

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

² HACR type breaker or fuse.

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

ELECTRICAL/ELECTRIC HEAT DATA

6 TON

KHA072S

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
	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	20W18	20W18	20W18	20W18
		22.5-30 kW	20W19	20W19	20W18
	Hinged Access - 0-15 kW	20W24	20W24	20W24	20W24
		22.5-30 kW	20W25	20W25	20W24

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.

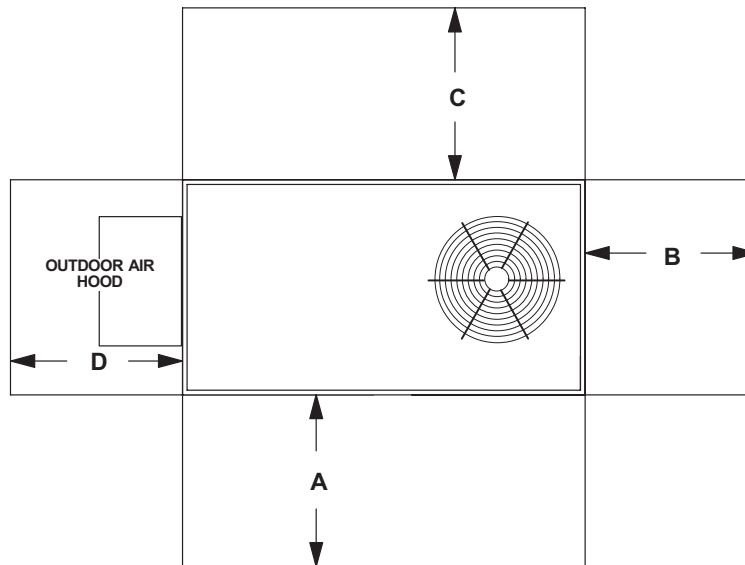
² HACR type breaker or fuse.

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			10 kW			15 kW			22.5 kW			30 kW		
	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
208	1	5.6	19,200	1	7.5	25,600	1	11.2	38,200	1	16.9	57,700	1	22.5	76,800
220	1	6.3	21,500	1	8.4	28,700	1	12.6	43,000	1	18.9	64,500	1	25.2	86,000
230	1	6.9	23,500	1	9.2	31,400	1	13.8	47,000	1	20.7	70,700	1	27.5	93,900
240	1	7.5	25,600	1	10.0	34,200	1	15.0	51,200	1	22.5	76,800	1	30.0	102,400
440	1	6.3	21,500	---	---	---	1	12.6	43,000	1	18.9	64,500	1	25.2	86,000
460	1	6.9	23,500	---	---	---	1	13.8	47,000	1	20.7	70,700	1	27.5	93,900
480	1	7.5	25,600	---	---	---	1	15.0	51,200	1	22.5	76,800	1	30.0	102,400
550	1	6.3	21,500	---	---	---	1	12.6	43,000	1	18.9	64,500	1	25.2	86,000
575	1	6.9	23,500	---	---	---	1	13.8	47,000	1	20.7	70,700	1	27.5	93,900
600	1	7.5	25,600	---	---	---	1	15.0	51,200	1	22.5	76,800	1	30.0	102,400

UNIT CLEARANCES - INCHES (MM)



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.

OUTDOOR SOUND DATA

¹ Unit Model No.	Operating Mode	Octave Band Linear Sound Power Levels dB, re 10 ⁻¹² Watts - Center Frequency - Hz							¹ Sound Rating Number (SRN) (dBA)
		125	250	500	1000	2000	4000	8000	
024, 030, 036 and 048	Cooling	63	66	70	71	68	62	53	75
	Heating	63	66	71	70	68	62	54	75
060	Cooling	67	72	77	76	73	68	61	82
	Heating	70	72	77	76	73	69	60	82
072	Cooling	67	75	78	78	75	68	59	83
	Heating	69	77	79	80	76	69	61	84

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), dB (100 Hz to 10,000 Hz).

WEIGHT DATA

Model Number	Net				Shipping			
	Base		Max.		Base		Max.	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
024S	531	241	643	292	591	268	712	323
030S	533	242	645	293	593	269	714	324
036S	535	243	647	293	595	270	716	325
048S	557	253	669	303	617	280	738	335
060S	667	303	770	349	727	330	842	382
072S	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.)

