PACKAGED GAS ELECTRIC

KG

Landmark® Rooftop Units

50 HZ

PRODUCT SPECIFICATIONS

Bulletin No. 490145
March 2012
Supersedes November 2011



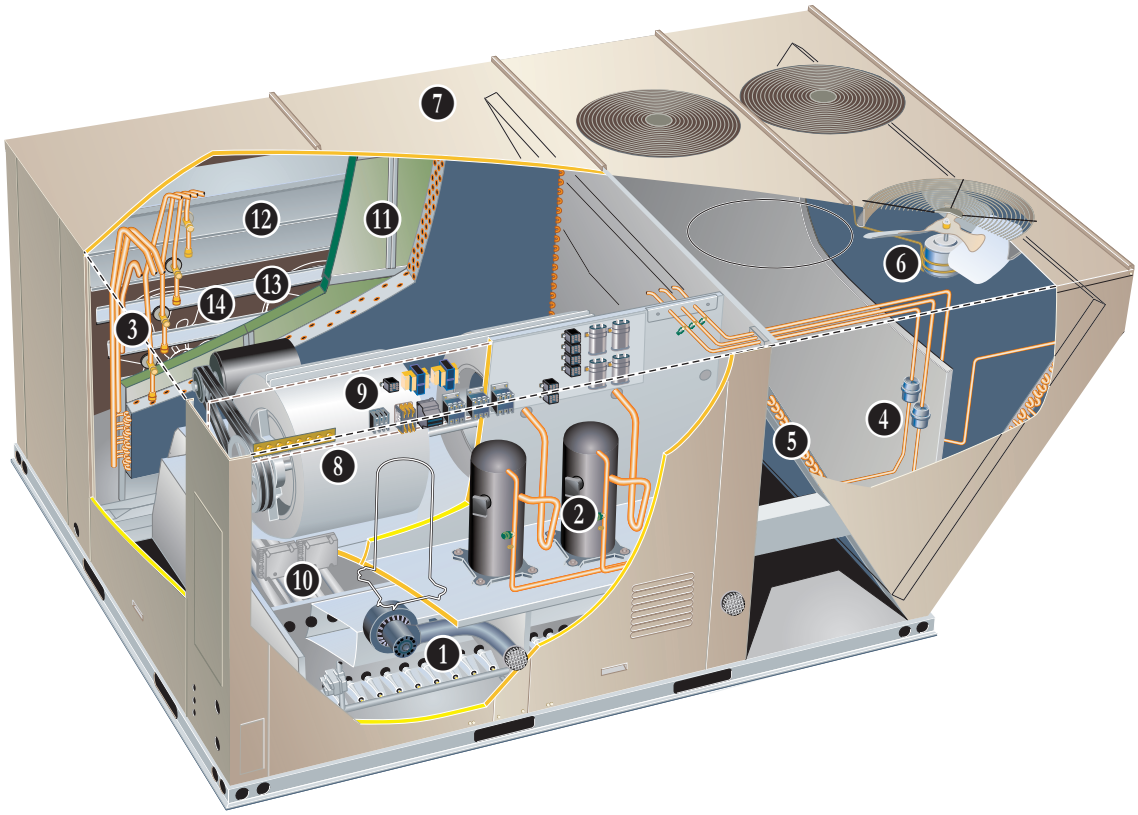
52.8 to 88 kW (15 to 25 Ton)
Net Cooling Capacity - 46.6 to 70.9 kW (159 000 to 242 000 Btuh)
Gas Input Heat Capacity – 49.5 to 123.0 kW (169 000 to 420 000 Btuh)

MODEL NUMBER IDENTIFICATION

K G A 240 S 4 B S 1 M

- **Brand/Family**
  K = Landmark®
- **Unit Type**
  G = Packaged Gas Heat w/ Electric Cooling
- **Major Design Sequence**
  A = 1st Generation
- **Nominal Cooling Capacity - kW**
  180 = 52.8 kW
  210 = 61.5 kW
  240 = 70.3 kW
  300 = 88 kW
- **Cooling Efficiency**
  S = Standard Efficiency
- **Refrigerant Type**
  4 = R-410A
- **Blower Type**
  B = Belt Drive
- **Heating Type**
  S = Standard Gas Heat, 2 Stage
  M = Medium Gas Heat, 2 Stage
  H = High Gas Heat, 2 Stage
- **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:

- **Aluminized Steel Heat Exchanger With Inshot Burners** - Life cycle tested.
- **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 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.

CONTENTS

Accessory Dimensions 25
Blower Data 15
Dimensions 23
Electrical Data. 19
Features And Benefits 2
High Altitude Derate 12
Model Number Identification 1
Optional Conventional Temperature Control Systems 21
Options / Accessories 8
Outdoor Sound Data 21
Ratings 13
Specifications 11
Specifications - Gas Heat 12
Unit Clearances 20
Weight Data 22

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.

HEATING SYSTEM

1. Aluminized steel inshot burners, direct spark ignition, electronic flame sensor, combustion air inducer, redundant automatic dual stage gas valve with manual shut-off.

Heat Exchanger
Tubular construction, aluminized steel, life cycle tested.

Optional Stainless Steel Heat Exchanger is required if mixed air temperature is below 7°C.

Electronic Pilot Ignition
Solid-state electronic spark igniter provides positive direct ignition of burners on each operating cycle. The system permits main gas valve to stay open only when the burners are proven to be lit. Should a loss of flame occur, the gas valve closes, shutting off the gas to the burners. Ignition module has light emitting diode (LED) to indicate status and aid in troubleshooting.

Ignition control is factory installed in the controls section.

Limit Controls
Factory installed, redundant limit controls with fixed temperature setting. Heat limit controls protect heat exchanger and other components from overheating.

Safety Switches
Flame roll-out switch, flame sensor and combustion air inducer proving switch protect system operation.

REQUIRED SELECTIONS

Gas Input Choice - Order one:
Standard Gas Heat, 2 Stage (49.5/76.1 kW)

Medium Gas Heat, 2 Stage (68.5/105.4 kW)

High Gas Heat, 2 Stage (91.4/140.5 kW)

OPTIONS/ACCESSORIES

Factory Installed

Stainless Steel Heat Exchanger
Required if mixed air temperature is below 7°C.

Field Installed

Bottom Gas Piping Kit
Allows bottom gas entry.

Combustion Air Intake Extensions
Recommended for use with existing flue extension kits in areas where high snow areas can block intake air. Order two kits.

LPG/Propane Kits
Conversion kit to field change over units from Natural Gas to LPG/ Propane. Order two kits.

Vertical Vent Extension Kit
Use to exhaust flue gases vertically above unit. Required when unit vent is too close to fresh air intakes per building codes. The vent kit also prevents ice formation on intake louvers. Order two kits.

Kit contains vent transition, vent tee, drain cap and installation hardware.

NOTE - Straight vent pipes (4 inch B-Vent) and caps are not furnished and must be field supplied. Refer to kit instructions for additional information.

