PACKAGED HEAT PUMP

KH

Landmark® Rooftop Units

50 HZ

PRODUCT SPECIFICATIONS

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Supersedes November 2011



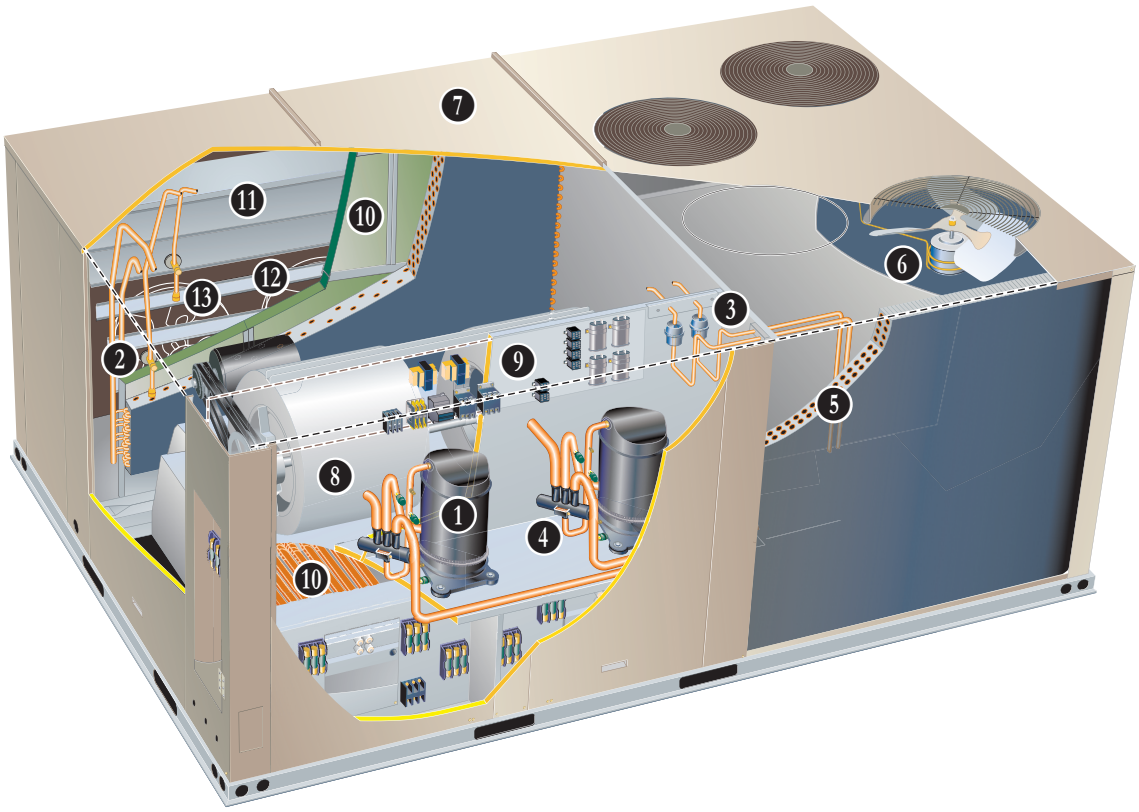
52.8 and 70.3 kW (15 and 20 Tons)
Net Cooling Capacity – 46.0 to 57.7 kW (157 000 to 197 000 Btuh)
Net Heating Capacity – 46.6 to 57.1 kW (159 000 to 196 000 Btuh)
Optional Electric Heat - 11.5 to 68.9 kW

MODEL NUMBER IDENTIFICATION

K H A 240 S 4 B N 1 M

- **Brand/Family** — K = Landmark®
- **Unit Type** — H = Packaged Heat Pump
- **Major Design Sequence** — A = 1st Generation
- **Nominal Cooling Capacity - kW** — 180 = 52.8 kW; 240 = 70.3 kW
- **Cooling Efficiency** — S = Standard Efficiency
- **Refrigerant Type** — 4 = R-410A
- **Blower Type** — B = Belt Drive
- **Factory Installed Electric Heat** — N = No Heat
- **Minor Design Sequence** — 1 = 1st Revision; 2 = 2nd Revision; 3 = 3rd Revision
- **Voltage** — M = 380/420V-3 phase-50hz

FEATURES AND BENEFITS



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

- **R-410A Refrigerant** - Environmentally friendly
- **Scroll Compressors** - Single speed scroll compressors are furnished on all models.
- **Crankcase Heaters** - Protect compressors from refrigerant liquid migration in the off cycle improving product reliability.
- **High Pressure Switches** - Protect compressor.
- **Isolated Compressor Compartment** - Allows performance check during normal compressor operation without disrupting airflow.
- **Independent Motor Mounts** - Allows for easy and efficient service access without removing the top panel.
- **Downflow Airflow** - Horizontal airflow with optional horizontal curb.
- **Two Fork Lift Slots on Three Sides** - Easy to pick up and transport units from almost any angle.
- **Corrosion-Resistant Removable, Drain Pan** - Provides application flexibility, durability and improved serviceability.
- **Thermostatic Check/Expansion Valves** - Provide peak cooling performance across the entire application range.
- **MERV 8 or MERV 13 Filters** - Available as field installed option, provide an enhanced level of indoor air quality, and can help the building qualify for additional Leadership in Energy and Environmental Design (LEED) credits.

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PERFORMANCE/QUALITY

Components bonded for grounding to meet safety standards for servicing required by Underwriters Laboratories (UL) and the International Electrotechnical Commission (IEC).

Cooling performance is rated at test conditions included in Air-Conditioning, Heating and Refrigeration (AHRI) Standard 340/360-2007 while operating at rated voltage and air volumes.

International Organization for Standardization (ISO) 9001 Registered Manufacturing Quality System.

CE MARK OPTION

The CE mark has been added to our rooftop product line as a configure to order (CTO) option. This optional construction allows units to be sold into countries requiring CE marking for rooftop products.

CE marked units meet the requirements of the Machinery Directive 2006/42/EC, Low Voltage Directive 73/23/EEC, EMC Directive 89/336/EEC, and Gas Directive 90/396/EEC. Declaration of conformity certificates will be provided for each CE marked unit on demand.

Key features of this option over and above standard product features are:

- Touch-proof electrical components meeting the requirements of EN 60529.
- Branch circuits over 0.5 kW load have overcurrent protection.
- Rotary style/finger safe disconnect switch with locking handle prevents disconnect door from being opened with the power on. Padlock can be applied to lock the disconnect switch in the OFF position.
- The factory wiring has been redesigned for separation of high and low voltage circuits.

COOLING / HEATING SYSTEM

Designed to maximize sensible and latent cooling performance at design conditions.

System can operate in the cooling mode from –1°C to 52°C without any additional controls.

R-410A Refrigerant

Non-chlorine based, ozone friendly, R-410A.

1 Scroll Compressors

Scroll compressors on all models for high performance, reliability and quiet operation.

Resiliently mounted on rubber grommets for quiet operation.

Compressor Crankcase Heaters

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

2 Check/Thermal Expansion Valves

Assures optimal performance throughout the application range.

Removable element head.

3 Filter/Driers

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

High Pressure Switches

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

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 2°C.

Pressure switch mounted on outdoor coil vapor line terminates defrost cycle.

4 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.

COOLING / HEATING SYSTEM CONTINUED)

Freezestats

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

5 Coil Construction

Copper tube construction, enhanced rippled-edge aluminum fins, flared shoulder tubing connections, silver soldered construction 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 allows separation for cleaning.

Condensate Drain Pan

Plastic pan, sloped to meet drainage requirements of ASHRAE 62.1.

Side or bottom drain connections.

6 Outdoor Coil Fan Motors

Thermal overload protected, totally enclosed, permanently lubricated ball bearings, shaft up, wire basket mount.

Outdoor Coil Fans

Polyvinyl Chloride (PVC) coated fan guard furnished.

REQUIRED SELECTIONS

Cooling Capacity

Specify nominal cooling capacity of the unit

OPTIONS/ACCESSORIES

Field Installed

Condensate Drain Trap

Available in copper or Polyvinyl Chloride (PVC).

Drain Pan Overflow Switch

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

Low Ambient Kit

Cycles the outdoor fan while allowing compressor operation in the cooling cycle. This intermittent fan operation allows the system to operate without icing the indoor coil and losing capacity. Designed for use in ambient temperatures no lower than –17°C.

CABINET

7 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 forklift 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 available in downflow (vertical) or horizontal return air flow configuration.

Horizontal air flow requires Horizontal Roof Curb.

Horizontal Return Air Panel Kit is also required if converting a downflow configured unit to horizontal air flow.

Power Entry

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

Exterior Panels

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

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 indoor base

Outdoor Corrosion Protection:
- Coated coil
- Painted outdoor base

Hinged Access Panels

Hinged access panels for the filter section, the blower section and compressor/controls section.

All hinged panels have seals and quarter-turn latching handles to provide a tight air and water seal.

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.

Horizontal Return Air Panel Kit

Required for horizontal applications with Horizontal Roof Curb, contains panel with return air opening for field replacement of existing unit panel and panel to cover bottom return air opening in unit, see dimension drawings.

8 BLOWER

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

Motor

Overload protected, equipped with ball bearings. Belt drive motors are offered on all models and are available in several different sizes to maximize air performance.

Supply Air Blower

Forward curved blades, double inlet, blower wheel is statically and dynamically balanced. Equipped with ball bearings and adjustable pulley (allows speed change),.

Blower assembly slides out of unit for servicing.

REQUIRED SELECTIONS

Order blower motor horsepower and drive kit number required when base unit is ordered, see Drive Kit Specifications Table.

CONTROLS

9 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.

Thermostats

Control system and thermostat options. Aftermarket unit controller options. See page 20.

ELECTRICAL

All units include terminal block and fuse block in power entry junction box for single power entry application.

REQUIRED SELECTIONS

Voltage Choice

Specify when ordering base unit.

OPTIONS/ACCESSORIES

Field Installed

10 Electric Heat

Electric heat is CE marked.

Helix wound nichrome elements, individual element limit controls, wiring harness. Unit fuse block is furnished as standard. See Options / Accessories tables for ordering information

FEATURES AND BENEFITS

INDOOR AIR QUALITY

⓫ Air Filters

Disposable 51 mm filters furnished as standard.

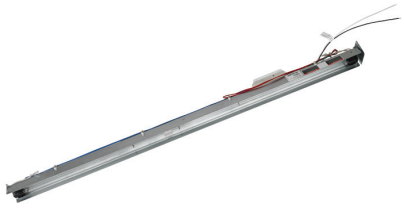
OPTIONS/ACCESSORIES

Field Installed

High Efficiency Air Filters

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

Healthy Climate® UVC Germicidal Lamps



Germicidal lamps emit ultra-violet (UV-C) energy, which has been proven to be effective in reducing microbes such as viruses, bacteria, yeasts, and molds. This process either destroys the organism or controls its ability to reproduce.

UV-C energy greatly reduces the growth and proliferation of mold and other bioaerosols (bacteria and viruses) on illuminated surfaces (particularly coil and drain pan).

Lamps are field installed in the blower/evaporator coil section.

All necessary hardware for installation is included.

Lamps operate on 220V single-phase power supply. Step-down transformer may be ordered separately for 380/420V primary to 220V secondary units. Alternately, 220V power supply may be used to directly power the UVC ballast(s).

Indoor Air Quality (CO_2) Sensors

Monitors CO_2 levels, reports to the Unit Controller which adjusts economizer dampers as needed.

SERVICEABILITY

Designed to streamline general maintenance and decrease troubleshooting time.

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.

Access Panels

Large access panels are provided for quick and easy access to maintenance areas.

Blower Access

Supply air blower parts are located near the access door for easy servicing and adjustment.

Check/Thermal Expansion Valve Access

Check/Thermal expansion valves are located near the perimeter of the unit for easier access.

Removable element head allows change out of element and bulb without removing the TXV.

Coil Cleaning

Independently formed condenser coils allow separation for easier cleaning.

Standard Components

A large number of common maintenance parts are standard throughout the entire range of sizes, reducing the need to carry a lot of different parts to the job or maintain in inventory.

Compressor Compartment

Compressors are located near the perimeter of the unit for easier access.

Compressors are isolated from the condenser airflow allowing system operation checks to be done without changing the airflow across the outdoor coils.