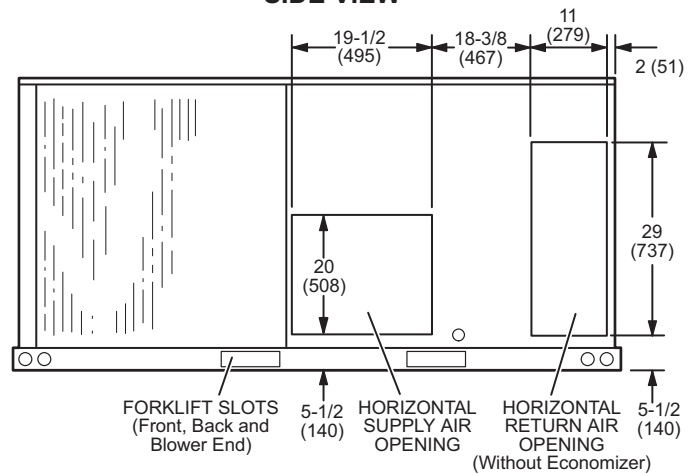
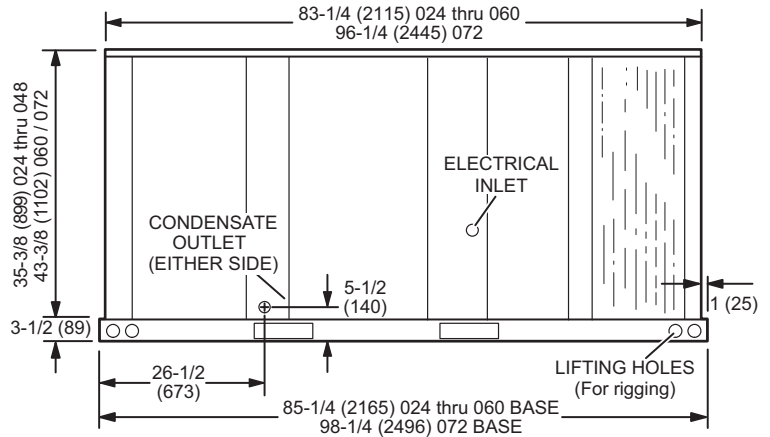
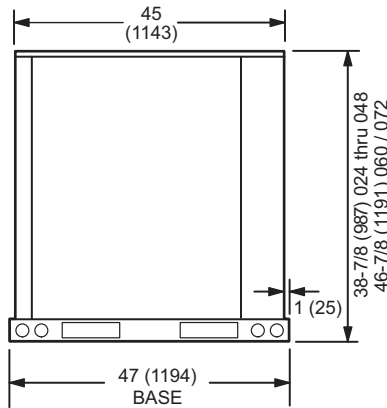
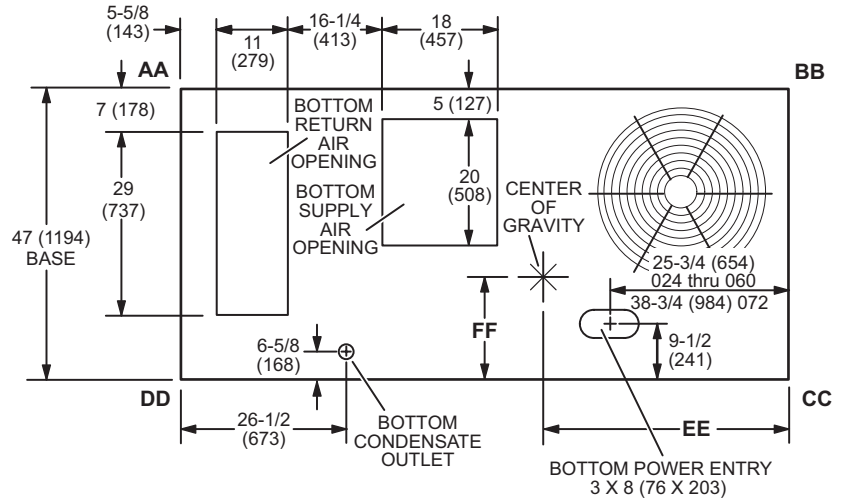
OPTIONS / ACCESSORIES

		Shipping Weights	
		lbs.	kg
ECONOMIZER / OUTDOOR AIR / EXHAUST			
Economizer			
Economizer, Includes Outdoor Air Hood and Barometric Relief Dampers with Hood	024-048	131	59
	060-072	152	69
Outdoor Air Dampers			
Motorized	024-048	25	12
	060-072	29	14
Manual	024-048	18	9
	060-072	22	11
Power Exhaust			
Standard Static	024-048	35	17
	060-072	39	19
ELECTRIC HEAT			
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
Clip Curbs, Full Perimeter, Downflow			
8 in. height		83	38
14 in. height		101	46
18 in. height		113	51
24 in. height		131	59
Hinged, Full Perimeter, Downflow			
8 in. height		83	38
18 in. height		113	49
24 in. height		131	59
Standard, Full Perimeter, Downflow			
14 in. height		101	46
CEILING DIFFUSERS			
Step-Down	RTD9-65	67	30
	RTD11-95	88	40
Flush	FD9-65	37	17
	FD11-95	75	34
Transitions (Supply and Return)	T1TRAN10AN1	22	10
	T1TRAN20N-1	21	10

DIMENSIONS - INCHES (MM)

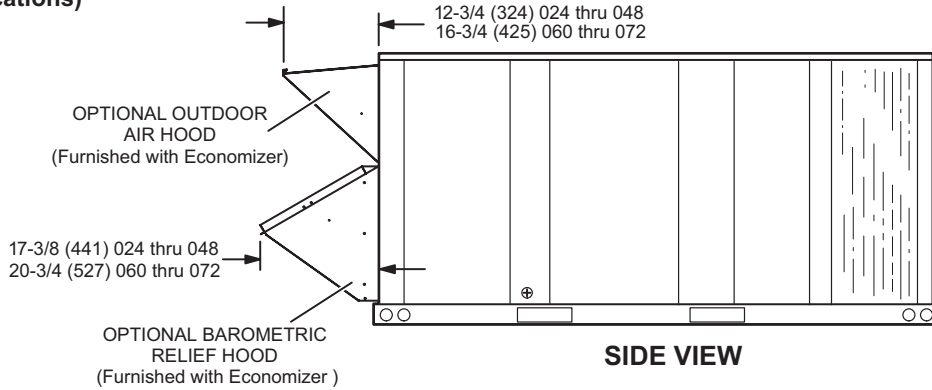
Model No.	CORNER WEIGHTS								CENTER OF GRAVITY															
	AA		BB		CC		DD		EE		FF		FF											
	Base	Max.	Base	Max.	Base	Max.	Base	Max.	Base	Max.	Base	Max.	Base	Max.										
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	in.	mm	in.	mm	in.	mm	in.	mm						
024	92	42	116	53	112	51	131	59	180	82	211	96	148	67	186	85	38-1/2	978	40	1016	18	457	18	457
030	92	42	116	53	112	51	131	60	180	82	211	96	149	68	187	85	38-1/2	978	40	1016	18	457	18	457
036	93	42	116	53	112	51	132	60	181	82	212	96	149	68	187	85	38-1/2	978	40	1016	18	457	18	457
048	96	44	120	55	117	53	136	62	188	86	219	100	155	71	194	88	38-1/2	978	40	1016	18	457	18	457
060	115	52	138	63	140	64	157	71	226	103	252	115	166	84	223	101	38-1/2	978	40	1016	18	457	18	457
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.)