FEATURES AND BENEFITS

COOLING SYSTEM

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

System can operate from –1°C to 52°C without any additional controls

R-410A Refrigerant

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



2 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.

3 Thermal Expansion Valves

Assures optimal performance throughout the application range.

Removable element head.

4 Filter/Driers

High capacity 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.

Freezestats

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

5 Coil Construction

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

Evaporator Coil

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

Condenser Coil

Angled, slab design helps protect coil from possible contact or hail damage.

Condensate Drain Pan

Plastic, sloped drain pan.

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 evaporator coil and losing capacity. Designed for use in ambient temperatures no lower than 0°F.

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/Gas Entry

Electrical and gas 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 output 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.

Commercial Control Systems

Thermostats

Control system and thermostat options. Aftermarket unit controller options. See page 21.

ELECTRICAL

REQUIRED SELECTIONS

Voltage Choice

Specify when ordering base unit.

OPTIONS/ACCESSORIES

Factory or Field Installed

⑩ Disconnect Switch

Accessible from outside of unit, spring loaded weatherproof cover furnished.

INDOOR AIR QUALITY

⑪ Air Filters

Disposable 2 inch filters furnished as standard.

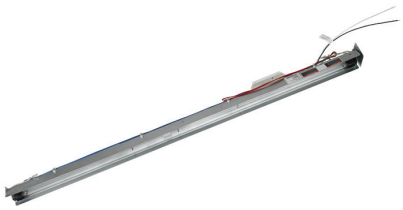
OPTIONS/ACCESSORIES

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.

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.

Thermal Expansion Valve Access

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

Slab condenser coils provided 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.

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.

⓭ Downflow Barometric Relief Dampers With Exhaust Hood

Allow relief of excess air.

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

Exhaust hood with bird screen is furnished.

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) 0.22 kW 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	Unit Model No 180	210	240	300
COOLING SYSTEM						
Condensate Drain Trap	Polyvinyl Chloride (PVC) - C1TRAP20AD2	**76W26**	X	X	X	X
	Copper - C1TRAP10AD2	**76W27**	X	X	X	X
Corrosion Protection		Factory	O	O	O	O
Drain Pan Overflow Switch	K1SNSR71C-1-	**68W89**	X	X	X	X
Efficiency		Standard	O	O	O	O
Low Ambient Kit	K1SNSR33C-1	**55W72**	X	X	X	X
Refrigerant Type		R-410A	O	O	O	O
HEATING SYSTEM						
Bottom Gas Piping Kit	C1GPKT01C-1	**85M31**	X	X	X	X
Combustion Air Intake Extensions (order two)	LTACAIK10/15	**89L97**	X	X	X	X
Gas Heat Input	Standard - 76.1 kW	Factory	O	O	O	O
	Medium - 105.4 kW	Factory	O	O	O	O
	High - 140.5 kW	Factory	O	O	O	O
LPG/Propane Conversion Kits (Order 2 kits)	Standard heat - LTALPGK-130	**72M94**	X	X	X	X
	Medium heat - LTALPGK-180	**72M95**	X	X	X	X
	High heat - LTALPGK-240	**72M96**	X	X	X	X
Stainless Steel Heat Exchanger		Factory	O	O	O	O
Vertical Vent Extension Kit (Order two kits)	C1EXTN20FF1	**42W16**	X	X	X	X
BLOWER - SUPPLY AIR						
Motors	Belt Drive - 2.2 kW	Factory	O	O		
	Belt Drive - 3.7 kW	Factory	O	O	O	O
	Belt Drive - 5.6 kW	Factory	O	O	O	O
	Belt Drive - 7.5 kW	Factory			O	O
Drive Kits	Kit #3 571-721 rev/min	Factory	O	O	O	O
See Blower Data Tables for usage and selection	Kit #4 708-871 rev/min	Factory	O	O	O	O
	Kit #5 788-988 rev/min	Factory	O	O	O	O
	Kit #6 708-871 rev/min	Factory	O	O	O	O
	Kit #7 788-988 rev/min	Factory	O	O	O	O
	Kit #8 871-1071 rev/min	Factory	O	O	O	O
	Kit #10 871-1071 rev/min	Factory			O	O
	Kit #11 945-1138 rev/min	Factory			O	O
CABINET						
Coil Guards	C1GARD20C11	**54W79**	X	X		
	C1GARD20C31	**54W80**			X	X
Hail Guards	C1GARD10C11	**54W83**	X	X		
	C1GARD10C31	**54W84**			X	X