⓬ ECONOMIZER/EXHAUST OPTIONS

Factory or Field Installed

Economizer - Downflow or Horizontal With Outdoor Air Hood

Parallel gear-driven action return air and outdoor air dampers, plug-in connections to unit, nylon bearings, neoprene seals, 24-volt, fully-modulating, spring return motor, adjustable minimum damper position. Outdoor air hood with mist elimination filter is furnished.

Single sensible control is furnished with economizer. Outdoor air temperature sensor enables economizer if the outdoor temperature is less than the setpoint of the control.

Outdoor Air Hood is included when economizer is factory installed and is furnished with economizer when ordered for field installation.

⓭ Downflow Barometric Relief Dampers

Allows relief of excess air

Aluminum blade dampers prevent blow back and outdoor air infiltration during off cycle.

NOTE - When Downflow Barometric Relief Dampers are factory installed the Exhaust Hood must be ordered separately for field installation. When Downflow Barometric Relief Dampers are ordered for field installation the Exhaust Hood is furnished with the dampers. See Optional Accessories table.

Field Installed

Single Economizer Enthalpy Control

Enthalpy sensor enables the economizer when the outdoor air enthalpy is below the configured setpoint.

Differential (Dual) Economizer Enthalpy Control

Order two single, enthalpy control kits. One is field installed in the return air section, the other in the outdoor air section. Allows the economizer control board to select between outdoor air or return air, whichever has lower enthalpy.

Horizontal Barometric Relief Dampers With Exhaust Hood

For use when unit is configured for horizontal applications requiring an economizer.

Allows relief of excess air

Aluminum blade dampers prevent blow back and outdoor air infiltration during off cycle.

Field installed in return air duct.

Exhaust hood with bird screen is furnished.

⓮ Power Exhaust Fan

Installs internal to unit for downflow applications only with economizer option. Provides exhaust air pressure relief. Interlocked to run when supply air blower is operating, fan runs when outdoor air dampers are 50% open (adjustable), motor is overload protected. Requires Economizer with Outdoor Air Hood and Downflow Barometric Relief Dampers. Dual fans are 508 mm diameter with 5 blades with (2) 224 W motors.

OUTDOOR AIR OPTIONS

Factory or Field Installed

Outdoor Air Damper - Downflow or Horizontal With Air Hood

Linked mechanical dampers, 0 to 25% (fixed) outdoor air adjustable, installs in unit. Includes outdoor air hood.

Automatic model features fully modulating spring return damper motor with plug-in connection.

Manual model features parallel blade, gear-driven dampers with adjustable fixed position.

Outdoor Air Hood is included when damper is factory installed and is furnished with damper when ordered for field installation.

ROOF CURBS

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

Downflow

Clip Curbs - Uses interlocking tabs to fasten corners together. No tools required.

Standard Curbs - Curb corners fasten together with furnished hardware.

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

Horizontal

Converts unit from downflow to horizontal (side) air flow, return air is on unit, supply air is on curb, see dimension drawings. Curbs for rooftop applications meet National Roofing Code requirements. Requires Horizontal Return Air Panel Kit. Available in 660, 762, 940 and 1041 mm heights. Optional Insulation Kit is available to help prevent sweating.

CEILING DIFFUSERS

Ceiling Diffusers (Flush or Step-Down)

Aluminum grilles, large center grille, insulated diffuser box with flanges, hanging rings furnished, interior transition (even air flow), internally sealed (prevents recirculation), adapts to T-bar ceiling grids or plaster ceilings.

Transitions (Supply and Return)

Used with diffusers, installs in roof curb, galvanized steel construction, flanges furnished for duct connection to diffusers, fully insulated.

OPTIONS / ACCESSORIES

Item Description		Model Number	Catalog Number	180	240
CE MARK					
CE Marked Unit			Factory	O	O
COOLING SYSTEM					
Condensate Drain Trap	Polyvinyl Chloride (PVC) - C1TRAP20AD2		**76W26**	X	X
	Copper - C1TRAP10AD2		**76W27**	X	X
Corrosion Protection			Factory	O	O
Drain Pan Overflow Switch		K1SNSR71C-1-	**68W89**	X	X
Efficiency			Standard	O	O
Low Ambient Kit		K1SNSR33CS1	**55W73**	X	X
Refrigerant Type			R-410A	O	O
BLOWER - SUPPLY AIR					
Motors		Belt Drive - 2.2 kW	Factory	O	
		Belt Drive - 3.7 kW	Factory	O	O
		Belt Drive - 5.6 kW	Factory	O	O
		Belt Drive - 7.5 kW	Factory		O
Drive Kits		Kit #3 571-721 rev/min	Factory	O	O
See Blower Data Tables for usage and selection		Kit #4 708-871 rev/min	Factory	O	O
		Kit #5 788-988 rev/min	Factory	O	O
		Kit #6 708-871 rev/min	Factory	O	O
		Kit #7 788-988 rev/min	Factory	O	O
		Kit #8 871-1071 rev/min	Factory	O	O
		Kit #10 871-1071 rev/min	Factory		O
		Kit #11 945-1138 rev/min	Factory		O
CABINET					
Coil Guards		C1GARD20C-1-	**88K55**	X	X
Hail Guards		C1GARD10C-1-	**88K28**	X	X
CONTROLS					
Smoke Detector - Supply or Return (Power board and one sensor)		C1SNSR44C-1	**83W40**	X	X
Smoke Detector - Supply and Return (Power board and two sensors)		C1SNSR43C-1	**83W41**	X	X
INDOOR AIR QUALITY					
Air Filters					
Healthy Climate® High Efficiency Air Filters 610 x 610 x 51 mm (Order 6 per unit)		MERV 8 - C1FLTR15C-1-	**54W67**	X	X
		MERV 13 - C1FLTR40C-1-	**52W40**	X	X
Replacement Media Filter With Metal Mesh Frame (includes non-pleated filter media)		C1FLTR30C-1-	**44N61**	X	X
Indoor Air Quality (CO_2) Sensors					
Sensor - Wall-mount, off-white plastic cover with LCD display		C0SNSR50AE1L	**77N39**	X	X
Sensor - Wall-mount, off-white plastic cover, no display		C0SNSR52AE1L	**87N53**	X	X
Sensor - Black plastic case with LCD display, rated for plenum mounting		C0SNSR51AE1L	**87N52**	X	X
Sensor - Wall-mount, black plastic case, no display, rated for plenum mounting		C0MISC19AE1	**87N54**	X	X
CO_2 Sensor Duct Mounting Kit - for downflow applications		C0MISC19AE1-	**85L43**	X	X
Aspiration Box - for duct mounting non-plenum rated CO_2 sensors (**87N53** or **77N39**)		C0MISC16AE1-	**90N43**	X	X
UVC Germicidal Light Kit					
[1] Healthy Climate® UVC Light Kit (220V-1ph)		C1UVCL10C-1	**54W65**	X	X

[1] Lamps operate on 220V single-phase power supply. Step-down transformer may be ordered separately for 380/420V primary to 220V secondary units. Alternately, 220V power supply may be used to directly power the UVC ballast(s).

NOTE - Catalog and model numbers shown are for ordering field installed accessories.
OX - Configure To Order (Factory Installed) or Field Installed
O = Configure To Order (Factory Installed)
X = Field Installed

OPTIONS / ACCESSORIES

Item Description	Model Number	Catalog Number	180	240
ELECTRICAL				
Voltage 50 hz with neutral (No neutral on CE marked models)	380/420V - 3 phase	Factory	O	O
[1] ELECTRIC HEAT				
11.5 kW	380/420V-3ph - C1EH0115C-1M	**67W96**	X	X
23 kW	380/420V-3ph - C1EH0230C21M	**67W98**	X	X
34.5 kW	380/420V-3ph - C1EH0345C21M	**68W00**	X	X
45.9 kW	380/420V-3ph - C1EH0459C21M	**68W02**	X	X
68.9 kW	380/420V-3ph - C1EH0689C-1M	**68W03**		X
ECONOMIZER				
Economizer				
Economizer - Downflow or Horizontal (Outdoor Air Hood furnished)	K1ECON20C-1	**54W77**	OX	OX
Economizer Controls				
Differential Enthalpy	Order 2 - C1SNSR64FF1	**53W64**	X	X
Single Enthalpy	C1SNSR64FF1	**53W64**	X	X
[2] Downflow Barometric Relief Dampers				
Barometric Relief Dampers with Field Installed Exhaust Hood	C1DAMP50C	**54W78**	OX	OX
Exhaust Hood for Factory Installed Downflow Barometric Relief Dampers	C1HOOD20C-1	**85M26**	X	X
Horizontal Barometric Relief Dampers				
Barometric Relief Dampers with Exhaust Hood	LAGEDH18/24	**16K99**	X	X
OUTDOOR AIR				
Outdoor Air Dampers				
Motorized Dampers with Outdoor Air Hood	K1DAMP20C-1	**58W62**	OX	OX
Manual Dampers With Outdoor Air Hood	C1DAMP10C-1	**54W76**	OX	OX
POWER EXHAUST				
Standard Static	380/420V - C1PWRE11C-1M	**75W93**	X	X

[1] Nominal kW at 400V-3ph-50hz.

[2] When Downflow Barometric Relief Dampers are factory installed the Exhaust Hood (85M26) must be ordered separately for field installation. When Downflow Barometric Relief Dampers are ordered for field installation the Exhaust Hood is furnished with the dampers.

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OPTIONS / ACCESSORIES

Item Description	Model Number	Catalog Number	180	240
ROOF CURBS - DOWNFLOW				
Clip Curb				
203 mm height	C1CURB40CD1	**26W32**	X	X
356 mm height	LARMF18/30S-14	**33K44**	X	X
457 mm height	LARMF18/30S-18	**33K45**	X	X
610 mm height	LARMF18/30S-24	**33K46**	X	X
Standard				
203 mm height	LARMF18/36-14	**16K87**	X	X
610 mm height	LARMF18/36-24	**16K88**	X	X
Adjustable Pitched Curb				
203 mm height	L1CURB55C	**43W26**	X	X
ROOF CURBS - HORIZONTAL (REQUIRES HORIZONTAL RETURN AIR PANEL KIT)				
Standard				
660 mm height - slab applications	LARMFH18/24-26	**97J33**	X	X
940 mm height - rooftop applications	LARMFH18/24-37	**38K53**	X	X
Insulation Kit For Standard Horizontal Curbs				
for LARMFH18/24-26	C1INSU11C-1-	**73K32**	X	X
for LARMFH18/24-37	C1INSU13C-1-	**73K34**	X	X
Horizontal Return Air Panel Kit				
Required for Horizontal Applications with Roof Curb	C1HRAP10C-1-	**87M00**	X	X
CEILING DIFFUSERS				
Step-Down - Order one	RTD11-185	**29G06**	X	
	RTD11-275-R	**29G07**		X
Flush - Order one	FD11-185	**29G10**	X	
	FD11-275-R	**29G11**		X
Transitions (Supply and Return) - Order one	LASRT18	**19K01**	X	
	LASRT21/24	**19K02**		X