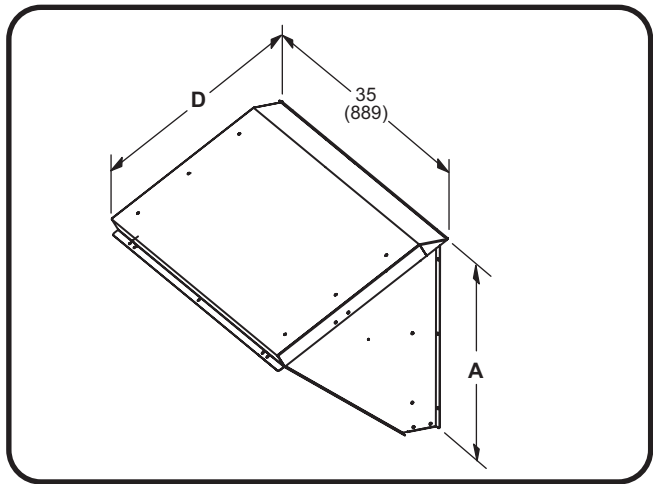
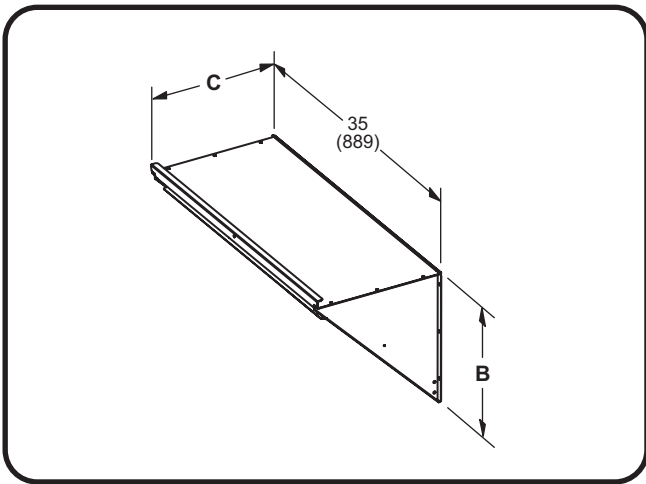
ACCESSORY DIMENSIONS - INCHES (MM)

OUTDOOR AIR HOOD DETAIL FOR OPTIONAL ECONOMIZER AND BAROMETRIC RELIEF DAMPERS (Downflow Applications)



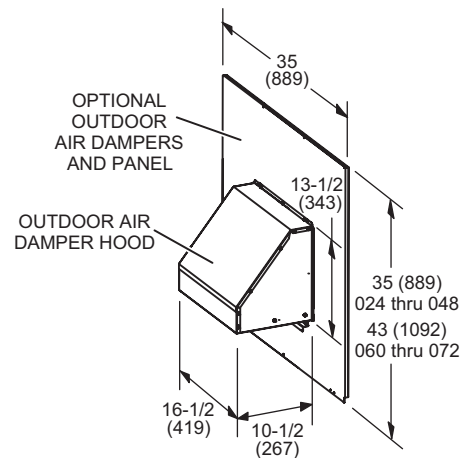
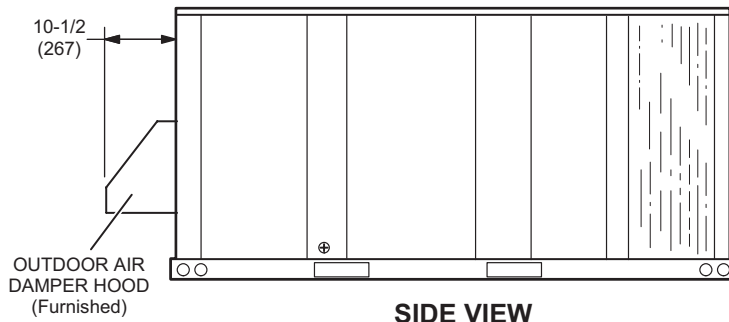
OUTDOOR AIR HOOD FOR ECONOMIZER (Furnished)

BAROMETRIC RELIEF HOOD FOR ECONOMIZER (Furnished)



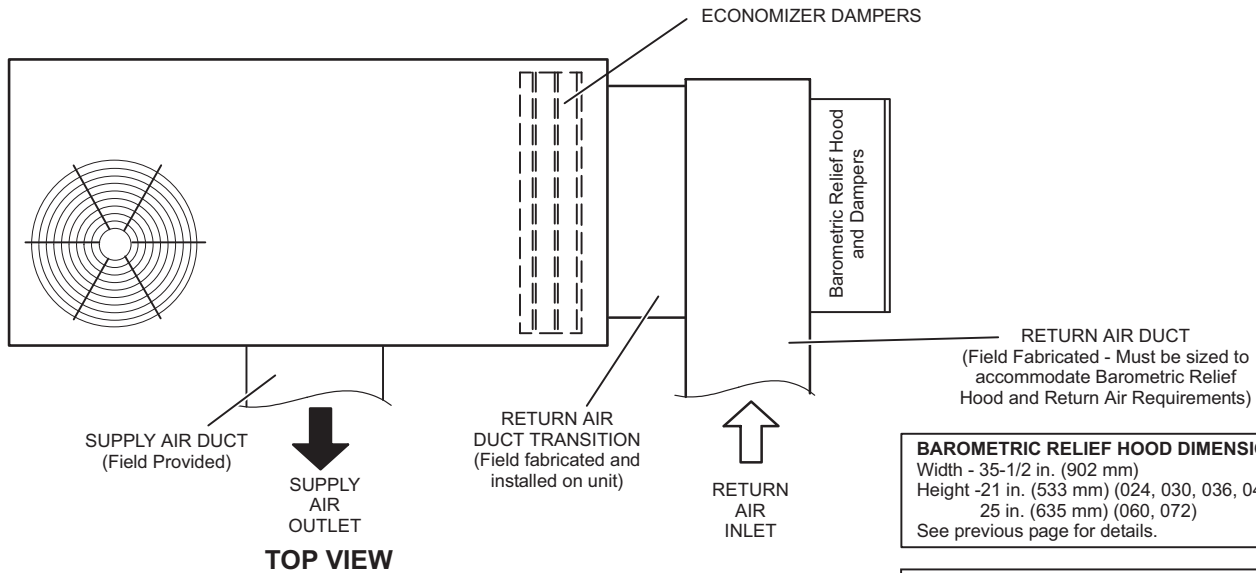
Model No.	A		B		C		D	
	in.	mm	in.	mm	in.	mm	in.	mm
024, 030, 036, 048	19-7/8	505	13	330	11-3/4	298	17-3/8	441
060, 072	23-3/4	603	17	432	15-3/4	400	20-3/4	527

OUTDOOR AIR DAMPER HOOD DETAIL FOR OPTIONAL MANUAL OR MOTORIZED OUTDOOR AIR DAMPERS (Downflow or Horizontal Applications)