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

OPTIONS / ACCESSORIES

Item Description	Model Number	Catalog Number	Unit Model No 180	210	240	300
CONTROLS						
Smoke Detector - Supply or Return (Power board and one sensor)	C1SNSR44C-1	**83W40**	X	X	X	X
Smoke Detector - Supply and Return (Power board and two sensors)	C1SNSR43C-1	**83W41**	X	X	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	X	X
	MERV 13 - C1FLTR40C-1-	**52W40**	X	X	X	X
Replacement Media Filter With Metal Mesh Frame (includes non-pleated filter media)	C1FLTR30C-1-	**44N61**	X	X	X	X
Indoor Air Quality (CO_2) Sensors						
Sensor - Wall-mount, off-white plastic cover with LCD display	C0SNSR50AE1L	**77N39**	X	X	X	X
Sensor - Wall-mount, off-white plastic cover, no display	C0SNSR52AE1L	**87N53**	X	X	X	X
Sensor - Black plastic case with LCD display, rated for plenum mounting	C0SNSR51AE1L	**87N52**	X	X	X	X
Sensor - Wall-mount, black plastic case, no display, rated for plenum mounting	C0MISC19AE1	**87N54**	X	X	X	X
CO_2 Sensor Duct Mounting Kit - for downflow applications	C0MISC19AE1-	**85L43**	X	X	X	X
Aspiration Box - for duct mounting non-plenum rated CO_2 sensors (**87N53** or **77N39**)	C0MISC16AE1-	**90N43**	X	X	X	X
UVC Germicidal Light Kit						
[1] Healthy Climate® UVC Light Kit (220V-1ph)	C1UVCL10C-1	**54W65**	X	X	X	X
ELECTRICAL						
Voltage 50 hz with neutral	380/420V - 3 phase	Factory	O	O	O	O
ECONOMIZER						
Economizer						
Economizer - Downflow or Horizontal (Outdoor Air Hood furnished)	K1ECON20C-1	**54W77**	OX	OX	OX	OX
Economizer Controls						
Differential Enthalpy	Order 2 - C1SNSR64FF1	**53W64**	X	X	X	X
Single Enthalpy	C1SNSR64FF1	**53W64**	X	X	X	X
Downflow Barometric Relief Dampers						
Barometric Relief Dampers with Exhaust Hood	C1DAMP50C	**54W78**	OX	OX	OX	OX
Horizontal Barometric Relief Dampers						
Barometric Relief Dampers with Exhaust Hood	LAGEDH18/24	**16K99**	X	X	X	X
OUTDOOR AIR						
Outdoor Air Dampers						
Motorized Dampers with Outdoor Air Hood	K1DAMP20C-1	**58W62**	OX	OX	OX	OX
Manual Dampers With Outdoor Air Hood	C1DAMP10C-1	**54W76**	OX	OX	OX	OX
POWER EXHAUST						
Standard Static	380/420V - C1PWRE11C-1M	**75W93**	X	X	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	Unit Model No 180	210	240	300
ROOF CURBS - DOWNFLOW						
Clip Curb						
203 mm height	C1CURB40CD1	**26W32**	X	X	X	X
356 mm height	LARMF18/30S-14	**33K44**	X	X	X	X
457 mm height	LARMF18/30S-18	**33K45**	X	X	X	X
610 mm height	LARMF18/30S-24	**33K46**	X	X	X	X
Standard						
203 mm height	LARMF18/36-14	**16K87**	X	X	X	X
610 mm height	LARMF18/36-24	**16K88**	X	X	X	X
Adjustable Pitched Curb						
203 mm height	L1CURB55C	**43W26**	X	X	X	X
ROOF CURBS - HORIZONTAL (REQUIRES HORIZONTAL RETURN AIR PANEL KIT)						
Standard						
660 mm height - slab applications	LARMFH18/24-26	**97J33**	X	X	X	
940 mm height - rooftop applications	LARMFH18/24-37	**38K53**	X	X	X	
762 mm height - slab applications	LARMFH30/36-30	**33K79**				X
1041 mm height - rooftop applications	LARMFH30/36-41	**38K54**				X
Insulation Kit For Standard Horizontal Curbs						
for LARMFH18/24-26	C1INSU11C-1-	**73K32**	X	X	X	
for LARMFH18/24-37	C1INSU13C-1-	**73K34**	X	X	X	
for LARMFH30/36-30	C1INSU12C-1-	**73K33**				X
for LARMFH30/36-41	C1INSU14C-1-	**73K35**				X
Horizontal Return Air Panel Kit						
Required for Horizontal Applications with Roof Curb	C1HRAP10C-1-	**87M00**	X	X	X	X
CEILING DIFFUSERS						
Step-Down - Order one	RTD11-185	**29G06**	X			
	RTD11-275-R	**29G07**		X	X	X
Flush - Order one	FD11-185	**29G10**	X			
	FD11-275-R	**29G11**		X	X	X
Transitions (Supply and Return) - Order one	LASRT18	**19K01**	X			
	LASRT21/24	**19K02**		X	X	X

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

SPECIFICATIONS

General Data		**Nominal kW (Tons)**	**52.8 (15)**	**61.5 (17.5)**	**70.3 (20)**	**88 (25)**
		Model Number	**KGA180S4B**	**KGA210S4B**	**KGA240S4B**	**KGA300S4B**
		Efficiency Type	**Standard**	**Standard**	**Standard**	**Standard**
		Blower Type	Constant Air Volume CAV	Constant Air Volume CAV	Constant Air Volume CAV	Constant Air Volume CAV
Cooling Performance	Gross Cooling Capacity - kW (Btuh)		48.3 (165 000)	54.5 (186 000)	63.0 (215 000)	74.7 (255 000)
	[1] Net Cooling Capacity - kW (Btuh)		46.6 (159 000)	52.7 (180 000)	60.1 (205 000)	70.9 (242 000)
	AHRI Rated Air Flow - L/s (cfm)		2830 (6000)	2890 (6125)	3635 (7700)	4130 (8750)
	Total Unit Power - kW		14.6	16.4	18.8	24.2
	[1] EER (Btuh/Watt)		10.9	10.9	10.9	10.0
	[2] IEER (Btuh/Watt)		11.0	11.0	11.0	9.9
	Refrigerant Type		R-410A	R-410A	R-410A	R-410A
	Refrigerant Charge Furnished	Circuit 1	6.35 kg (14 lbs. 0 oz.)	4.76 kg (10 lbs. 8 oz.)	6.35 kg (14 lbs. 0 oz.)	6.58 kg (14 lbs. 8 oz.)
		Circuit 2	6.35 kg (14 lbs. 0 oz.)	4.76 kg (10 lbs. 8 oz.)	6.35 kg (14 lbs. 0 oz.)	6.58 kg (14 lbs. 8 oz.)
		Circuit 3	N/A	4.76 kg (10 lbs. 8 oz.)	6.35 kg (14 lbs. 0 oz.)	6.58 kg (14 lbs. 8 oz.)
Gas Heating Options Available			See page 12			
Compressor Type (number)			Scroll (2)	Scroll (3)	Scroll (3)	Scroll (3)
Outdoor Coils	Net face area (total) - m² (sq. ft.)		3.85 (41.4)	3.85 (41.4)	5.13 (55.2)	5.13 (55.2)
	Tube diameter - mm (in.)		9.5 (3/8)	9.5 (3/8)	9.5 (3/8)	9.5 (3/8)
	Number of rows		2	2	2	2
	Fins per m (Fins per inch)		787 (20)	787 (20)	787 (20)	787 (20)
Outdoor Coil Fans	Motor - (No.) W (HP)		(3) 250 (1/3)	(3) 250 (1/3)	(4) 250 (1/3)	(4) 250 (1/3)
	Motor rev/min		896	896	896	896
	Total Motor watts		840	840	1146	1146
	Diameter - (No.) mm (in.)		(3) 610 (24)	(3) 610 (24)	(4) 610 (24)	(4) 610 (24)
	Number of blades		3	3	3	3
	Total Air volume - L/s (cfm)		4720 (10 000)	4720 (10 000)	6275 (13 300)	6275 (13 300)
Indoor Coils	Net face area (total) - m² (sq. ft.)		17.3 (18.60)	1.99 (21.4)	1.99 (21.4)	1.99 (21.4)
	Tube diameter - mm (in.)		9.5 (3/8)	9.5 (3/8)	9.5 (3/8)	9.5 (3/8)
	Number of rows		3	3	3	3
	Fins per m (Fins per inch)		551 (14)	551 (14)	551 (14)	551 (14)
	Drain connection - No. and size		(1) 1 in. FPT	(1) 1 in. FPT	(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)	2.2 (3)	3.7 (5)	3.7 (5)
	Maximum usable motor kW (HP)		2.6 (3.45)	2.6 (3.45)	4.3 (5.75)	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 3** (571-721) **Kit 4** (708-871) **Kit 5** (788-988)	**Kit 3** (571-721) **Kit 4** (708-871) **Kit 5** (788-988)
	Nominal Motor kW (HP)		3.7 (5)	3.7 (5)	5.6 (7.5)	5.6 (7.5)
	Maximum usable motor kW (HP)		4.3 (5.75)	4.3 (5.75)	6.4 (8.6)	6.4 (8.6)
	Kit # (rev/min range)		**Kit 3** (571-721) **Kit 4** (708-871) **Kit 5** (788-988)	**Kit 3** (571-721) **Kit 4** (708-871) **Kit 5** (788-988)	**Kit 6** (708-871) **Kit 7** (788-988) **Kit 8** (871-1071)	**Kit 6** (708-871) **Kit 7** (788-988) **Kit 8** (871-1071)
	Nominal Motor kW (HP)		5.6 (7.5)	5.6 (7.5)	7.5 (10)	7.5 (10)
	Maximum usable motor kW (HP)		6.4 (8.6)	6.4 (8.6)	8.6 (11.5)	8.6 (11.5)
	Kit # (rev/min range)		**Kit 6** (708-871) **Kit 7** (788-988) **Kit 8** (871-1071)	**Kit 6** (708-871) **Kit 7** (788-988) **Kit 8** (871-1071)	**Kit 7** (788-988) **Kit 10** (871-1071) **Kit 11** (945-1138)	**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			