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SPECIFICATIONS

General Data		**Nominal kW (Tons)**	**52.8 (15)**	**70.3 (20)**
		Model Number	**KHA180S4B**	**KHA240S4B**
		Efficiency Type	**Standard**	**Standard**
		Blower Type	Constant Air Volume CAV	Constant Air Volume CAV
Cooling Performance	Gross Cooling Capacity - kW (Btuh)		47.5 (162 000)	60.1 (205 000)
	[1] Net Cooling Capacity - kW (Btuh)		46.0 (157 000)	57.7 (197 000)
	AHRI Rated Air Flow - L/s (cfm)		2830 (6000)	3540 (7500)
	Total Unit Power - kW		14.6	18.3
	[1] EER (Btuh/Watt)		10.8	10.8
	[2] IEER (Btuh/Watt)		10.7	10.7
	Refrigerant Type		R-410A	R-410A
	Refrigerant Charge Furnished	Circuit 1	9.53 kg (21 lbs. 0 oz.)	11.79 kg (26 lbs. 0 oz.)
		Circuit 2	9.53 kg (21 lbs. 0 oz.)	11.79 kg (26 lbs. 0 oz.)
Heating Performance	[1] Total High Heat Capacity - kW (Btuh)		46.6 (159 000)	57.1 (196 000)
	Total Unit Power - kW		13.7	17.0
	[1] Coefficient of Performance		3.4	3.4
	[1] Total Low Heat Capacity - kW (Btuh)		27.0 (92 000)	33.1 (113 000)
	Total Unit Power (kW)		12.8	15.8
	[1] Coefficient of Performance		2.1	2.1
Electric Heat Available - See page 9			11.5, 23, 34.5, 45.9 kW	11.5, 23, 34.5, 45.9, 68.9 kW
Compressor Type (number)			Scroll (2)	Scroll (2)
Outdoor Coils	Net face area (total) - m^2 (sq. ft.)		5.3 (57.0)	5.3 (57.0)
	Tube diameter - mm (in.)		9.5 (3/8)	9.5 (3/8)
	Number of rows		1.66	2
	Fins per m (Fins per inch)		20	20
Outdoor Coil Fans	Motor - (No.) W (HP)		(4) 250 (1/3)	(4) 250 (1/3)
	Motor rev/min		896	896
	Total Motor watts		1146	1146
	Diameter - (No.) mm (in.)		(4) 610 (24)	(4) 610 (24)
	Number of blades		3	3
	Total Air volume - L/s (cfm)		6275 (13 300)	6275 (13 300)
Indoor Coils	Net face area (total) - m^2 (sq. ft.)		1.99 (21.4)	1.99 (21.4)
	Tube diameter - mm (in.)		9.5 (3/8)	9.5 (3/8)
	Number of rows		3	
	Fins per m (Fins per inch)		551 (14)	551 (14)
	Drain connection - No. and size		(1) 1 in. FPT	(1) 1 in. FPT
	Expansion device type		Balance port TXV, removable head	
[3] **Indoor Blower and Drive Selection**	Nominal Motor kW (HP)		2.2 (3)	3.7 (5)
	Maximum usable motor kW (HP)		2.6 (3.45)	4.3 (5.75)
	Kit # (rev/min range)		**Kit 3** (571-721) **Kit 4** (708-871)	**Kit 3** (571-721) **Kit 4** (708-871) **Kit 5** (788-988)
	Nominal Motor kW (HP)		3.7 (5)	5.6 (7.5)
	Maximum usable motor kW (HP)		4.3 (5.75)	6.4 (8.6)
	Kit # (rev/min range)		**Kit 3** (571-721) **Kit 4** (708-871) **Kit 5** (788-988)	**Kit 6** (708-871) **Kit 7** (788-988) **Kit 8** (871-1071)
	Nominal Motor kW (HP)		5.6 (7.5)	7.5 (10)
	Maximum usable motor kW (HP)		6.4 (8.6)	8.6 (11.5)
	Kit # (rev/min range)		**Kit 6** (708-871) **Kit 7** (788-988) **Kit 8** (871-1071)	**Kit 7** (788-988) **Kit 10** (871-1071) **Kit 11** (945-1138)
Blower wheel nominal diameter x width - mm (in.)			(2) 381 x 381 (15 x 15)	
Filters	Type of filter		Fiberglass, disposable	
	Number and size - mm (in.)		(6) 610 x 610 x 51 (24 x 24 x 2)	
Electrical characteristics			380/420V - 50 hertz - 3 phase with neutral (No neutral on CE marked models)	

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

[1] Tested at conditions included in the ULE certification program, which is based on AHRI Standard 340/360 while operating at rated voltage and air volumes:
Cooling Ratings − 35°C (95°F) outdoor air temperature and 27°C (80°F) db/19°C (67°F) wb entering indoor coil air.
High Temperature Heating Ratings − 8°C (47°F) db/6°C (43°F) wb outdoor air temperature and 21°C (70°F) entering indoor coil air.
Low Temperature Heating Ratings − -8°C (17°F) db/-9°C (15°F) wb outdoor air temperature and 21°C (70°F) entering indoor coil air.

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

[3] Using total air volume and system static pressure requirements determine from blower performance tables rev/min and motor output required. Maximum usable output of motors furnished are shown. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

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

RATINGS

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

52.8 KW STANDARD EFFICIENCY KHA180S4 (1ST STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		18°C					24°C					29°C					35°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb		
	L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C
17°C	2265	25.1	4.29	.72	.85	.97	24.1	4.76	.73	.87	.99	23.2	5.29	.75	.89	1.00	22.0	5.88	.76	.91	1.00
	2830	26.2	4.36	.77	.92	1.00	25.2	4.82	.78	.94	1.00	24.1	5.34	.80	.96	1.00	22.9	5.95	.82	.98	1.00
	3400	27.1	4.40	.82	.98	1.00	26.1	4.88	.83	.99	1.00	25.0	5.40	.85	1.00	1.00	23.9	6.00	.88	1.00	1.00
19°C	2265	26.4	4.37	.58	.70	.82	25.4	4.83	.58	.71	.84	24.4	5.36	.59	.72	.85	23.2	5.96	.60	.74	.88
	3400	27.6	4.43	.60	.75	.89	26.6	4.90	.61	.76	.91	25.4	5.42	.62	.78	.93	24.2	6.02	.63	.80	.95
	3400	28.5	4.49	.63	.80	.95	27.4	4.95	.64	.81	.97	26.2	5.47	.65	.83	.99	24.8	6.07	.67	.86	1.00
22°C	2265	27.7	4.44	.44	.56	.68	26.7	4.91	.44	.57	.69	25.6	5.43	.45	.57	.70	24.4	6.04	.45	.58	.72
	2830	29.0	4.51	.45	.59	.73	27.9	4.98	.46	.60	.74	26.7	5.50	.46	.61	.76	25.4	6.10	.46	.62	.78
	3400	29.9	4.57	.46	.62	.78	28.7	5.04	.47	.63	.79	27.5	5.55	.47	.65	.81	26.1	6.15	.48	.66	.84

52.8 KW STANDARD EFFICIENCY KHA180S4 (2ND STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		27°C					35°C					43°C					52°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb		
	L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C
17°C	2265	46.5	9.95	.73	.87	.98	43.3	11.68	.76	.90	1.00	39.6	13.78	.79	.94	1.00	35.4	16.44	.83	.98	1.00
	2830	48.6	10.08	.79	.94	1.00	45.2	11.79	.81	.97	1.00	41.5	13.91	.85	.99	1.00	37.4	16.59	.90	1.00	1.00
	3400	50.2	10.17	.84	.99	1.00	46.9	11.90	.87	1.00	1.00	43.3	14.03	.91	1.00	1.00	39.0	16.71	.97	1.00	1.00
19°C	2265	49.0	10.10	.58	.71	.84	45.6	11.82	.60	.73	.87	41.9	13.94	.61	.76	.91	37.3	16.57	.64	.81	.96
	3400	51.2	10.23	.61	.76	.91	47.5	11.94	.63	.79	.95	43.5	14.05	.65	.83	.98	38.6	16.68	.69	.88	1.00
	3400	52.8	10.33	.64	.82	.97	48.9	12.04	.66	.85	.99	44.6	14.13	.69	.89	1.00	39.6	16.75	.73	.95	1.00
22°C	2265	51.4	10.24	.44	.57	.69	47.9	11.97	.45	.58	.71	44.0	14.08	.46	.60	.74	39.3	16.72	.47	.63	.79
	2830	53.7	10.39	.46	.60	.74	49.9	12.10	.46	.62	.77	45.7	14.21	.47	.64	.81	40.6	16.82	.49	.68	.86
	3400	55.3	10.49	.47	.63	.80	51.3	12.20	.48	.66	.83	46.9	14.29	.49	.68	.87	41.6	16.91	.51	.73	.93

52.8 KW STANDARD EFFICIENCY KHA180S4 - HEATING CAPACITY

Indoor Coil Air Volume 21°C Dry Bulb	Air Temperature Entering Outdoor Coil									
	18°C		7°C		-4°C		-15°C		-28°C	
	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input
L/s	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
2265	54.6	11.5	44.9	10.8	29.1	10.1	21.0	8.8	10.2	6.5
2830	55.3	11.0	45.6	10.3	29.8	9.5	21.7	8.3	10.8	6.0
3400	56.1	10.6	46.4	10.0	30.4	9.2	22.2	8.0	11.3	5.7

RATINGS

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

70.3 KW STANDARD EFFICIENCY KHA240S4 (1ST STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		18°C					24°C					29°C					35°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb		
	L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C
17°C	3020	32.6	5.14	.72	.85	.97	31.4	5.75	.73	.86	.99	30.0	6.44	.74	.88	1.00	28.5	7.20	.76	.90	1.00
	3775	34.2	5.22	.77	.92	1.00	32.8	5.82	.78	.93	1.00	31.4	6.51	.80	.96	1.00	29.8	7.28	.82	.98	1.00
	4530	35.5	5.29	.82	.98	1.00	34.0	5.90	.83	.99	1.00	32.6	6.57	.85	1.00	1.00	31.1	7.34	.87	1.00	1.00
19°C	3020	34.6	5.24	.57	.69	.81	33.3	5.86	.58	.71	.83	31.8	6.54	.58	.72	.85	30.3	7.31	.60	.73	.87
	4530	36.2	5.33	.60	.75	.88	34.7	5.93	.61	.76	.91	33.1	6.60	.62	.77	.92	31.6	7.38	.63	.80	.95
	4530	37.3	5.40	.63	.80	.95	35.8	6.00	.64	.81	.97	34.2	6.66	.65	.83	.99	32.3	7.42	.67	.86	1.00
22°C	3020	36.5	5.34	.44	.55	.67	35.1	5.95	.44	.56	.68	33.6	6.63	.44	.57	.69	32.0	7.41	.44	.58	.71
	3775	38.2	5.44	.45	.58	.72	36.5	6.04	.45	.59	.73	34.9	6.71	.45	.60	.75	33.2	7.48	.46	.62	.77
	4530	39.3	5.51	.46	.62	.77	37.7	6.12	.46	.63	.79	36.0	6.78	.47	.64	.81	34.2	7.53	.48	.66	.83

70.3 KW STANDARD EFFICIENCY KHA240S4 (2ND STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		27°C					35°C					43°C					52°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) Dry Bulb		
	L/s	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C	kW	kW	24°C	27°C	29°C
17°C	3020	59.5	12.24	.75	.89	1.00	55.2	14.49	.77	.92	1.00	50.6	17.23	.81	.96	1.00	44.9	20.66	.85	1.00	1.00
	3775	62.1	12.39	.81	.96	1.00	57.7	14.64	.84	.99	1.00	53.1	17.38	.87	1.00	1.00	47.7	20.86	.93	1.00	1.00
	4530	64.4	12.53	.86	1.00	1.00	60.2	14.78	.89	1.00	1.00	55.4	17.56	.94	1.00	1.00	49.6	20.99	.99	1.00	1.00
19°C	3020	63.0	12.44	.60	.73	.86	58.6	14.69	.60	.75	.89	53.5	17.42	.62	.78	.93	47.2	20.81	.65	.83	.99
	4530	65.7	12.60	.63	.79	.93	60.8	14.82	.65	.82	.97	55.3	17.54	.67	.85	1.00	48.9	20.92	.71	.91	1.00
	4530	67.6	12.71	.66	.84	.99	62.5	14.93	.68	.88	1.00	56.8	17.64	.71	.92	1.00	50.0	21.00	.76	.98	1.00
22°C	3020	66.5	12.66	.45	.58	.70	61.8	14.88	.45	.59	.73	56.4	17.62	.46	.61	.76	50.0	21.00	.48	.64	.81
	3775	69.2	12.83	.46	.62	.76	64.2	15.04	.47	.63	.79	58.4	17.76	.48	.66	.83	51.5	21.12	.50	.70	.89
	4530	71.1	12.96	.47	.65	.82	65.9	15.17	.48	.67	.85	59.8	17.85	.50	.71	.90	52.5	21.19	.52	.75	.96

70.3 KW STANDARD EFFICIENCY KHA240S4 - HEATING CAPACITY

Indoor Coil Air Volume 21°C Dry Bulb	Air Temperature Entering Outdoor Coil									
	18°C		7°C		-4°C		-15°C		-28°C	
	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input
L/s	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
3020	67.3	13.9	54.9	13.0	35.9	12.2	25.1	10.7	12.0	8.0
3775	68.9	13.2	56.5	12.3	36.8	11.4	26.5	9.9	13.3	7.2
4530	70.2	12.7	57.8	11.8	37.9	10.9	27.5	9.5	14.4	6.8

BLOWER DATA

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL & AIR FILTERS IN PLACE
FOR ALL UNITS ADD:

1 - Wet indoor coil air resistance of selected unit.
2 - Any factory installed options air resistance (electric heat, economizer, etc.)
3 - Any field installed accessories air resistance (electric heat, duct resistance, diffuser, etc.)