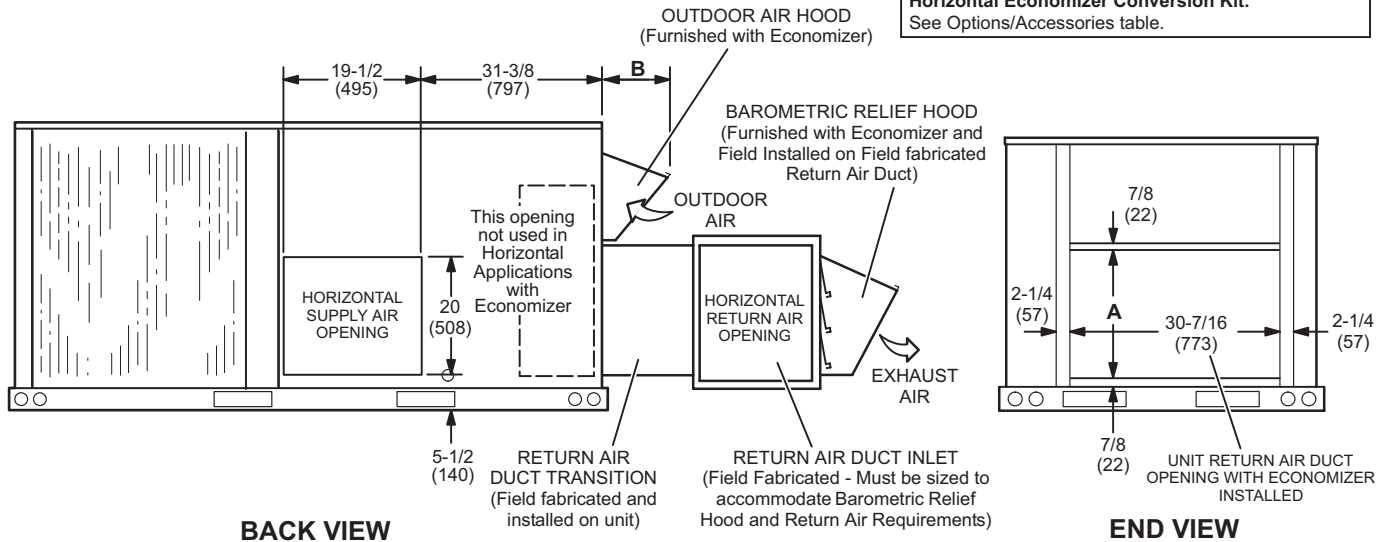
ACCESSORY DIMENSIONS - INCHES (MM)

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



BAROMETRIC RELIEF HOOD DIMENSIONS
 Width - 35-1/2 in. (902 mm)
 Height - 21 in. (533 mm) (024, 030, 036, 048)
 25 in. (635 mm) (060, 072)
 See previous page for details.

NOTE - Horizontal applications with Economizer require Horizontal Economizer Conversion Kit.
 See Options/Accessories table.

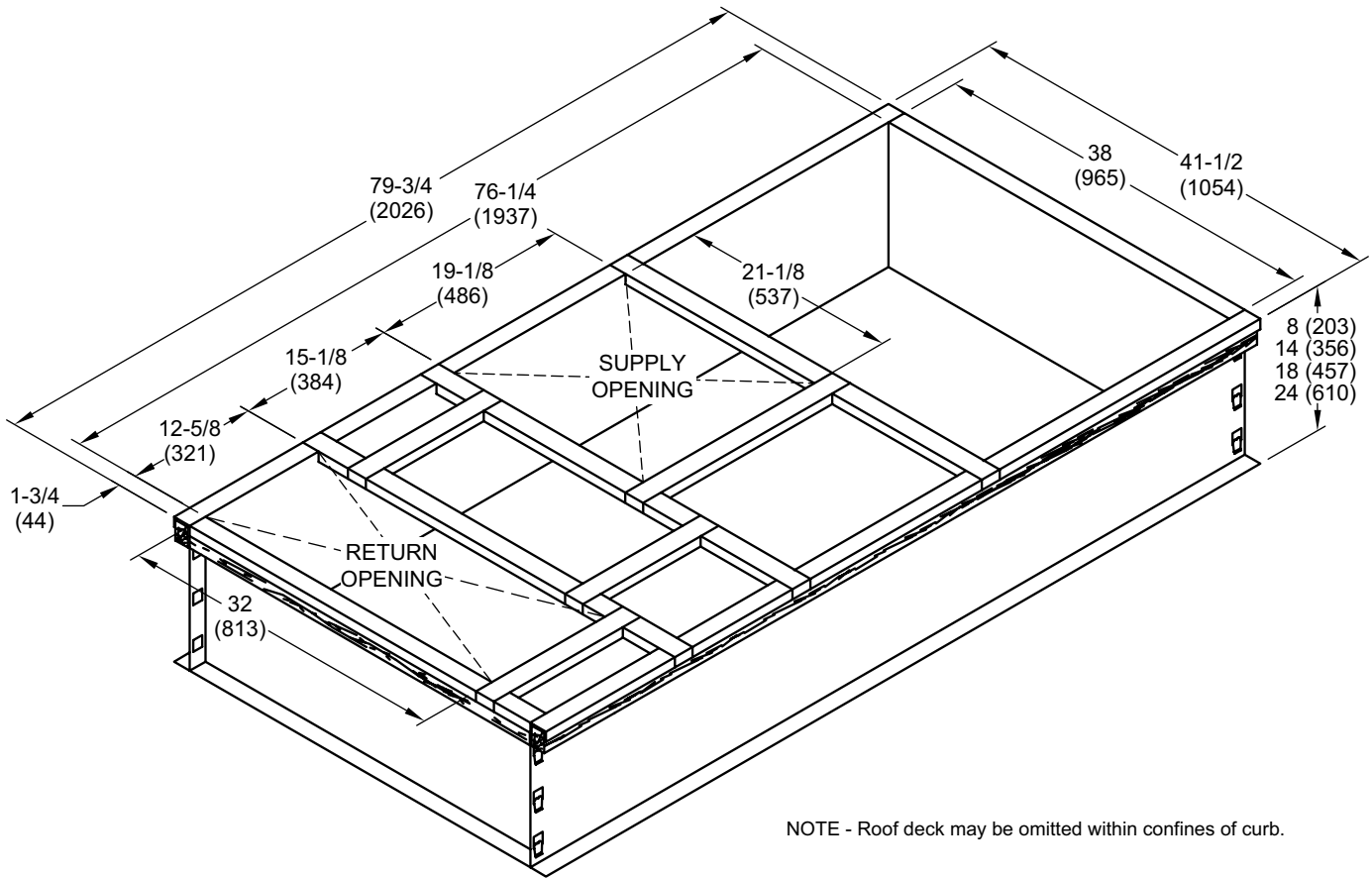


NOTE - Return Air Duct and Transition must be supported.