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 USE certification program, which is based on AHRI Standard 340/360; 35°C (95°F) outdoor air temperature and 27°C (80°F) db/19°C (67°F) wb entering evaporator air; minimum external duct static pressure while operating at rated voltage and air volumes.

[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. See Belt Drive Specification Table for maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

SPECIFICATIONS - GAS HEAT

Usage Data		Model Number	KGA180 KGA210 KGA240 KGA300		KGA180 KGA210 KGA240 KGA300
		Heat Input Type	**Standard (S)**	**Medium (M)**	**High (H)**
		Number of Gas Heat Stages	2	2	2
Gas Heating Performance	Input - kW (Btuh)	First Stage	49.5 (169 000)	68.5 (234 000)	91.4 (312 000)
		Second Stage	68.5 (234 000)	91.9 (314 000)	123.0 (420 000)
	Output - kW (Btuh)	First Stage	- - -	- - -	- - -
		Second Stage	54.8 (187 000)	73.5 (251 000)	98.4 (336 000)
		Temperature Rise Range - °C (°F)	8 - 25 (15 - 45)	17 - 33 (30 - 60)	22 - 39 (40 - 70)
		Thermal Efficiency	80.0%	80.0%	80.0%
		Gas Supply Connections	1 in. npt	1 in. npt	1 in. npt
Recommended Gas Supply Pressure - kPa (in. w.g.)		Natural	1.7 (7)	1.7 (7)	1.7 (7)
		LPG/Propane	2.7 (11)	2.7 (11)	2.7 (11)

HIGH ALTITUDE DERATE

Units may be installed at altitudes up to 610 m (2000 feet) above sea level without any modification.

At altitudes above 610 m (2000 feet), units must be derated to match gas manifold pressures shown in table below.

At altitudes above 1372 m (4500 feet) unit must be derated 2% for each 305 m (1000 feet) above sea level.

NOTE - This is the only permissible derate for these units.

Gas Heat Type	Altitude - m (ft.)	Gas Manifold Pressure kPa (in. w.g.)		Input Rate Natural Gas or LPG/Propane - kW (Btuh)	
		Natural Gas	**LPG/Propane Gas**	**First Stage**	**Second Stage**
Standard (S)	611 - 1372 (2001 - 4500)	0.13 (0.52)	0.45 (1.82)	49.5 (169 000)	66 (225 000)
Medium (M)	611 - 1372 (2001 - 4500)	0.13 (0.52)	0.45 (1.82)	68.5 (234 000)	88.7 (302 700)
High (H)	611 - 1372 (2001 - 4500)	0.13 (0.52)	0.45 (1.82)	91.4 (312 000)	118.6 (404 800)

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 - KGA180S4 (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	4.15	.70	.82	.92	24.3	4.59	.71	.83	.94	23.3	5.09	.72	.84	.95	22.2	5.65	.73	.86	.97
	2830	26.5	4.22	.74	.87	.99	25.5	4.67	.75	.88	1.00	24.4	5.16	.76	.90	1.00	23.3	5.71	.78	.92	1.00
	3400	27.4	4.28	.78	.92	1.00	26.4	4.71	.79	.94	1.00	25.3	5.21	.80	.96	1.00	24.1	5.77	.82	.98	1.00
19°C	2265	26.4	4.22	.57	.68	.78	25.5	4.67	.57	.69	.79	24.5	5.16	.58	.70	.81	23.4	5.72	.58	.71	.82
	3400	27.8	4.30	.59	.71	.84	26.8	4.74	.59	.73	.85	25.7	5.24	.60	.74	.87	24.6	5.80	.61	.75	.89
	3400	28.8	4.36	.61	.76	.89	27.8	4.80	.62	.77	.90	26.6	5.29	.63	.78	.93	25.4	5.85	.64	.80	.95
22°C	2265	27.7	4.30	.43	.55	.65	26.7	4.74	.44	.55	.66	25.7	5.24	.45	.56	.67	24.6	5.80	.44	.57	.68
	2830	29.2	4.38	.44	.57	.69	28.1	4.82	.45	.58	.70	27.0	5.32	.45	.59	.72	25.8	5.88	.45	.59	.73
	3400	30.2	4.45	.45	.60	.73	29.1	4.88	.45	.60	.75	27.9	5.38	.45	.62	.76	26.7	5.94	.46	.63	.78

52.8 kW - KGA180S4 (2ND STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		26.7°C					35°C					43.3°C					51.7°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) 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	47.1	10.05	.74	.87	.98	44.0	11.73	.76	.89	1.00	40.6	13.74	.78	.93	1.00	36.8	16.18	.82	.97	1.00
	2830	49.2	10.19	.79	.93	1.00	45.9	11.86	.81	.96	1.00	42.2	13.88	.84	.99	1.00	38.5	16.34	.88	1.00	1.00
	3400	50.8	10.30	.83	.98	1.00	47.4	11.97	.86	1.00	1.00	43.9	14.01	.89	1.00	1.00	40.2	16.48	.94	1.00	1.00
19°C	2265	49.6	10.22	.59	.72	.84	46.4	11.90	.60	.74	.86	42.8	13.91	.61	.76	.90	38.7	16.35	.63	.80	.94
	3400	51.8	10.37	.61	.76	.90	48.3	12.04	.63	.79	.93	44.4	14.04	.65	.82	.97	40.1	16.47	.68	.86	1.00
	3400	53.4	10.47	.64	.81	.96	49.6	12.13	.66	.84	.99	45.6	14.14	.69	.87	1.00	41.0	16.56	.72	.92	1.00
22°C	2265	52.0	10.38	.45	.57	.69	48.6	12.06	.44	.58	.71	45.0	14.09	.45	.60	.74	40.7	16.53	.47	.62	.77
	2830	54.3	10.54	.45	.60	.74	50.7	12.21	.46	.62	.77	46.7	14.23	.47	.64	.80	42.1	16.65	.48	.67	.84
	3400	56.0	10.66	.47	.63	.79	52.1	12.32	.48	.65	.82	47.9	14.33	.49	.68	.85	43.1	16.75	.50	.71	.90