Then determine from blower table blower motor output and drive required.
See page 16 for wet coil and option/accessory air resistance data.
See page 16 for factory installed drive kit specifications.

MINIMUM AIR VOLUME REQUIRED FOR USE WITH OPTIONAL ELECTRIC HEAT

All units require 2830 L/s (6000 cfm) minimum air with electric heat.

Air Volume		TOTAL STATIC PRESSURE - Pa (Inches Water Gauge)																	
		100 (0.40)			150 (0.60)			200 (0.80)			250 (1.00)			300 (1.20)			350 (1.40)		
L/s	cfm	rev/ min	kW	BHP	rev/ min	kW	BHP	rev/ min	kW	BHP	rev/ min	kW	BHP	rev/ min	kW	BHP	rev/ min	kW	BHP
2240	4750	575	0.82	1.10	660	1.08	1.45	740	1.34	1.80	810	1.60	2.15	870	1.86	2.50	930	2.13	2.85
2360	5000	585	0.93	1.25	670	1.19	1.60	750	1.45	1.95	815	1.72	2.30	880	2.01	2.70	940	2.27	3.05
2480	5250	595	1.01	1.35	680	1.27	1.70	755	1.57	2.10	825	1.86	2.50	890	2.16	2.90	945	2.42	3.25
2595	5500	605	1.08	1.45	690	1.38	1.85	765	1.68	2.25	835	1.98	2.65	895	2.27	3.05	955	2.57	3.45
2715	5750	615	1.19	1.60	700	1.49	2.00	775	1.83	2.45	840	2.13	2.85	905	2.42	3.25	960	2.72	3.65
2830	6000	630	1.30	1.75	710	1.60	2.15	785	1.94	2.60	850	2.27	3.05	910	2.57	3.45	970	2.91	3.90
2950	6250	640	1.42	1.90	720	1.75	2.35	795	2.09	2.80	860	2.42	3.25	920	2.76	3.70	975	3.09	4.15
3070	6500	650	1.53	2.05	730	1.86	2.50	805	2.24	3.00	870	2.57	3.45	930	2.95	3.95	985	3.28	4.40
3185	6750	665	1.64	2.20	745	2.01	2.70	815	2.39	3.20	880	2.76	3.70	940	3.13	4.20	995	3.47	4.65
3305	7000	675	1.75	2.35	755	2.16	2.90	825	2.54	3.40	890	2.95	3.95	950	3.32	4.45	1005	3.69	4.95
3420	7250	690	1.94	2.60	765	2.31	3.10	835	2.72	3.65	900	3.09	4.15	955	3.47	4.65	1015	3.91	5.25
3540	7500	700	2.05	2.75	775	2.46	3.30	845	2.87	3.85	910	3.32	4.45	965	3.69	4.95	1020	4.10	5.50
3660	7750	715	2.24	3.00	790	2.65	3.55	855	3.06	4.10	920	3.50	4.70	975	3.91	5.25	1030	4.33	5.80
3775	8000	725	2.39	3.20	800	2.83	3.80	865	3.24	4.35	930	3.69	4.95	985	4.10	5.50	1040	4.55	6.10
3895	8250	740	2.54	3.40	810	2.98	4.00	880	3.47	4.65	940	3.91	5.25	995	4.36	5.85	1050	4.81	6.45
4010	8500	750	2.72	3.65	825	3.21	4.30	890	3.65	4.90	950	4.14	5.55	1005	4.59	6.15	1060	5.07	6.80
4130	8750	765	2.91	3.90	835	3.39	4.55	900	3.88	5.20	960	4.36	5.85	1015	4.81	6.45	1070	5.33	7.15
4250	9000	780	3.13	4.20	850	3.62	4.85	910	4.10	5.50	970	4.59	6.15	1025	5.07	6.80	1080	5.59	7.50
4365	9250	790	3.32	4.45	860	3.84	5.15	925	4.36	5.85	985	4.88	6.55	1040	5.37	7.20	1090	5.85	7.85
4485	9500	805	3.54	4.75	875	4.06	5.45	935	4.59	6.15	995	5.15	6.90	1050	5.67	7.60	1100	6.15	8.25
4600	9750	820	3.77	5.05	885	4.29	5.75	950	4.88	6.55	1005	5.37	7.20	1060	5.93	7.95	1110	6.45	8.65
4720	10 000	835	4.03	5.40	900	4.59	6.15	960	5.11	6.85	1015	5.67	7.60	1070	6.23	8.35	1120	6.75	9.05
4835	10 250	845	4.21	5.65	910	4.81	6.45	970	5.37	7.20	1030	5.97	8.00	1080	6.52	8.75	1135	7.12	9.55
4955	10 500	860	4.47	6.00	925	5.11	6.85	985	5.70	7.65	1040	6.26	8.40	1095	6.86	9.20	1145	7.46	10.00
5075	10 750	875	4.77	6.40	940	5.41	7.25	1000	6.00	8.05	1055	6.60	8.85	1105	7.20	9.65	1155	7.79	10.45
5190	11 000	890	5.07	6.80	950	5.67	7.60	1010	6.30	8.45	1065	6.94	9.30	1115	7.49	10.05	1165	8.13	10.90

CONTINUED ON NEXT PAGE

BLOWER DATA

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL & AIR FILTERS IN PLACE FOR ALL UNITS ADD:

1 - Wet indoor coil air resistance of selected unit.
2 - Any factory installed options air resistance (electric heat, economizer, etc.)
3 - Any field installed accessories air resistance (electric heat, duct resistance, diffuser, etc.)

Then determine from blower table blower motor output and drive required.
See page 16 for wet coil and option/accessory air resistance data.
See page 16 for factory installed drive kit specifications.

MINIMUM AIR VOLUME REQUIRED FOR USE WITH OPTIONAL ELECTRIC HEAT

All units require 2830 L/s (6000 cfm) minimum air with electric heat.

Air Volume		TOTAL STATIC PRESSURE - Pa (Inches Water Gauge)																	
		400 (1.60)			450 (1.80)			500 (2.00)			550 (2.20)			600 (2.40)			650 (2.60)		
L/s	cfm	rev/ min	kW	BHP	rev/ min	kW	BHP	rev/ min	kW	BHP	rev/ min	kW	BHP	rev/ min	kW	BHP	rev/ min	kW	BHP
2240	4750	985	2.39	3.20	1040	2.65	3.55	1085	2.91	3.90	1135	3.17	4.25	1180	3.47	4.65	1225	3.73	5.00
2360	5000	995	2.54	3.40	1045	2.83	3.80	1095	3.09	4.15	1140	3.36	4.50	1185	3.65	4.90	1230	3.95	5.30
2480	5250	1000	2.72	3.65	1050	2.98	4.00	1100	3.28	4.40	1150	3.58	4.80	1195	3.88	5.20	1235	4.18	5.60
2595	5500	1010	2.87	3.85	1060	3.17	4.25	1110	3.50	4.70	1155	3.80	5.10	1200	4.10	5.50	1240	4.40	5.90
2715	5750	1015	3.06	4.10	1065	3.36	4.50	1115	3.69	4.95	1160	3.99	5.35	1205	4.33	5.80	1250	4.66	6.25
2830	6000	1025	3.24	4.35	1075	3.58	4.80	1120	3.88	5.20	1170	4.21	5.65	1215	4.55	6.10	1255	4.88	6.55
2950	6250	1030	3.43	4.60	1080	3.77	5.05	1130	4.10	5.50	1175	4.44	5.95	1220	4.81	6.45	1265	5.15	6.90
3070	6500	1040	3.62	4.85	1090	3.99	5.35	1140	4.36	5.85	1185	4.70	6.30	1225	5.03	6.75	1270	5.41	7.25
3185	6750	1045	3.80	5.10	1095	4.18	5.60	1145	4.55	6.10	1190	4.92	6.60	1235	5.29	7.10	1275	5.67	7.60
3305	7000	1055	4.03	5.40	1105	4.44	5.95	1155	4.81	6.45	1200	5.18	6.95	1240	5.56	7.45	1285	5.97	8.00
3420	7250	1065	4.29	5.75	1115	4.66	6.25	1160	5.03	6.75	1205	5.44	7.30	1250	5.85	7.85	1290	6.23	8.35
3540	7500	1075	4.51	6.05	1125	4.92	6.60	1170	5.33	7.15	1215	5.70	7.65	1260	6.15	8.25	1300	6.52	8.75
3660	7750	1080	4.74	6.35	1130	5.15	6.90	1180	5.59	7.50	1225	6.00	8.05	1265	6.41	8.60	1305	6.82	9.15
3775	8000	1090	5.00	6.70	1140	5.41	7.25	1185	5.85	7.85	1230	6.26	8.40	1275	6.71	9.00	1315	7.16	9.60
3895	8250	1100	5.26	7.05	1150	5.70	7.65	1195	6.15	8.25	1240	6.60	8.85	1280	7.01	9.40	1325	7.49	10.05
4010	8500	1110	5.52	7.40	1160	6.00	8.05	1205	6.45	8.65	1250	6.90	9.25	1290	7.35	9.85	1330	7.79	10.45
4130	8750	1120	5.78	7.75	1165	6.23	8.35	1215	6.75	9.05	1255	7.20	9.65	1300	7.68	10.30	1340	8.13	10.90
4250	9000	1130	6.08	8.15	1175	6.52	8.75	1220	7.01	9.40	1265	7.53	10.10	1310	8.05	10.80	1350	8.50	11.40
4365	9250	1140	6.38	8.55	1185	6.86	9.20	1230	7.35	9.85	1275	7.87	10.55	1315	8.35	11.20	- - -	- - -	- - -
4485	9500	1150	6.67	8.95	1195	7.16	9.60	1240	7.68	10.30	1285	8.24	11.05	- - -	- - -	- - -	- - -	- - -	- - -
4600	9750	1160	7.01	9.40	1205	7.49	10.05	1250	8.05	10.80	1295	8.58	11.50	- - -	- - -	- - -	- - -	- - -	- - -
4720	10 000	1170	7.31	9.80	1215	7.83	10.50	1260	8.39	11.25	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
4835	10 250	1180	7.64	10.25	1225	8.20	11.00	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
4955	10 500	1190	7.98	10.70	1235	8.54	11.45	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
5075	10 750	1200	8.35	11.20	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
5190	11 000	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -

BLOWER DATA

FACTORY INSTALLED BELT DRIVE KIT SPECIFICATIONS

Nominal kW	Nominal hp	Maximum kW	Maximum hp	Drive Kit Number	Rev/min Range
2.2	3	2.6	3.45	3	571 - 721
2.2	3	2.6	3.45	4	708 - 871
3.7	5	4.3	5.75	3	571 - 721
3.7	5	4.3	5.75	4	708 - 871
3.7	5	4.3	5.75	5	788 - 988
5.6	7.5	6.4	8.63	6	708 - 871
5.6	7.5	6.4	8.63	7	788 - 988
5.6	7.5	6.4	8.63	8	871 - 1071
7.5	10	8.6	11.50	7	788 - 988
7.5	10	8.6	11.50	10	871 - 1071
7.5	10	8.6	11.50	11	945 - 1138