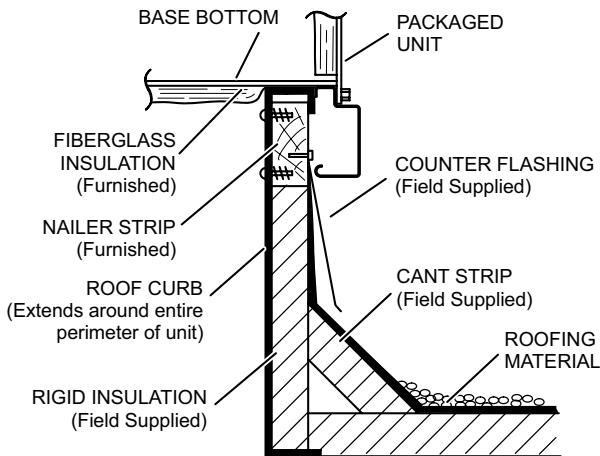
Model No.	A		B	
	in.	mm	in.	mm
024, 030, 036, 048	18-3/4	476	11-3/4	298
060, 072	22-1/2	572	15-3/4	400

ACCESSORY DIMENSIONS - INCHES (MM)

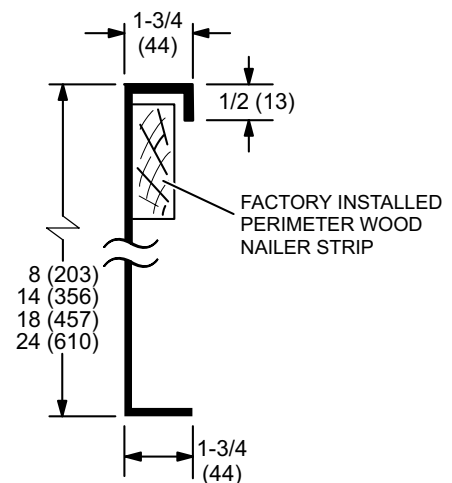
HYBRID ROOF CURBS - DOUBLE DUCT OPENING



TYPICAL FLASHING DETAIL FOR ROOF CURB

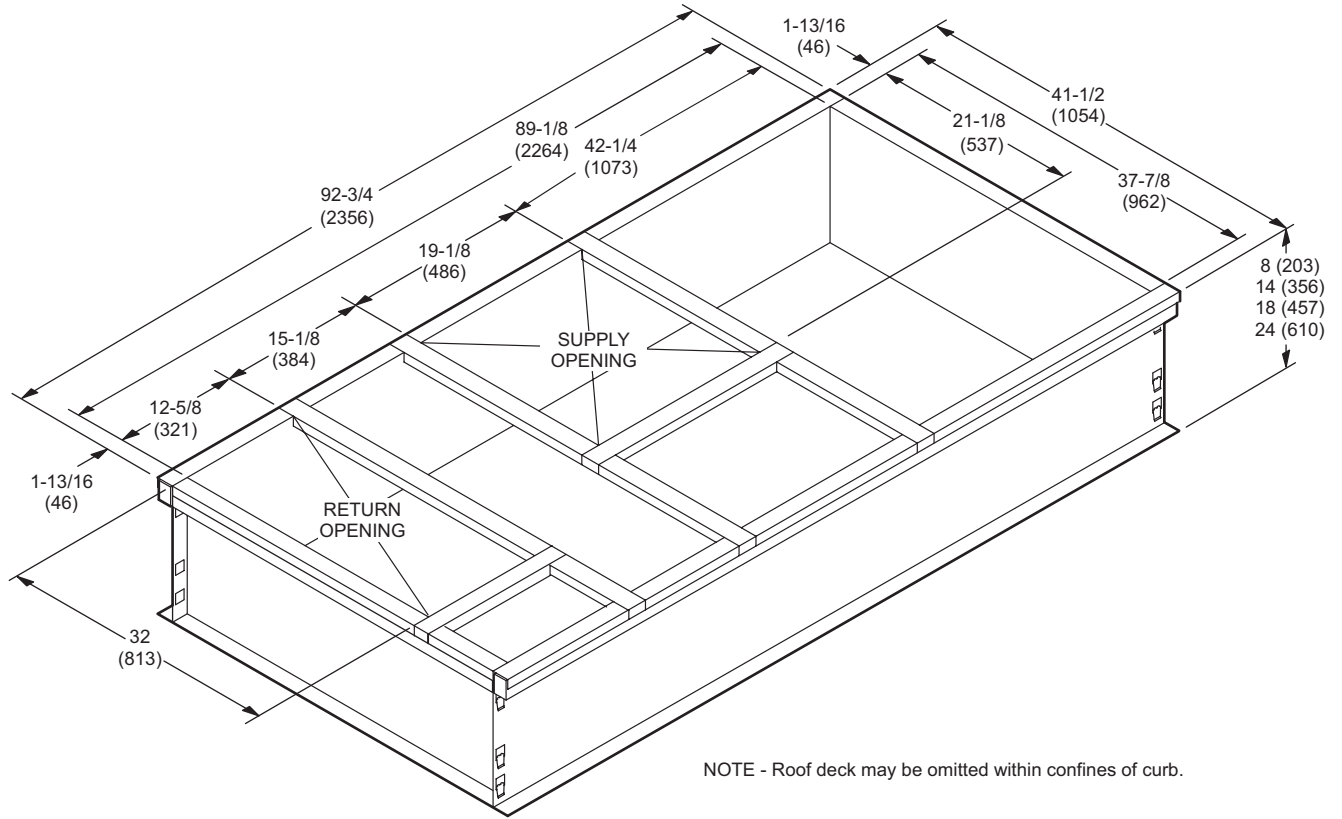


DETAIL ROOF CURB

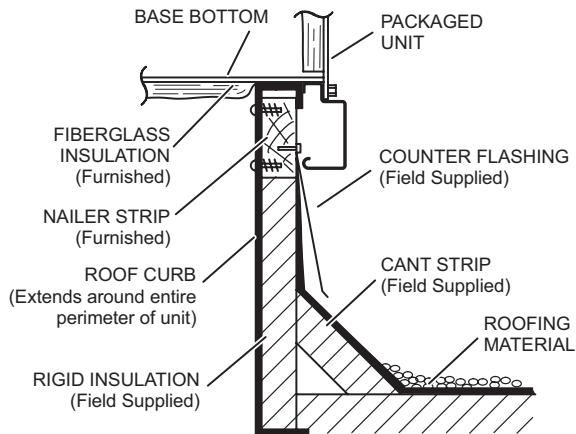


ACCESSORY DIMENSIONS - INCHES (MM)