61.5 kW - KGA210S4 (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	2645	38.9	6.65	.73	.86	.98	37.4	7.35	.74	.87	.99	35.9	8.12	.75	.89	1.00	34.2	8.97	.77	.91	1.00
	3305	40.8	6.71	.78	.92	1.00	39.2	7.40	.79	.94	1.00	37.5	8.17	.81	.96	1.00	35.8	9.02	.82	.98	1.00
	3965	42.2	6.75	.82	.98	1.00	40.6	7.44	.84	.99	1.00	38.9	8.21	.85	1.00	1.00	37.2	9.06	.87	1.00	1.00
19°C	2645	41.1	6.72	.58	.71	.83	39.6	7.41	.59	.72	.84	38.0	8.18	.59	.73	.86	36.3	9.03	.60	.74	.88
	3965	43.1	6.78	.61	.75	.89	41.5	7.47	.61	.77	.91	39.8	8.23	.62	.78	.93	37.9	9.09	.63	.80	.95
	3965	44.6	6.82	.64	.80	.95	42.9	7.51	.64	.81	.97	41.0	8.27	.65	.83	.98	39.0	9.12	.67	.85	1.00
22°C	2645	43.3	6.78	.44	.57	.68	41.7	7.47	.44	.57	.69	40.0	8.24	.45	.58	.70	38.3	9.10	.44	.59	.72
	3305	45.4	6.85	.45	.59	.73	43.7	7.53	.45	.60	.74	42.0	8.30	.45	.61	.76	40.0	9.16	.46	.62	.78
	3965	47.1	6.89	.46	.62	.77	45.3	7.58	.46	.63	.79	43.3	8.34	.47	.64	.81	41.2	9.20	.48	.66	.83

61.5 kW - KGA210S4 (2ND STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		26.7°C					35°C					43.3°C					51.7°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) 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	2645	54.2	11.68	.76	.90	1.00	50.5	13.56	.78	.93	1.00	46.3	15.77	.81	.97	1.00	41.6	18.39	.86	1.00	1.00
	3305	56.7	11.76	.81	.97	1.00	52.8	13.64	.84	.99	1.00	48.6	15.86	.87	1.00	1.00	44.3	18.52	.92	1.00	1.00
	3965	58.6	11.82	.86	1.00	1.00	55.0	13.71	.89	1.00	1.00	51.0	15.96	.93	1.00	1.00	46.2	18.61	.98	1.00	1.00
19°C	2645	57.4	11.78	.60	.73	.86	53.5	13.66	.61	.76	.89	49.1	15.89	.63	.79	.93	44.1	18.51	.66	.83	.98
	3965	60.1	11.86	.63	.79	.93	55.8	13.75	.65	.82	.97	51.1	15.97	.67	.85	1.00	45.7	18.60	.70	.90	1.00
	3965	61.9	11.92	.66	.84	.99	57.4	13.80	.68	.87	1.00	52.5	16.03	.71	.91	1.00	47.0	18.66	.74	.96	1.00
22°C	2645	60.4	11.88	.44	.58	.71	56.5	13.77	.45	.60	.73	52.0	16.01	.46	.61	.76	46.8	18.65	.47	.64	.80
	3305	63.3	11.97	.45	.61	.76	58.9	13.86	.46	.63	.79	54.0	16.10	.48	.66	.83	48.5	18.73	.49	.69	.87
	3965	65.2	12.03	.47	.65	.82	60.7	13.92	.48	.67	.85	55.5	16.16	.50	.70	.89	49.7	18.80	.52	.74	.94

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 - KGA240S4 (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	43.9	6.99	.71	.84	.97	42.2	7.78	.72	.86	.98	40.4	8.66	.73	.87	1.00	38.5	9.64	.75	.90	1.00
	3775	46.0	7.05	.76	.91	1.00	44.2	7.84	.77	.93	1.00	42.3	8.72	.79	.95	1.00	40.3	9.70	.81	.98	1.00
	4530	47.7	7.09	.81	.97	1.00	45.8	7.89	.82	.99	1.00	43.8	8.77	.84	1.00	1.00	41.9	9.76	.87	1.00	1.00
19°C	3020	46.6	7.06	.57	.69	.81	44.7	7.86	.57	.70	.82	42.8	8.74	.57	.71	.84	40.8	9.72	.59	.73	.86
	4530	48.8	7.12	.60	.74	.88	46.7	7.92	.61	.75	.90	44.6	8.80	.62	.76	.92	42.4	9.78	.63	.79	.95
	4530	50.3	7.16	.63	.78	.94	48.2	7.97	.64	.80	.97	46.0	8.85	.64	.82	.99	43.7	9.83	.66	.84	1.00
22°C	3020	49.2	7.13	.43	.55	.66	47.4	7.94	.43	.56	.67	45.3	8.83	.44	.56	.69	43.2	9.81	.44	.57	.70
	3775	51.5	7.20	.44	.58	.71	49.4	8.01	.45	.59	.73	47.2	8.90	.45	.60	.74	44.9	9.87	.46	.62	.76
	4530	53.0	7.24	.45	.61	.76	50.8	8.05	.46	.63	.78	48.5	8.94	.47	.64	.80	46.0	9.92	.47	.65	.82

70.3 kW - KGA240S4 (2ND STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		26.7°C					35°C					43.3°C					51.7°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) 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	61.9	12.43	.75	.90	1.00	57.7	14.59	.78	.94	1.00	53.0	17.10	.81	.98	1.00	48.0	19.99	.85	1.00	1.00
	3775	64.7	12.53	.81	.98	1.00	60.3	14.69	.84	1.00	1.00	55.9	17.21	.88	1.00	1.00	50.8	20.09	.94	1.00	1.00
	4530	67.2	12.62	.87	1.00	1.00	63.0	14.80	.90	1.00	1.00	58.3	17.31	.95	1.00	1.00	52.9	20.17	1.00	1.00	1.00
19°C	3020	65.5	12.56	.59	.73	.87	61.0	14.72	.61	.75	.90	56.0	17.22	.63	.78	.95	50.3	20.07	.65	.83	.99
	4530	68.2	12.66	.63	.79	.95	63.2	14.81	.64	.82	.99	57.8	17.30	.67	.86	1.00	51.9	20.13	.69	.91	1.00
	4530	70.0	12.72	.66	.84	1.00	64.9	14.88	.68	.88	1.00	59.3	17.35	.71	.93	1.00	53.3	20.19	.75	.99	1.00
22°C	3020	69.2	12.69	.44	.57	.70	64.4	14.86	.45	.60	.73	59.1	17.35	.46	.61	.76	53.1	20.17	.47	.64	.80
	3775	71.9	12.80	.45	.62	.77	66.6	14.96	.46	.63	.80	61.0	17.43	.47	.65	.84	54.7	20.24	.49	.69	.89
	4530	73.7	12.86	.46	.65	.83	68.3	15.02	.48	.68	.86	62.5	17.49	.49	.70	.91	56.0	20.30	.51	.75	.97