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

FACTORY INSTALLED OPTIONS/FIELD INSTALLED ACCESSORY AIR RESISTANCE

Air Volume		Wet Indoor Coil				Electric Heat		Economizer		Filters				Horizontal Roof Curb	
		180		240						MERV 8		MERV 13			
L/s	cfm	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.
1890	4000	5	0.02	10	0.04	- - -	- - -	- - -	- - -	10	0.04	15	0.06	15	0.06
2005	4250	5	0.02	10	0.04	- - -	- - -	- - -	- - -	10	0.04	15	0.06	17	0.07
2125	4500	5	0.02	12	0.05	- - -	- - -	- - -	- - -	10	0.04	17	0.07	17	0.07
2240	4750	5	0.02	12	0.05	- - -	- - -	- - -	- - -	10	0.04	17	0.07	20	0.08
2360	5000	5	0.02	12	0.05	- - -	- - -	- - -	- - -	12	0.05	17	0.07	20	0.08
2475	5250	5	0.02	15	0.06	- - -	- - -	- - -	- - -	12	0.05	17	0.07	22	0.09
2595	5500	5	0.02	17	0.07	- - -	- - -	- - -	- - -	12	0.05	17	0.07	25	0.10
2715	5750	7	0.03	17	0.07	- - -	- - -	- - -	- - -	12	0.05	20	0.08	27	0.11
2830	6000	7	0.03	20	0.08	2	.01	- - -	- - -	12	0.05	20	0.08	27	0.11
2950	6250	7	0.03	20	0.08	2	.01	2	0.01	12	0.05	20	0.08	30	0.12
3065	6500	7	0.03	22	0.09	2	.01	5	0.02	12	0.05	20	0.08	32	0.13
3185	6750	10	0.04	25	0.10	2	.01	7	0.03	12	0.05	20	0.08	35	0.14
3305	7000	10	0.04	25	0.10	2	.01	10	0.04	15	0.06	20	0.08	37	0.15
3420	7250	10	0.04	27	0.11	2	.01	12	0.05	15	0.06	22	0.09	40	0.16
3540	7500	12	0.05	30	0.12	2	.01	15	0.06	15	0.06	22	0.09	42	0.17
3775	8000	12	0.05	32	0.13	5	.02	22	0.09	15	0.06	22	0.09	47	0.19
4010	8500	15	0.06	37	0.15	5	.02	27	0.11	15	0.06	22	0.09	52	0.21
4245	9000	17	0.07	40	0.16	10	.04	35	0.14	17	0.07	25	0.10	60	0.24
4485	9500	20	0.08	45	0.18	12	.05	40	0.16	17	0.07	25	0.10	65	0.26
4720	10 000	20	0.08	50	0.20	15	.06	47	0.19	17	0.07	27	0.11	72	0.29
4955	10 500	22	0.09	55	0.22	22	.09	55	0.22	17	0.07	27	0.11	77	0.31
5191	11 000	27	0.11	60	0.24	27	.11	62	0.25	20	0.08	27	0.11	85	0.34

BLOWER DATA

POWER EXHAUST FAN PERFORMANCE

Return Air System Static Pressure		Air Volume Exhausted	
Pa	in. w.g.	L/s	cfm
0	0.00	3395	7195
12	0.05	3230	6845
25	0.10	3040	6440
37	0.15	2795	5925
50	0.20	2545	5395
62	0.25	2275	4820
75	0.30	1990	4215
87	0.35	1690	3580
100	0.40	1380	2925
112	0.45	1055	2235
125	0.50	725	1535

CEILING DIFFUSER AIR RESISTANCE

Air Volume		Step-Down Diffuser												Flush Diffuser			
		RTD11-185						RTD11-275						FD11-185		FD11-275	
		2 Ends Open		1 Side/2 Ends Open		All Ends & Sides Open		2 Ends Open		1 Side/2 Ends Open		All Ends & Sides Open					
L/s	cfm	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.
2360	5000	127	0.51	109	0.44	97	0.39	- - -	- - -	- - -	- - -	- - -	- - -	67	0.27	- - -	- - -
2455	5200	139	0.56	119	0.48	104	0.42	- - -	- - -	- - -	- - -	- - -	- - -	75	0.30	- - -	- - -
2550	5400	152	0.61	129	0.52	112	0.45	- - -	- - -	- - -	- - -	- - -	- - -	82	0.33	- - -	- - -
2645	5600	164	0.66	139	0.56	119	0.48	- - -	- - -	- - -	- - -	- - -	- - -	90	0.36	- - -	- - -
2735	5800	177	0.71	147	0.59	127	0.51	- - -	- - -	- - -	- - -	- - -	- - -	97	0.39	- - -	- - -
2830	6000	189	0.76	157	0.63	137	0.55	90	0.36	77	0.31	67	0.27	104	0.42	72	0.29
2925	6200	199	0.80	169	0.68	147	0.59	- - -	- - -	- - -	- - -	- - -	- - -	114	0.46	- - -	- - -
3020	6400	214	0.86	179	0.72	157	0.63	- - -	- - -	- - -	- - -	- - -	- - -	124	0.50	- - -	- - -
3065	6500	- - -	- - -	- - -	- - -	- - -	- - -	104	0.42	90	0.36	77	0.31	- - -	- - -	85	0.34
3115	6600	229	0.92	191	0.77	167	0.67	- - -	- - -	- - -	- - -	- - -	- - -	134	0.54	- - -	- - -
3210	6800	246	0.99	206	0.83	179	0.72	- - -	- - -	- - -	- - -	- - -	- - -	144	0.58	- - -	- - -
3305	7000	256	1.03	216	0.87	189	0.76	122	0.49	102	0.41	90	0.36	154	0.62	99	0.40
3400	7200	271	1.09	229	0.92	199	0.80	- - -	- - -	- - -	- - -	- - -	- - -	164	0.66	- - -	- - -
3490	7400	286	1.15	241	0.97	209	0.84	- - -	- - -	- - -	- - -	- - -	- - -	174	0.70	- - -	- - -
3540	7500	- - -	- - -	- - -	- - -	- - -	- - -	127	0.51	114	0.46	102	0.41	- - -	- - -	112	0.45
3585	7600	298	1.20	254	1.02	219	0.88	- - -	- - -	- - -	- - -	- - -	- - -	184	0.74	- - -	- - -
3775	8000	- - -	- - -	- - -	- - -	- - -	- - -	147	0.59	122	0.49	107	0.43	- - -	- - -	124	0.50
4010	8500	- - -	- - -	- - -	- - -	- - -	- - -	172	0.69	144	0.58	124	0.50	- - -	- - -	142	0.57
4245	9000	- - -	- - -	- - -	- - -	- - -	- - -	196	0.79	167	0.67	144	0.58	- - -	- - -	164	0.66
4485	9500	- - -	- - -	- - -	- - -	- - -	- - -	221	0.89	186	0.75	162	0.65	- - -	- - -	184	0.74
4720	10 000	- - -	- - -	- - -	- - -	- - -	- - -	249	1.00	209	0.84	182	0.73	- - -	- - -	201	0.81
4955	10 500	- - -	- - -	- - -	- - -	- - -	- - -	274	1.10	229	0.92	199	0.80	- - -	- - -	221	0.89
5190	11 000	- - -	- - -	- - -	- - -	- - -	- - -	301	1.21	251	1.01	219	0.88	- - -	- - -	239	0.96

CEILING DIFFUSER AIR THROW DATA

Model No.	Air Volume		[1] Effective Throw Range				Model No.	Air Volume		[1] Effective Throw Range			
	L/s	cfm	RTD11-185 Step-Down		FD11-185 Flush			L/s	cfm	RTD11-185 Step-Down		FD11-185 Flush	
			m	ft.	m	ft.				m	ft.	m	ft.
180	2645	5600	12 - 15	39 - 49	9 - 11	28 - 37	240	3400	7200	10 - 12	33 - 38	8 - 11	26 - 35
	2735	5800	13 - 16	42 - 51	9 - 12	29 - 38		3490	7400	11 - 12	35 - 40	9 - 11	28 - 37
	2830	6000	13 - 16	44 - 54	12 - 15	40 - 50		3585	7600	11 - 12	36 - 41	9 - 11	29 - 38
	2925	6200	14 - 17	45 - 55	13 - 16	42 - 51		3680	7800	12 - 13	38 - 43	12 - 15	40 - 50
	3020	6400	14 - 17	46 - 55	13 - 16	43 - 52		3775	8000	12 - 13	39 - 44	13 - 16	42 - 51
	3115	6600	14 - 17	47 - 56	14 - 17	45 - 56		3870	8200	12 - 14	41 - 46	13 - 16	43 - 52
								3965	8400	13 - 15	43 - 49	13 - 16	44 - 54
								4060	8600	13 - 15	44 - 50	14 - 17	46 - 57
								4155	8800	14 - 17	47 - 55	15 - 18	48 - 59

[1] Throw is the horizontal or vertical distance an airstream travels on leaving the outletor diffuser before the maximum velocity is reduced to 15 m (50 ft.) per minute. Four sides open.

ELECTRICAL/ELECTRIC HEAT DATA

			KHA180S4			KHA240S4		
[1] Voltage - 50hz 3 Phase with neutral			380/420V			380/420V		
Compressor 1	Rated Load Amps		12.2			16.7		
	Locked Rotor Amps		101			111		
Compressor 2	Rated Load Amps		12.2			16.7		
	Locked Rotor Amps		101			111		
Outdoor Fan Motors	Number of motors		4			4		
	Full Load Amps		1.3			1.3		
	(total)		(5.2)			(5.2)		
Power Exhaust With (2) 0.25 kW (0.33 HP)	Full Load Amps		1.3			1.3		
	(total)		(2.6)			(2.6)		
Indoor Blower Motor	kW		2.2	3.7	5.6	3.7	5.6	7.5
	Full Load Amps		5	7.8	11.8	7.8	11.8	15.2
[1] **Maximum Overcurrent Protection**	Unit Only		45	50	50	60	70	70
	With (2) 0.25 kW (0.33 HP) Power Exhaust		50	50	50	60	70	70
[2] **Minimum Circuit Ampacity**	Unit Only		38	41	45	51	55	58
	With (2) 0.25 kW (0.33 HP) Power Exhaust		41	44	48	54	58	61
ELECTRIC HEAT DATA								
	Electric Heat Voltage		**420**	**420**	**420**	**420**	**420**	**420**
[1] **Maximum Overcurrent Protection**	Unit+ [3] Electric Heat	**11.5 kW**	60	70	70	80	80	90
		23 kW	80	80	90	100	100	100
		34.5 kW	100	100	110	110	125	125
		45.9 kW	110	110	110	125	125	125
		68.9 kW	- - -	- - -	- - -	150	150	175
[2] **Minimum Circuit Ampacity**	Unit+ [3] Electric Heat	**11.5 kW**	58	61	65	71	75	78
		23 kW	78	80	84	91	95	98
		34.5 kW	97	100	104	110	114	118
		45.9 kW	101	104	108	114	118	122
		68.9 kW	- - -	- - -	- - -	146	150	153
[1] **Maximum Overcurrent Protection**	Unit+ [3] Electric Heat and (2) 0.25 kW (0.33 HP) Power Exhaust	**11.5 kW**	60	70	70	80	80	90
		23 kW	80	90	90	100	100	110
		34.5 kW	100	110	110	125	125	125
		45.9 kW	110	110	125	125	125	125
		68.9 kW	- - -	- - -	- - -	150	175	175
[2] **Minimum Circuit Ampacity**	Unit+ [3] Electric Heat and(2) 0.25 kW (0.33 HP) Power Exhaust	**11.5 kW**	60	63	67	73	77	81
		23 kW	80	83	87	93	97	101
		34.5 kW	100	103	107	113	117	120
		45.9 kW	104	107	111	117	121	124
		68.9 kW	- - -	- - -	- - -	148	152	156

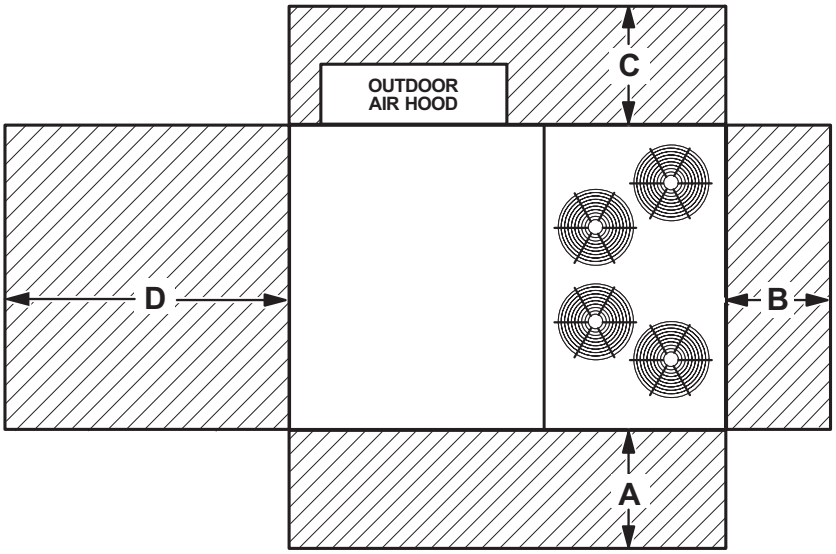
NOTE - Extremes of operating range are plus and minus 10% of line voltage.
[1] Heating / Air Conditioning / Refrigeration (HACR) type breaker or fuse.
[2] Refer to local codes to determine wire, fuse and disconnect size requirements.
[3] Nominal kW based on 420V-3ph-50hz.