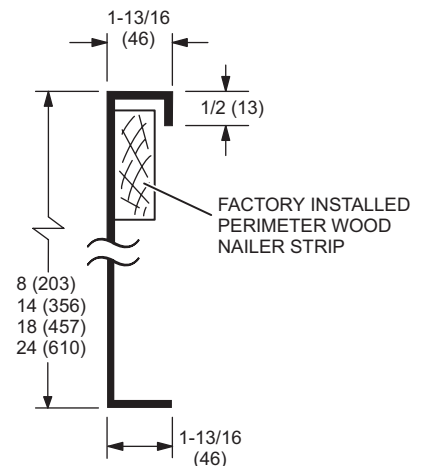
CLIP CURBS - FULL PERIMETER - DOUBLE DUCT OPENING (072 MODELS ONLY)



TYPICAL FLASHING DETAIL FOR ROOF CURB

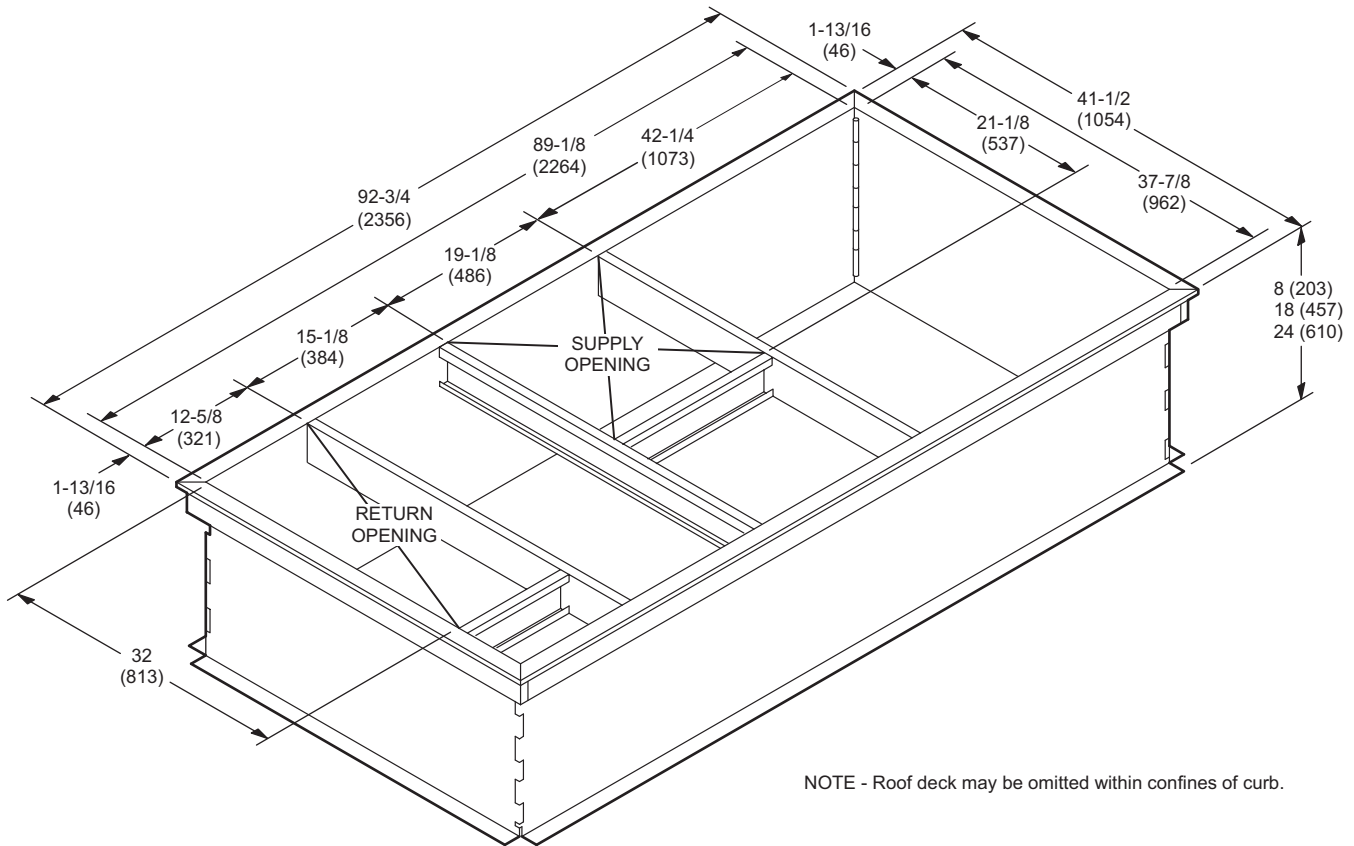


DETAIL ROOF CURB

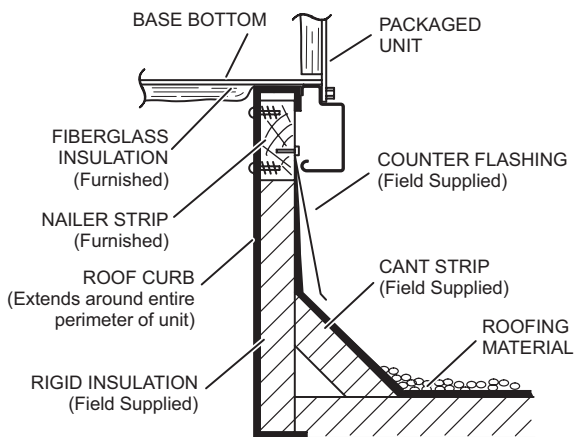


ACCESSORY DIMENSIONS - INCHES (MM)