88 kW - KGA300S4 (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	3775	52.3	9.15	.72	.85	.97	50.4	10.11	.73	.87	.99	48.3	11.18	.74	.88	1.00	46.1	12.39	.76	.91	1.00
	4720	54.8	9.31	.77	.92	1.00	52.8	10.27	.79	.94	1.00	50.5	11.34	.80	.96	1.00	48.2	12.55	.82	.98	1.00
	5665	56.6	9.45	.82	.98	1.00	54.5	10.40	.84	.99	1.00	52.2	11.47	.85	1.00	1.00	50.0	12.69	.87	1.00	1.00
19°C	3775	55.4	9.36	.58	.70	.82	53.4	10.31	.58	.71	.83	51.1	11.39	.59	.72	.85	48.8	12.60	.60	.73	.87
	5665	57.7	9.52	.60	.75	.89	55.6	10.47	.61	.76	.91	53.2	11.55	.63	.78	.93	50.7	12.75	.63	.80	.95
	5665	59.3	9.64	.64	.79	.95	57.1	10.59	.65	.82	.97	54.6	11.66	.66	.83	.99	52.0	12.87	.67	.86	1.00
22°C	3775	58.4	9.57	.44	.56	.68	56.3	10.53	.44	.57	.69	53.9	11.61	.44	.57	.70	51.4	12.82	.45	.58	.71
	4720	60.9	9.74	.44	.59	.72	58.4	10.69	.45	.60	.74	56.1	11.77	.45	.61	.76	53.4	12.98	.47	.62	.77
	5665	62.6	9.87	.46	.63	.77	60.1	10.82	.46	.64	.79	57.5	11.89	.47	.65	.81	54.7	13.10	.48	.66	.84

88 kW - KGA300S4 (2ND STAGE)

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		26.7°C					35°C					43.3°C					51.7°C				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T) 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	3775	74.8	16.17	.76	.91	1.00	70.0	18.83	.79	.94	1.00	64.5	22.05	.82	.98	1.00	58.5	25.93	.86	1.00	1.00
	4720	78.1	16.42	.82	.98	1.00	72.8	19.08	.85	1.00	1.00	67.6	22.33	.89	1.00	1.00	61.8	26.29	.94	1.00	1.00
	5665	80.8	16.64	.88	1.00	1.00	76.0	19.35	.91	1.00	1.00	70.4	22.60	.95	1.00	1.00	64.1	26.54	1.00	1.00	1.00
19°C	3775	79.0	16.50	.60	.74	.88	73.9	19.16	.62	.77	.91	67.9	22.36	.63	.80	.95	61.3	26.21	.66	.84	1.00
	5665	81.9	16.72	.64	.80	.96	76.3	19.38	.65	.83	.99	70.0	22.56	.68	.87	1.00	63.1	26.42	.71	.92	1.00
	5665	84.1	16.90	.67	.86	1.00	78.0	19.54	.69	.89	1.00	71.8	22.73	.72	.94	1.00	64.7	26.58	.75	.99	1.00
22°C	3775	83.2	16.83	.45	.58	.71	77.8	19.51	.45	.60	.74	71.6	22.70	.46	.62	.77	64.7	26.60	.47	.65	.81
	4720	86.2	17.07	.46	.62	.78	80.2	19.73	.47	.64	.81	73.6	22.91	.48	.67	.85	66.6	26.81	.49	.70	.90
	5665	88.4	17.24	.48	.66	.84	82.1	19.89	.49	.68	.87	75.4	23.08	.50	.71	.92	67.8	26.95	.52	.75	.97

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 for wet coil and option/accessory air resistance data.
See for factory installed drive kit specifications.

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
1890	4000	545	0.63	0.85	635	0.82	1.10	715	1.04	1.40	785	1.27	1.70	850	1.49	2.00	910	1.72	2.30
2005	4250	555	0.67	0.90	645	0.93	1.25	725	1.16	1.55	795	1.38	1.85	855	1.60	2.15	915	1.83	2.45
2125	4500	565	0.75	1.00	655	1.01	1.35	730	1.23	1.65	800	1.49	2.00	865	1.75	2.35	925	1.98	2.65
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 for wet coil and option/accessory air resistance data.
See for factory installed drive kit specifications.

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
1890	4000	965	1.94	2.60	1020	2.16	2.90	1070	2.42	3.25	1115	2.65	3.55	1160	2.87	3.85	1205	3.09	4.15
2005	4250	970	2.09	2.80	1025	2.31	3.10	1075	2.57	3.45	1120	2.80	3.75	1165	3.06	4.10	1210	3.32	4.45
2125	4500	980	2.24	3.00	1030	2.46	3.30	1080	2.72	3.65	1130	3.02	4.05	1175	3.24	4.35	1215	3.50	4.70
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				Gas Heat Exchanger						Economizer		Filters				Horizontal Roof Curb			
		180		210, thru 300		Low/ Standard Heat		Medium Heat		High Heat				MERV 8		MERV 13		180 thru 240		300	
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.	Pa	in. w.g.	Pa	in. w.g.
1890	4000	5	0.02	10	0.04	10	0.04	15	0.06	- - -	- - -	- - -	- - -	10	0.04	15	0.06	15	0.06	- - -	- - -
2005	4250	5	0.02	10	0.04	10	0.04	15	0.06	- - -	- - -	- - -	- - -	10	0.04	15	0.06	17	0.07	- - -	- - -
2125	4500	5	0.02	12	0.05	12	0.05	17	0.07	22	0.09	- - -	- - -	10	0.04	17	0.07	17	0.07	5	0.02
2240	4750	5	0.02	12	0.05	12	0.05	20	0.08	25	0.10	- - -	- - -	10	0.04	17	0.07	20	0.08	7	0.03
2360	5000	5	0.02	12	0.05	12	0.05	22	0.09	27	0.11	- - -	- - -	12	0.05	17	0.07	20	0.08	7	0.03
2475	5250	5	0.02	15	0.06	15	0.06	25	0.10	30	0.12	- - -	- - -	12	0.05	17	0.07	22	0.09	10	0.04
2595	5500	5	0.02	17	0.07	15	0.06	25	0.10	32	0.13	- - -	- - -	12	0.05	17	0.07	25	0.10	10	0.04
2715	5750	7	0.03	17	0.07	15	0.06	27	0.11	35	0.14	- - -	- - -	12	0.05	20	0.08	27	0.11	12	0.05
2830	6000	7	0.03	20	0.08	17	0.07	30	0.12	37	0.15	- - -	- - -	12	0.05	20	0.08	27	0.11	15	0.06
2950	6250	7	0.03	20	0.08	17	0.07	30	0.12	40	0.16	2	0.01	12	0.05	20	0.08	30	0.12	17	0.07
3065	6500	7	0.03	22	0.09	20	0.08	32	0.13	42	0.17	5	0.02	12	0.05	20	0.08	32	0.13	20	0.08
3185	6750	10	0.04	25	0.10	20	0.08	35	0.14	45	0.18	7	0.03	12	0.05	20	0.08	35	0.14	20	0.08
3305	7000	10	0.04	25	0.10	22	0.09	37	0.15	47	0.19	10	0.04	15	0.06	20	0.08	37	0.15	22	0.09
3420	7250	10	0.04	27	0.11	22	0.09	40	0.16	50	0.20	12	0.05	15	0.06	22	0.09	40	0.16	25	0.10
3540	7500	12	0.05	30	0.12	25	0.10	42	0.17	52	0.21	15	0.06	15	0.06	22	0.09	42	0.17	27	0.11
3775	8000	12	0.05	32	0.13	27	0.11	47	0.19	60	0.24	22	0.09	15	0.06	22	0.09	47	0.19	32	0.13
4010	8500	15	0.06	37	0.15	30	0.12	50	0.20	65	0.26	27	0.11	15	0.06	22	0.09	52	0.21	37	0.15
4245	9000	17	0.07	40	0.16	32	0.13	57	0.23	72	0.29	35	0.14	17	0.07	25	0.10	60	0.24	42	0.17
4485	9500	20	0.08	45	0.18	35	0.14	62	0.25	80	0.32	40	0.16	17	0.07	25	0.10	65	0.26	47	0.19
4720	10 000	20	0.08	50	0.20	40	0.16	67	0.27	87	0.35	47	0.19	17	0.07	27	0.11	72	0.29	52	0.21
4955	10 500	22	0.09	55	0.22	42	0.17	75	0.30	94	0.38	55	0.22	17	0.07	27	0.11	77	0.31	60	0.24
5191	11 000	27	0.11	60	0.24	45	0.18	77	0.31	99	0.40	62	0.25	20	0.08	27	0.11	85	0.34	67	0.27