ELECTRIC HEAT CAPACITIES

Volts Input	11.5 kW			23 kW			34.5 kW			45.9 kW			68.9 kW		
	kW Input	Btuh Output	No. of Stages	kW Input	Btuh Output	No. of Stages	kW Input	Btuh Output	No. of Stages	kW Input	Btuh Output	No. of Stages	kW Input	Btuh Output	No. of Stages
380	9.4	32 100	1	18.8	64 200	1	28.2	96 300	2	37.6	128 400	2	56.4	192 500	2
400	10.4	35 600	1	20.8	71 100	1	31.2	106 700	2	41.6	142 200	2	62.5	213 200	2
420	11.5	39 200	1	23.0	78 400	1	34.4	117 600	2	45.9	156 800	2	68.9	235 100	2

UNIT CLEARANCES - MM (INCHES)

Unit With Economizer



[1] Unit Clearance	A		B		C		D		Top Clearance
	mm	in.	mm	in.	mm	in.	mm	in.	
Service Clearance	1524	60	914	36	914	36	1676	66	Unobstructed
Minimum Operation Clearance	1143	45	914	36	914	36	1041	41	

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.

OPTIONAL CONVENTIONAL TEMPERATURE CONTROL SYSTEMS - FIELD INSTALLED

COMMERCIAL TOUCHSCREEN THERMOSTAT





Intuitive Touchscreen Interface - **Two Stage Heating / Two Stage Cooling Conventional or Heat Pump** - Seven Day Programmable - Four Time Periods/ Day - Economizer Output - Title 24 Compliant - ENERGY STAR® Qualified - Backlit Display - Automatic Changeover	C0STAT02AE1L **(14W81)**

Sensors For Touchscreen Thermostat

[1] Remote non-adjustable wall mount 20k temperature sensor	C0SNZN01AE2- **(47W36)**
[1] Remote non-adjustable wall mount 10k averaging temperature sensor	C0SNZN73AE1- **(47W37)**
[1] Remote non-adjustable duct mount temperature sensor	C0SNDC00AE1- **(19L22)**
Outdoor temperature sensor	C0SNSR03AE1- **(X4148)**

Accessories For Touchscreen Thermostat

Locking cover (clear)	C0MISC15AE1- **(39P21)**

[1] Remote sensors for C0STAT02AE1L can be applied in the following combinations: (1) C0SNZN01AE1-, (2) C0SNZN73AE1-, (2) C0SNZN01AE1- and (1) C0SNZN73AE1-, (4) C0SNZN01AE1-, (3) C0SNZN01AE1- and (2) C0SNZN73AE1.

DIGITAL NON-PROGRAMMABLE THERMOSTATS



Intuitive Interface - Automatic Changeover - Simple Up and Down Temperature Control

Two-stage heating / cooling conventional systems	C0STAT10AE1L **(13K98)**

Sensor For Digital Non-Programmable Thermostats Above

Remote wall mounted temperature sensor	C0SNZN00AE1- **(26K57)**



Intuitive Interface - Automatic Changeover - Backlit Display - Simple Up and Down Temperature Control

One-stage heating / cooling conventional systems	C0STAT12AE1L **(51M32)**

Sensor For Digital Non-Programmable Thermostats Above

Outdoor temperature sensor	C0SNSR04AE1- **(X2658)**

Accessories For Digital Non-Programmable Thermostats Above

Optional wall mounting plate	C0MISC17AE1- **(X2659)**

OUTDOOR SOUND DATA

Unit Model Number	Octave Band Sound Power Levels dBA, re 10^{-12} Watts Center Frequency - HZ							[1] Sound Rating Number (dB)
	125	250	500	1000	2000	4000	8000	
KHA180 Cooling	75	81	87	89	86	81	69	93
KHA180 Heating	76	81	87	89	87	81	70	93
KHA240 Cooling	77	81	87	89	86	80	67	93
KHA240 Heating	78	81	88	89	87	81	67	93

Note - The octave sound power data does not include tonal corrections.
[1] Sound Rating Number according to AHRI Standard 370-2001.

WEIGHT DATA

Model Number	Net		Shipping	
	kg	lbs.	kg	lbs.
180 Base Unit	885	1950	975	2150
180 Max. Unit	1030	2270	1120	2470
240 Base Unit	975	2150	1066	2350
240 Max. Unit	1125	2480	1216	2680

OPTIONS / ACCESSORIES

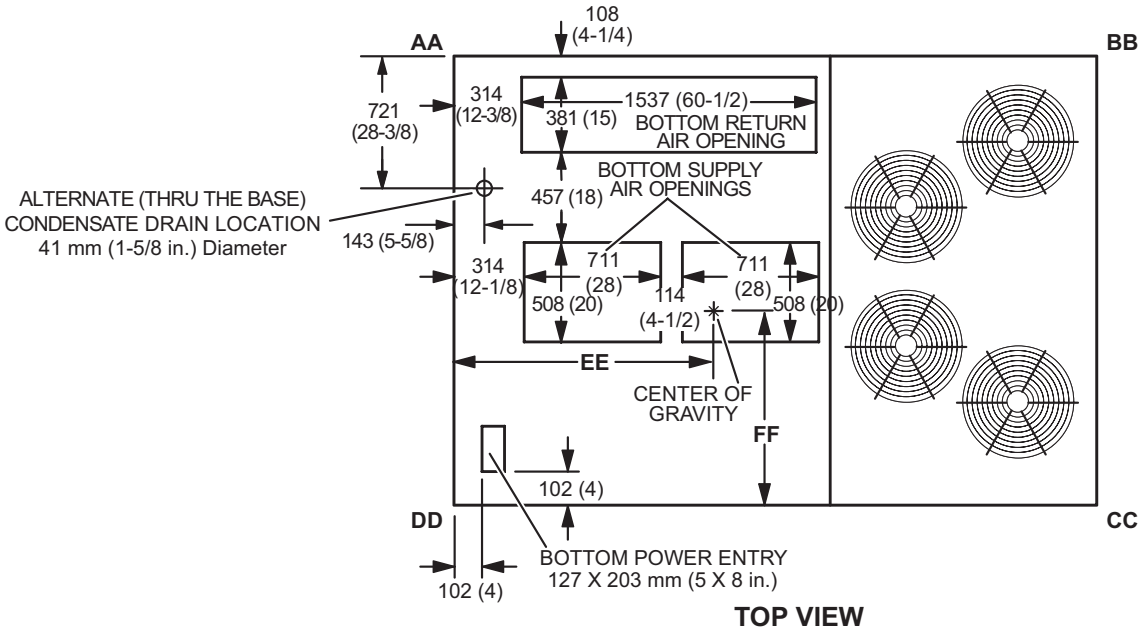
Description		Shipping Weight	
		kg	lbs.
CEILING DIFFUSERS			
Step-Down			
	RTD11-185	178	392
	RTD11-275	183	403
Flush			
	FD11-185	131	289
	FD11-275	165	363
Transitions			
	LASRT18	36	80
	LASRT21/24	34	75
ECONOMIZER / OUTDOOR AIR / EXHAUST			
Economizer			
Economizer Dampers	K1ECON20C-1	39	86
Barometric Relief Dampers (downflow)	C1DAMP50C	14	30
Barometric Relief Dampers (horizontal)	LAGEDH18/24	9	20
Outdoor Air Dampers			
Outdoor Air Damper Section (downflow) - Automatic	E1DAMP20C-1	24	52
Outdoor Air Damper Section (downflow) - Manual	C1DAMP10C-1	22	49
Outdoor Air Damper Hood (downflow)		29	65
Power Exhaust		28	62
ELECTRIC HEAT			
10.4 kW		27	59
20.8 kW		27	59
31.2 kW		34	76
41.6 kW		34	76
62.5 kW		38	84
ROOF CURBS - CLIP CURB			
Downflow			
203 mm height	C1CURB40CD1	60	132
356 mm height	LARMF18/30S-14	74	164
457 mm height	LARMF18/30S-18	85	187
610 mm height	LARMF18/30S-24	101	222
ROOF CURBS - STANDARD			
Downflow			
14 in. height	LARMF18/36-14	73	160
24 in. height	LARMF18/36-24	100	220
Horizontal			
26 in. height	LARMFH18/24-26	191	420
37 in. height	LARMFH18/24-37	263	580
PACKAGING			
LTL Packaging (less than truck load)		141	310

DIMENSIONS - MM (INCHES)

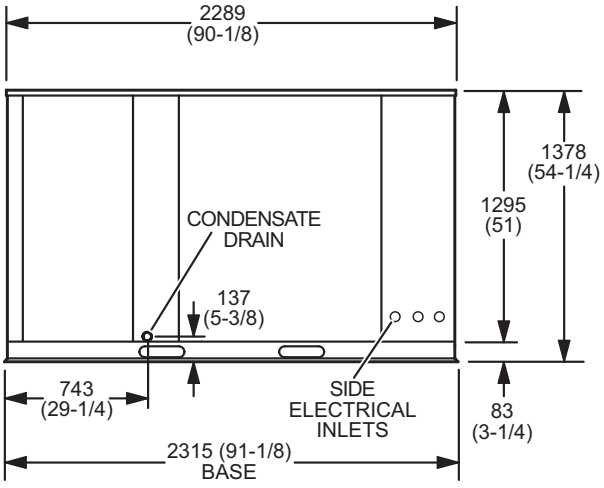
CORNER WEIGHTS									CENTER OF GRAVITY			
Model No.	AA		BB		CC		DD		EE		FF	
	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	mm	in.	mm	in.
KHA180 Base Unit	182	385	220	466	284	602	235	497	1499	59	1010	39-3/4
KHA180 Max. Unit	232	492	258	548	306	648	275	582	1441	56-3/4	1060	41-3/4
KHA240 Base Unit	199	423	235	497	314	665	267	565	1480	58-1/4	991	39
KHA240 Max. Unit	253	536	274	580	335	709	309	655	1422	56	1041	41

Base Unit - The unit with NO INTERNAL OPTIONS.

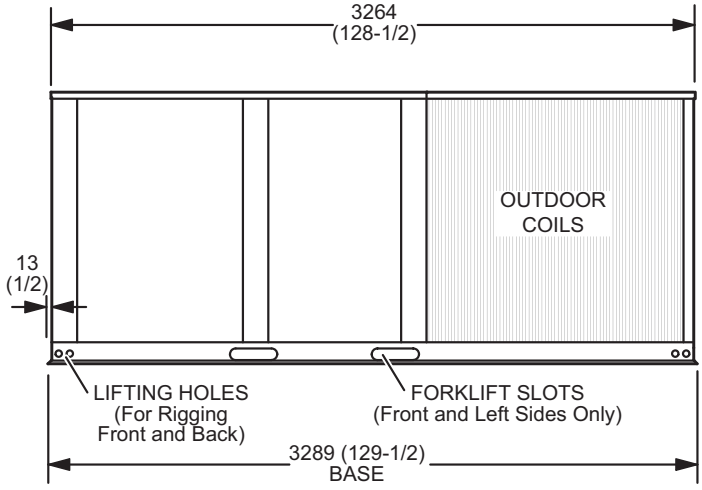
Max. Unit - The unit with ALL INTERNAL OPTIONS Installed. (Economizer, Standard Static Power Exhaust Fans, Controls, etc.). Does not include accessories external to unit or high static power exhaust.