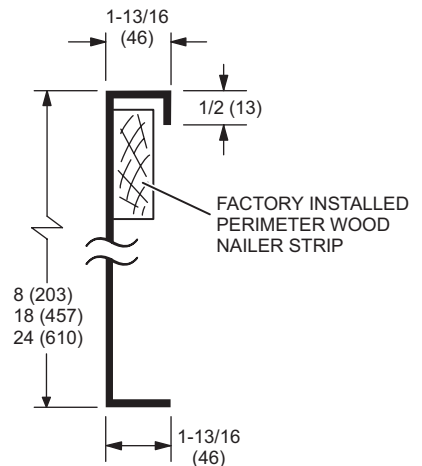
HINGED ROOF CURBS - FULL PERIMETER - DOUBLE DUCT OPENING (072 MODELS ONLY)



TYPICAL FLASHING DETAIL FOR ROOF CURB

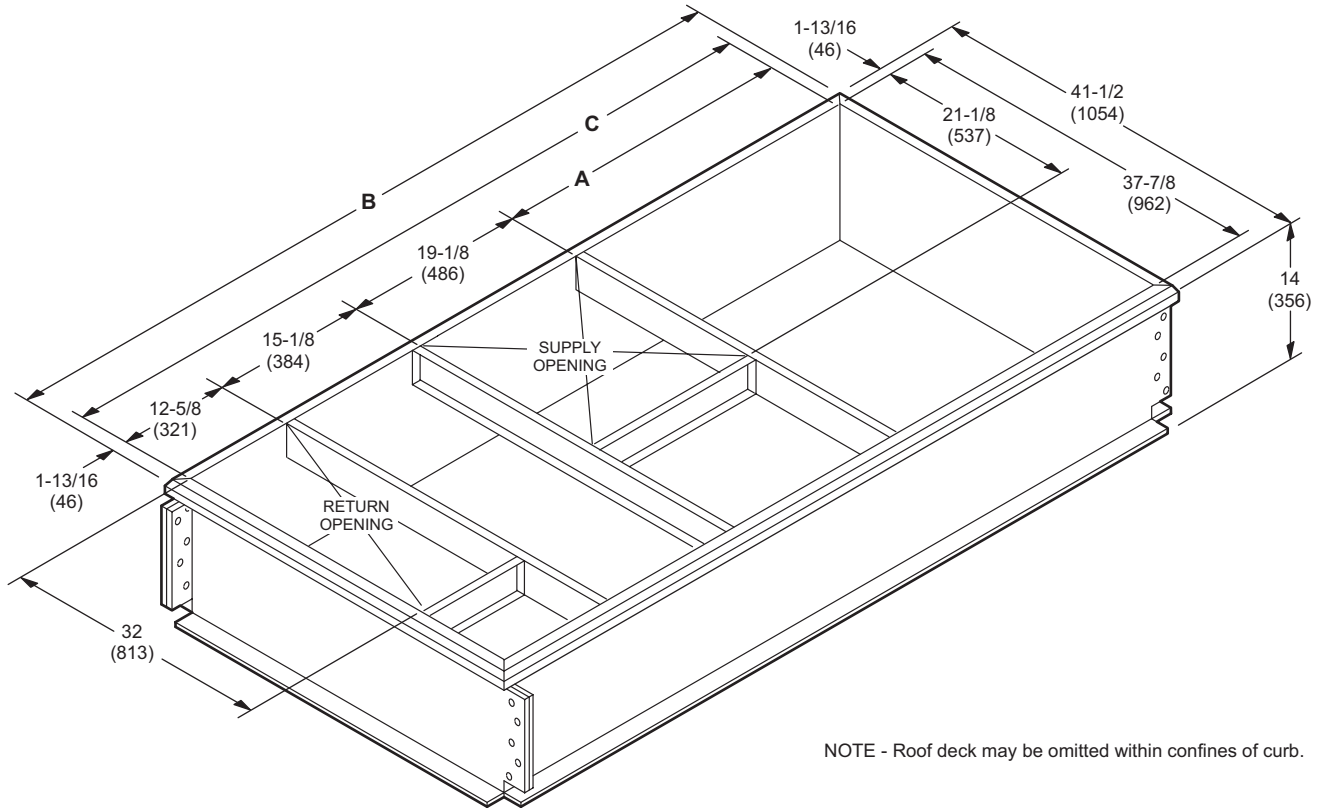


DETAIL ROOF CURB



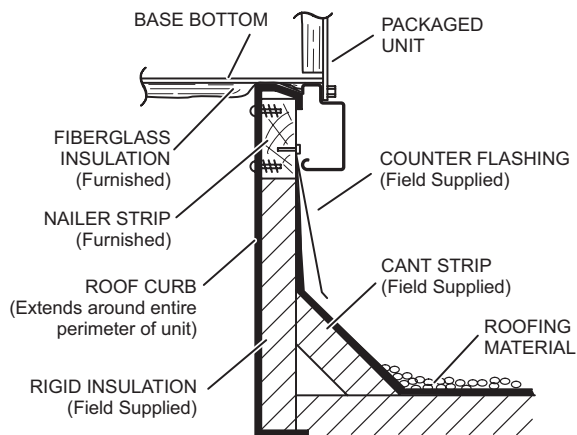
ACCESSORY DIMENSIONS - INCHES (MM)

STANDARD ROOF CURBS - FULL PERIMETER - DOUBLE DUCT OPENING (072 MODELS ONLY)

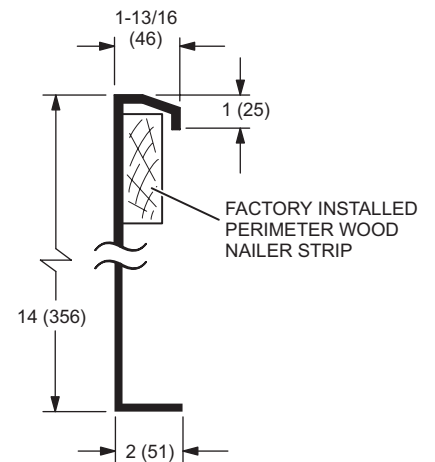


NOTE - Roof deck may be omitted within confines of curb.