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			
	L/s	cfm	RTD11-185 Step-Down		FD11-185 Flush	
			m	ft.	m	ft.
156 180	2645	5600	12 - 15	39 - 49	9 - 11	28 - 37
	2735	5800	13 - 16	42 - 51	9 - 12	29 - 38
	2830	6000	13 - 16	44 - 54	12 - 15	40 - 50
	2925	6200	14 - 17	45 - 55	13 - 16	42 - 51
	3020	6400	14 - 17	46 - 55	13 - 16	43 - 52
	3115	6600	14 - 17	47 - 56	14 - 17	45 - 56

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

Model No.	Air Volume		[1] Effective Throw Range			
	L/s	cfm	RTD11-185 Step-Down		FD11-185 Flush	
			m	ft.	m	ft.
210 240 300	3400	7200	10 - 12	33 - 38	8 - 11	26 - 35
	3490	7400	11 - 12	35 - 40	9 - 11	28 - 37
	3585	7600	11 - 12	36 - 41	9 - 11	29 - 38
	3680	7800	12 - 13	38 - 43	12 - 15	40 - 50
	3775	8000	12 - 13	39 - 44	13 - 16	42 - 51
	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

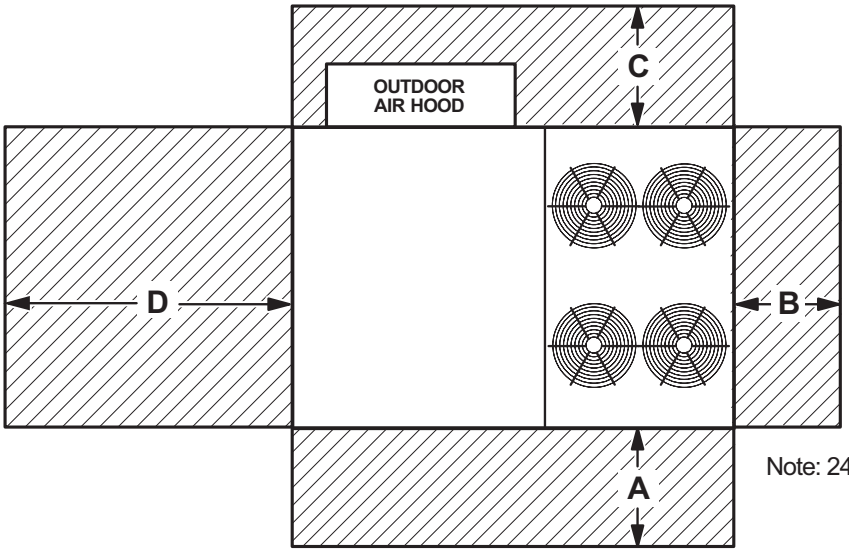
ELECTRICAL DATA

		KGA180S4			KGA210S4			KGA240S4			KGA300S4		
[1] Voltage - 50hz - 3 phase with neutral		**380/4230V**			**380/4230V**			**380/4230V**			**380/4230V**		
Compressor 1	Rated Load Amps	12.2			9.7			10.6			12.2		
	Locked Rotor Amps	101			64			74			101		
Compressor 2	Rated Load Amps	12.2			9.7			10.6			12.2		
	Locked Rotor Amps	101			64			74			101		
Compressor 3	Rated Load Amps	- - -			9.7			10.6			12.2		
	Locked Rotor Amps	- - -			64			74			101		
Outdoor Fan Motors	Number of motors	2			3			4			4		
	Full Load Amps	1.3			1.3			1.3			1.3		
	(total)	(2.6)			(3.9)			(5.2)			(5.2)		
Power Exhaust With (2) 0.25 kW (0.33 HP)	Full Load Amps	1.3			1.3			1.3			1.3		
	(total)	(2.6)			(2.6)			(2.6)			(2.6)		
Indoor Blower Motor	kW	2.2	3.7	5.6	2.2	3.7	5.6	3.7	5.6	7.5	3.7	5.6	7.5
	Full Load Amps	5	7.8	11.8	5	7.8	11.8	7.8	11.8	15.2	7.8	11.8	15.2
[1] Maximum Overcurrent Protection	Unit Only	45	50	50	50	50	50	50	60	70	60	60	70
	With (2) 0.25 kW (0.33 HP) Power Exhaust	50	50	50	50	50	60	60	60	70	60	70	70
[2] Minimum Circuit Ampacity	Unit Only	37	40	44	41	44	49	48	52	57	53	57	61
	With (2) 0.25 kW (0.33 HP) Power Exhaust	39	42	46	44	46	51	51	55	59	56	60	64

[1] Extremes of operating range are plus and minus 10% of line voltage.
[2] Heating / Air Conditioning / Refrigeration (HACR) type breaker or fuse.
[3] Refer to local codes to determine wire, fuse and disconnect size requirements.