TOP VIEW

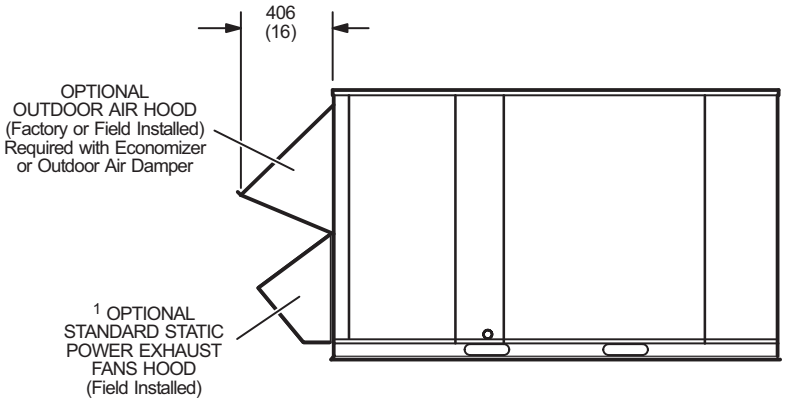


END VIEW



SIDE VIEW

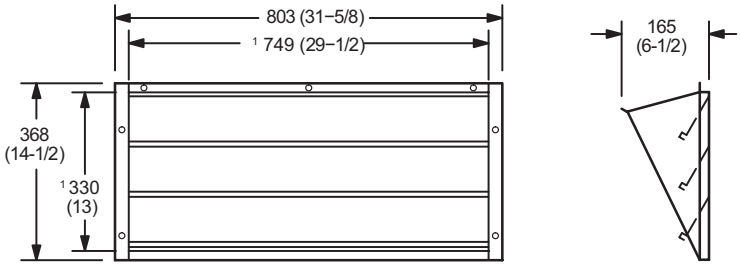
OPTIONAL OUTDOOR AIR HOOD DETAIL WITH STANDARD STATIC POWER EXHAUST FANS



[1] Field Installed in Return Air Duct for Horizontal Applications.

HORIZONTAL BAROMETRIC RELIEF DAMPERS

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

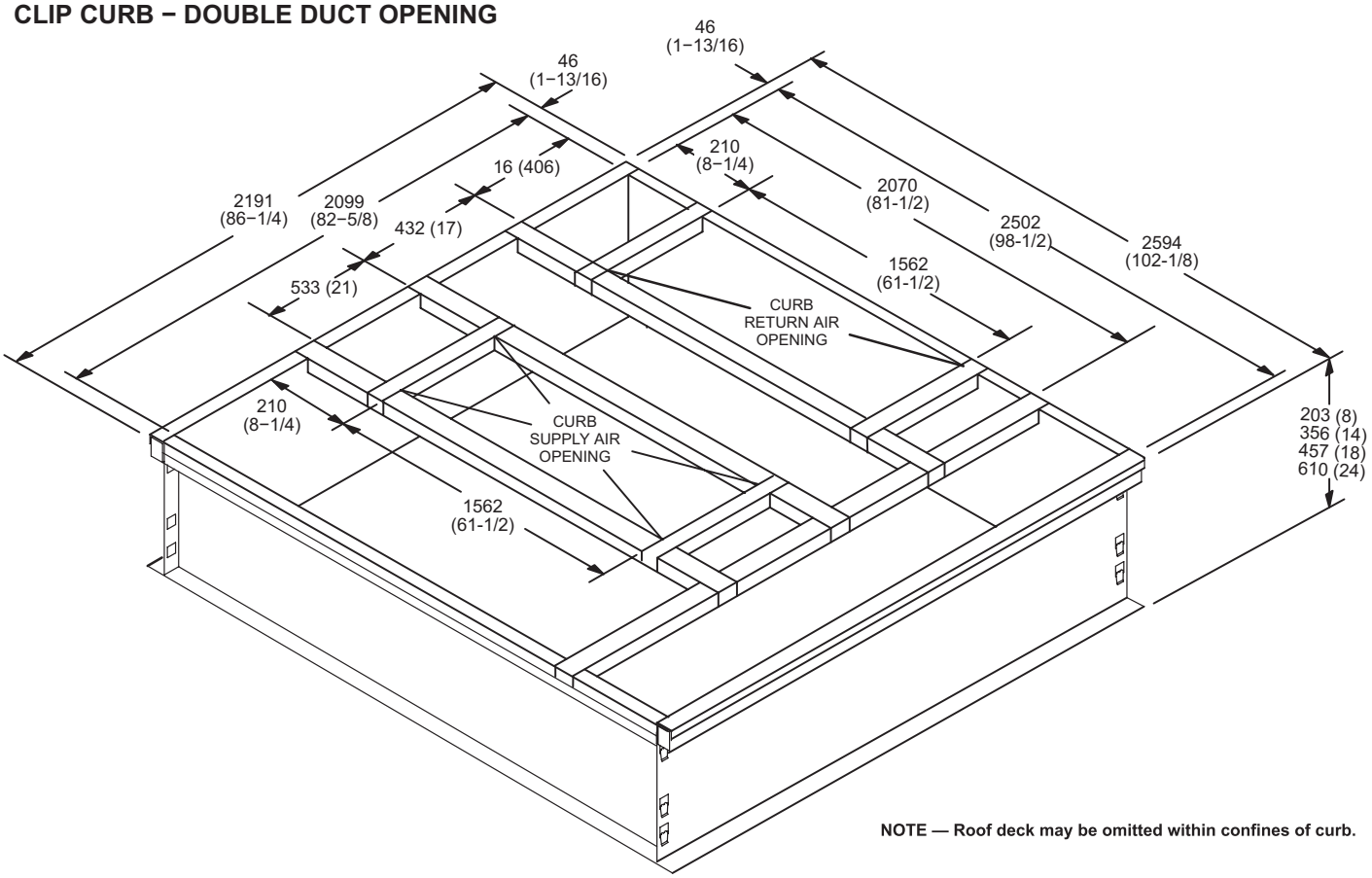


FRONT VIEW **SIDE VIEW**

NOTE − Two furnished per order number.
[1] NOTE − Opening size required in return air duct.

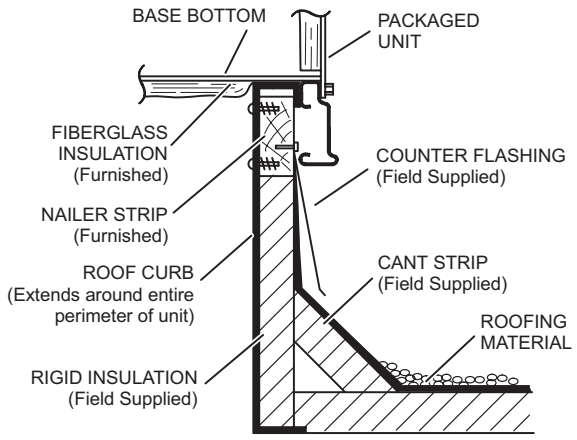
ACCESSORY DIMENSIONS - MM (INCHES)

CLIP CURB − DOUBLE DUCT OPENING

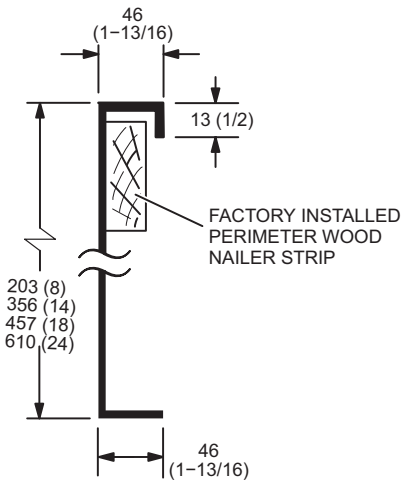


NOTE — Roof deck may be omitted within confines of curb.

TYPICAL FLASHING DETAIL FOR ROOF CURB

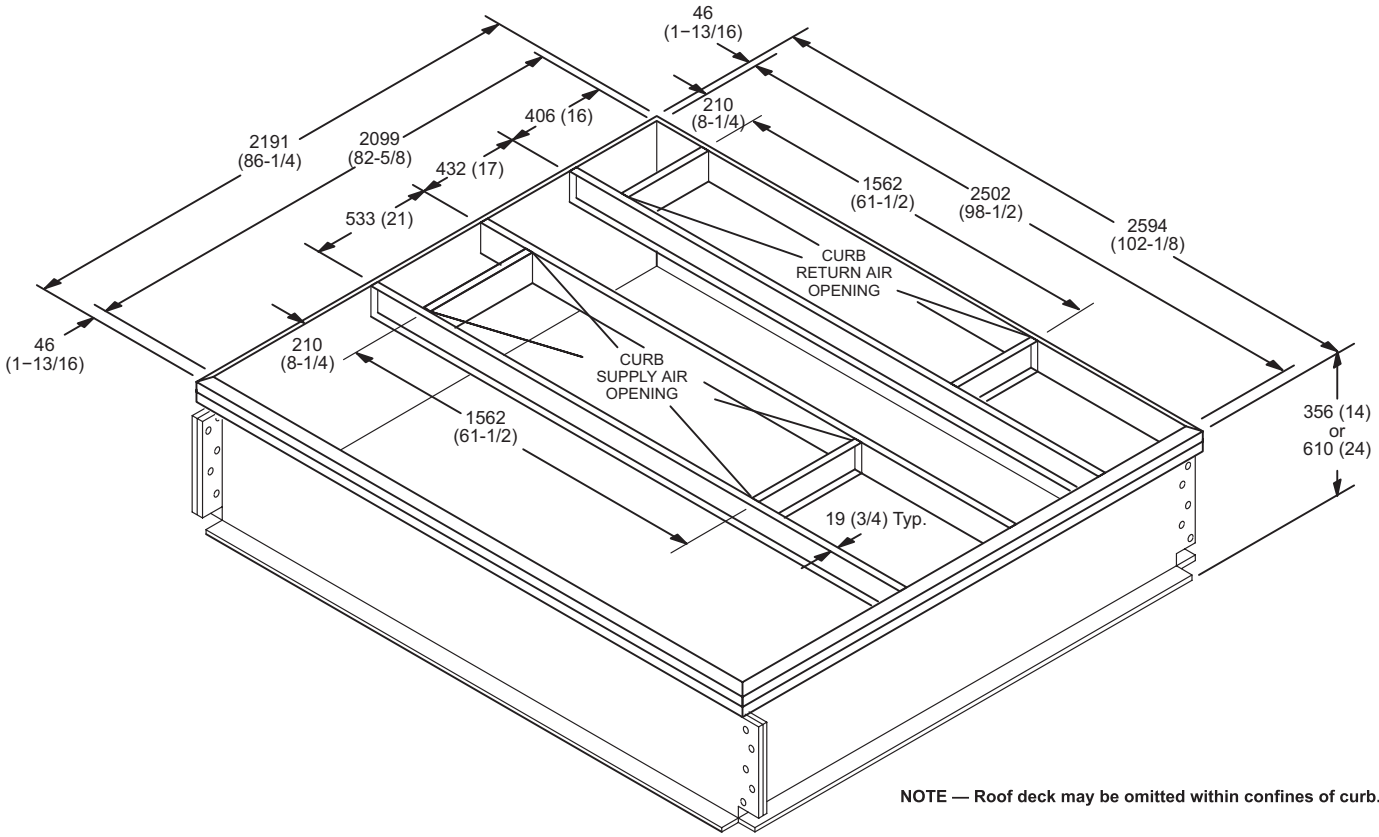


DETAIL ROOF CURB



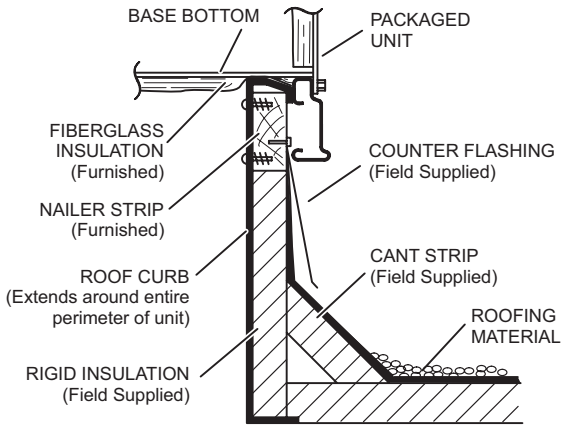
ACCESSORY DIMENSIONS - MM (INCHES)

STANDARD ROOF CURBS – DOUBLE DUCT OPENING

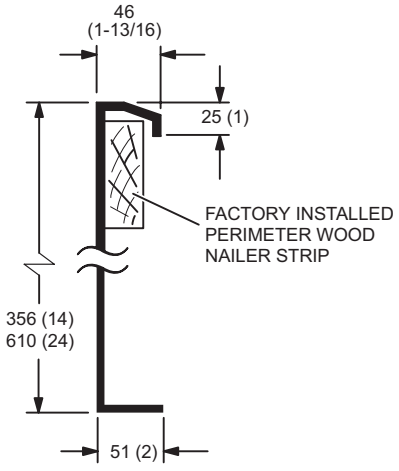


NOTE — Roof deck may be omitted within confines of curb.