TYPICAL FLASHING DETAIL FOR ROOF CURB

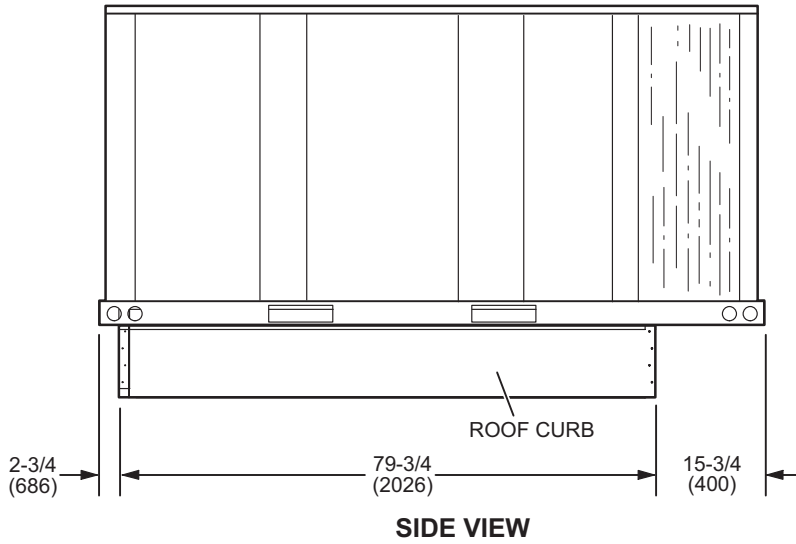


DETAIL ROOF CURB

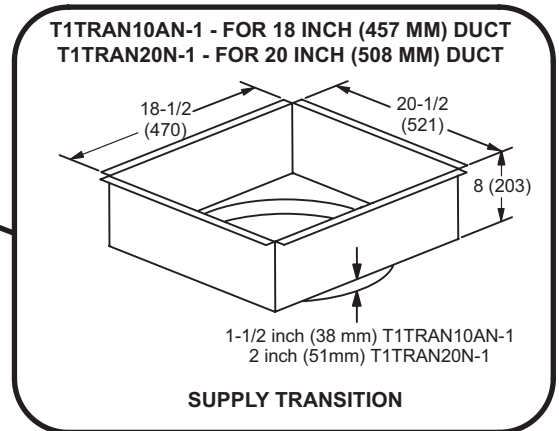
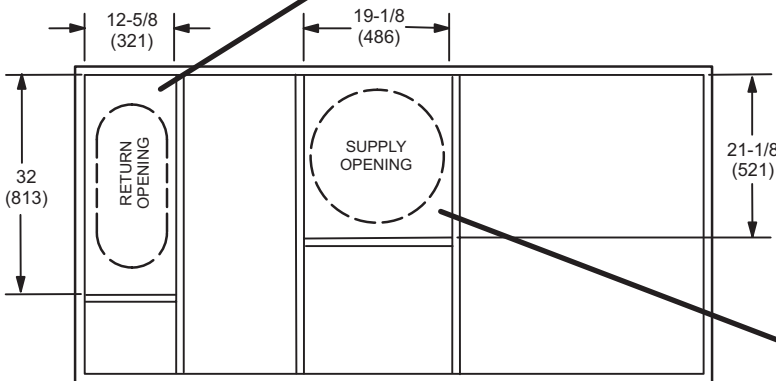
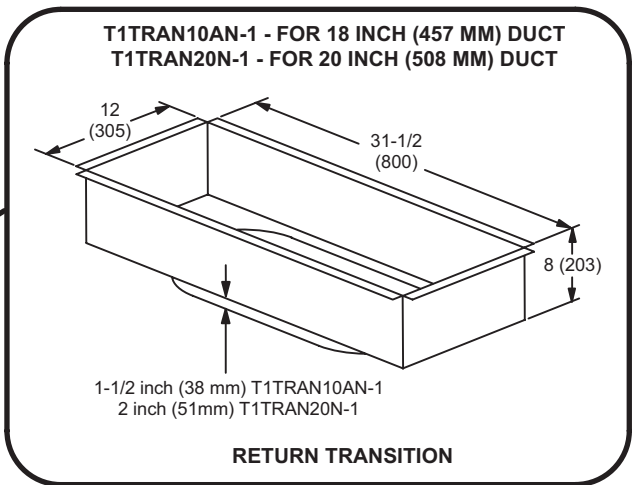


ACCESSORY DIMENSIONS - INCHES (MM)

072 MODELS - SHOWING OVERHANG ON ROOF CURBS

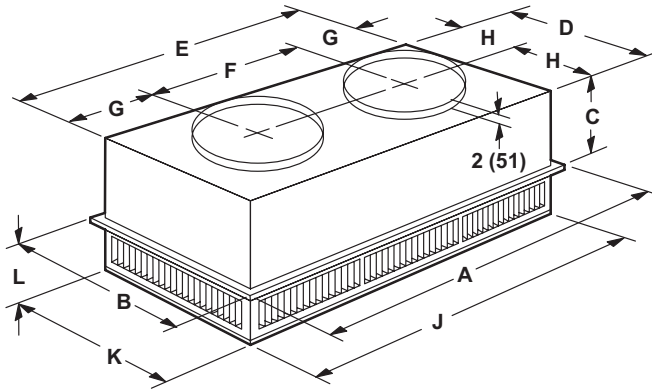


TRANSITIONS

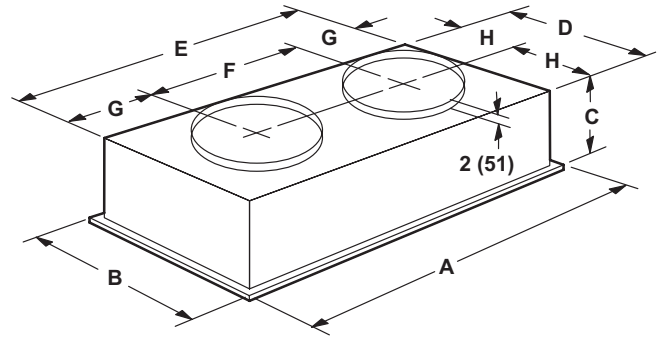


ACCESSORY DIMENSIONS - INCHES (MM)

COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS STEP-DOWN CEILING DIFFUSER



FLUSH CEILING DIFFUSER



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

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

REVISIONS

Section	Description
Options/Accessories	Added new BACnet and Novar 2051 Controls for 060/072 models.



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