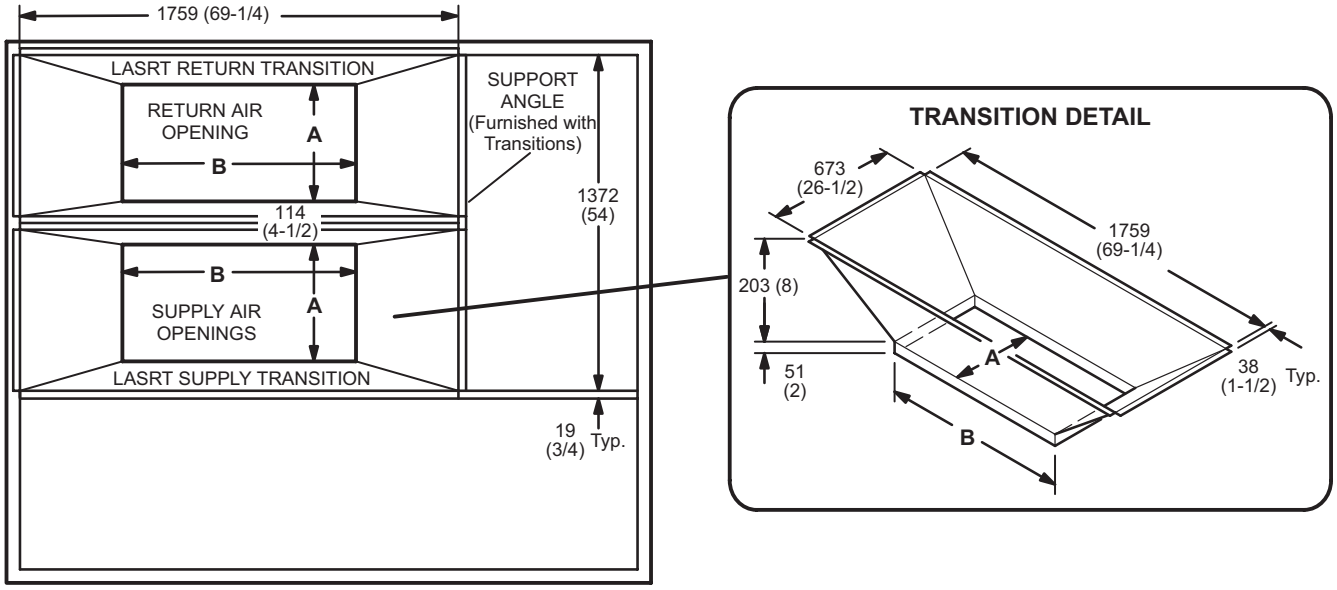
TYPICAL FLASHING DETAIL FOR ROOF CURB



DETAIL ROOF CURB

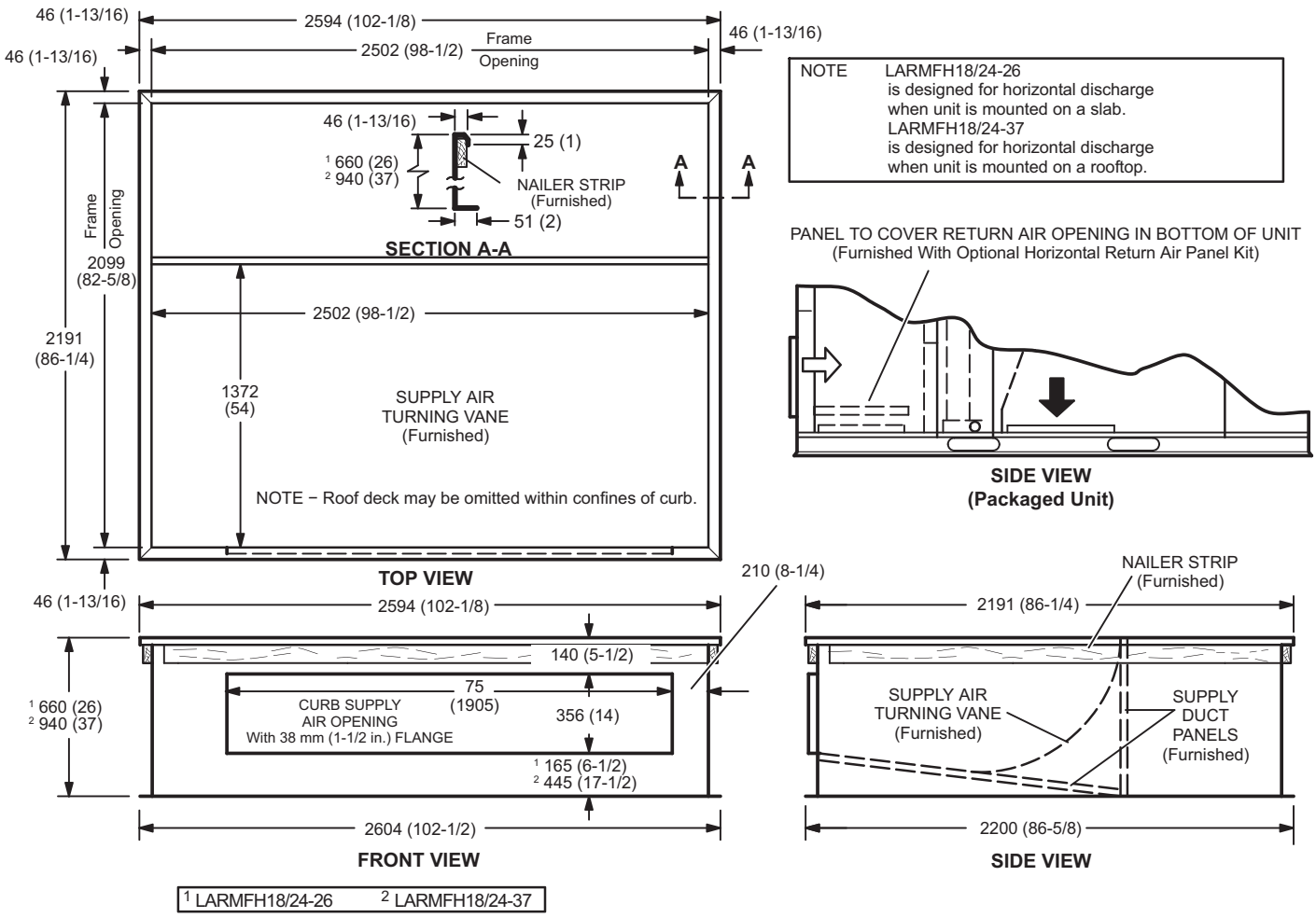


ROOF CURBS WITH SUPPLY & RETURN AIR TRANSITIONS FOR CEILING DIFFUSERS

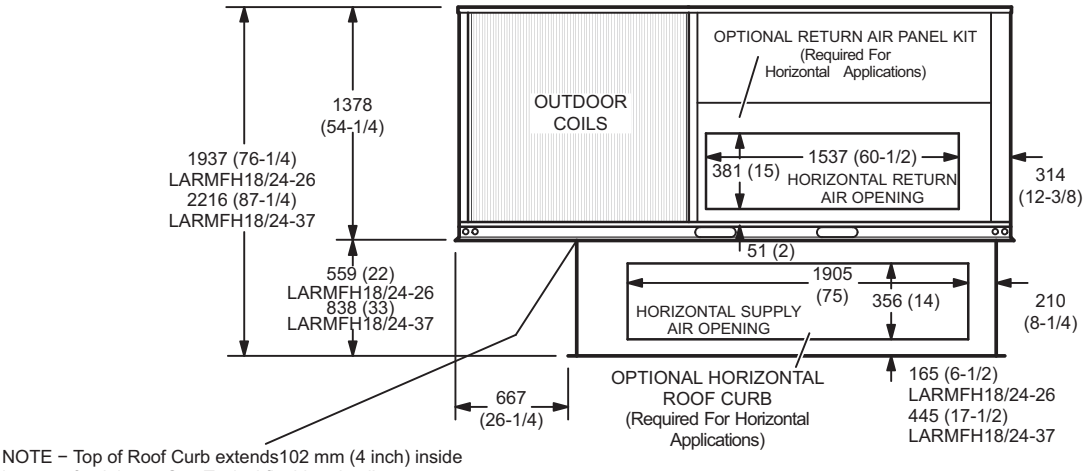


TOP VIEW

HORIZONTAL ROOF CURBS − Requires Optional Horizontal Return Air Panel Kit



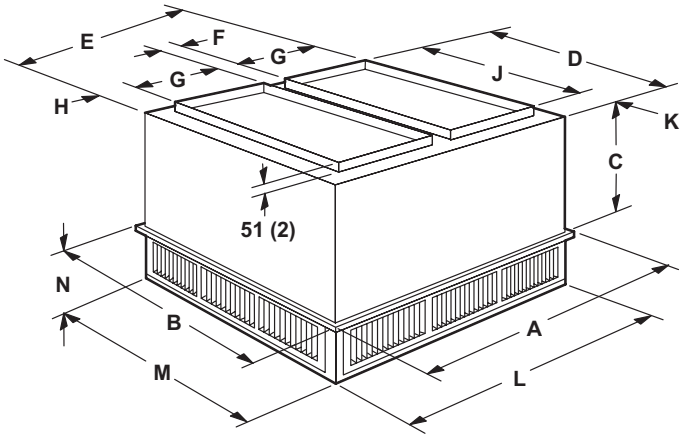
HORIZONTAL SUPPLY AND RETURN AIR OPENINGS WITH HORIZONTAL ROOF CURB



ACCESSORY DIMENSIONS - MM (INCHES)

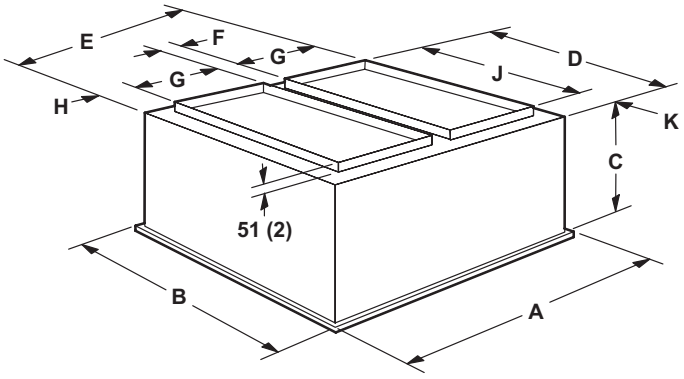
COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

STEP-DOWN CEILING DIFFUSER



Model Number		RTD11-185	RTD11-275
A	mm	1210	1514
	in.	47-5/8	59-5/8
B	mm	1210	1514
	in.	47-5/8	59-5/8
C	mm	625	778
	in.	24-5/8	30-5/8
D	mm	1156	1461
	in.	45-1/2	57-1/2
E	mm	1156	1461
	in.	45-1/2	57-1/2
F	mm	114	114
	in.	4-1/2	4-1/2
G	mm	457	610
	in.	18	24
H	mm	64	64
	in.	2-1/2	2-1/2
J	mm	914	1219
	in.	36	48
K	mm	121	121
	in.	4-3/4	4-3/4
L	mm	1156	1461
	in.	45-1/2	57-1/2
M	mm	1156	1461
	in.	45-1/2	57-1/2
N	mm	257	283
	in.	10-1/8	11-1/8
Duct Size	mm	457 x 914	610 x 1219
	in.	18 x 36	24 x 48

FLUSH CEILING DIFFUSER



Model Number		FD11-185	FD11-275
A	mm	1210	1514
	in.	47-5/8	59-5/8
B	mm	1210	1514
	in.	47-5/8	59-5/8
C	mm	743	895
	in.	29-1/4	35-1/4
D	mm	1143	1148
	in.	45	57
E	mm	1143	1448
	in.	45	57
F	mm	114	114
	in.	4-1/2	4-1/2
G	mm	457	610
	in.	18	24
H	mm	57	57
	in.	2-1/4	2-1/4
J	mm	914	1219
	in.	36	48
K	mm	114	114
	in.	4-1/2	4-1/2
Duct Size	mm	457 x 914	610 x 1219
	in.	18 x 36	24 x 48

REVISIONS

Section	Description
Options/Accessories	Updated Power Exhaust models.

ISO 9001
REGISTERED
QUALITY
SYSTEMS

LENNOX

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