UNIT CLEARANCES - MM (INCHES)

Unit With Economizer



Note: 240-300 sizes shown

[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
Clearance to Combustibles	914	36	25	1	25	1	25	1	
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.

Clearance to Combustibles - Required clearance to combustible material.

Minimum Operation Clearance - Required clearance for proper unit operation.

OPTIONAL CONVENTIONAL TEMPERATURE CONTROL SYSTEMS - FIELD INSTALLED

COMMERCIAL TOUCHSCREEN THERMOSTAT



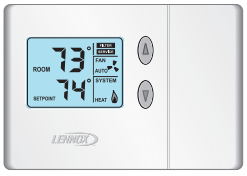
Intuitive Touchscreen Interface - **Two Stage Heating / Two Stage Cooling Conventional or Heat Pump** - Seven Day Programmable - Four Time Periods/ Day - Economizer Output - Title 24 Compliant - ENERGY STAR® Qualified - Backlit Display - Automatic Changeover	C0STAT02AE1L **(14W81)**
Sensors For Touchscreen 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	
180, 210	71	78	81	81	76	71	63	86
240, 300	80	83	87	88	84	80	71	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	841	1855	932	2055
180 Max. Unit	989	2180	1080	2380
210 Base Unit	907	2000	998	2200
210 Max. Unit	1055	2325	1145	2525
240 Base Unit	1030	2270	1120	2470
240 Max. Unit	1177	2595	1268	2795
300 Base Unit	1030	2270	1120	2470
300 Max. Unit	1177	2595	1268	2795

OPTIONS / ACCESSORIES

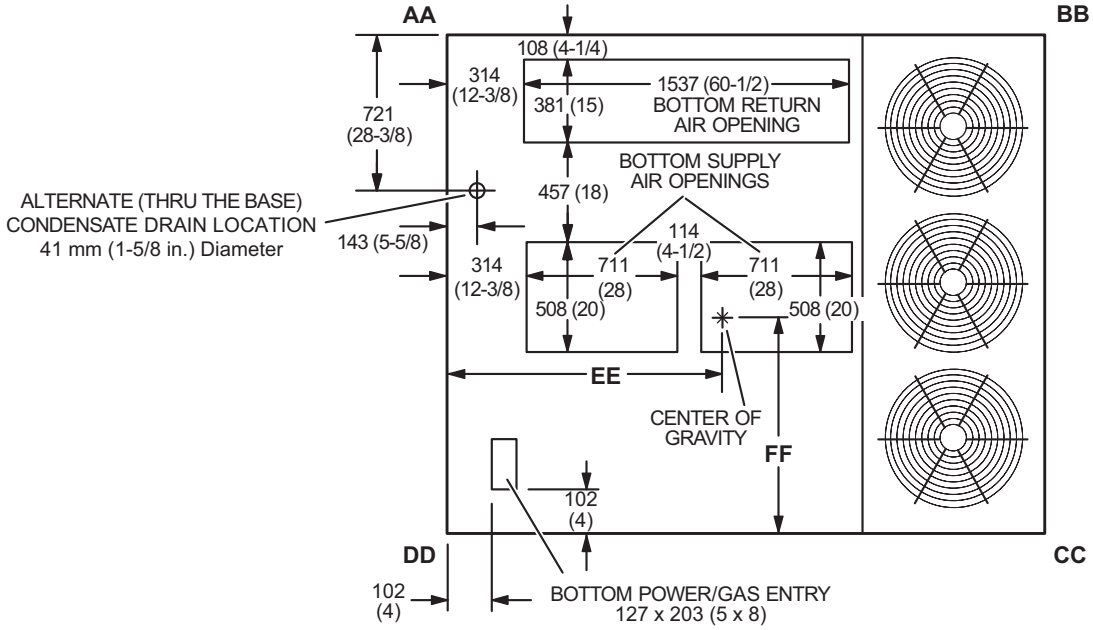
Description		Shipping Weight	
		kg	lbs.
CEILING DIFFUSERS			
Step-Down			
	RTD11-185	178	392
	RTD11-275	183	403
Flush			
	FD11-185	131	289
	FD11-275	165	363
Transitions			
	LASRT18	36	80
	LASRT21/24	34	75
ECONOMIZER / OUTDOOR AIR / EXHAUST			
Economizer			
Economizer Dampers	K1ECON20C-1	39	86
Barometric 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
GAS HEAT EXCHANGER (NET WEIGHT)			
	Medium Heat (adder over standard heat)	8	18
	High Heat (adder over standard heat)	29	64
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			
356 mm height	LARMF18/36-14	73	160
610 mm height	LARMF18/36-24	100	220
Horizontal			
660 mm height	LARMFH18/24-26	191	420
940 mm height	LARMFH18/24-37	263	580
762 mm height	LARMFH30/36-30	202	445
1041 mm height	LARMFH30/36-41	329	725
PACKAGING			
LTL Packaging (less than truck load)		141	310

DIMENSIONS - MM (INCHES) KGA180, KGA210

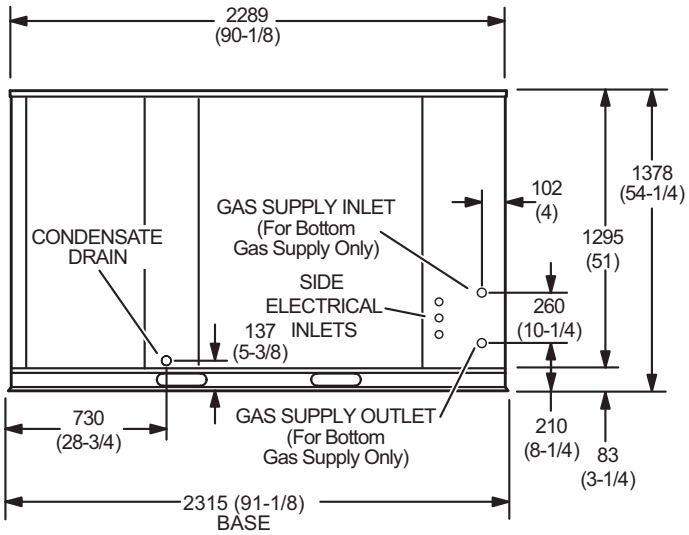
CORNER WEIGHTS									CENTER OF GRAVITY			
Model No.	AA		BB		CC		DD			EE	FF	
	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	mm	in.	mm	in.
KGA180 Base Unit	201	427	183	387	234	495	258	546	1302	51-1/4	1016	40
KGA180 Max. Unit	259	550	220	467	252	534	297	629	1257	49-1/2	1080	42-1/2
KGA210 Base Unit	214	454	192	408	254	539	283	600	1295	51	997	39-1/4
KGA210 Max. Unit	273	578	230	487	272	576	323	684	1251	49-1/4	1060	41-3/4

Base Unit - The unit with NO INTERNAL OPTIONS.

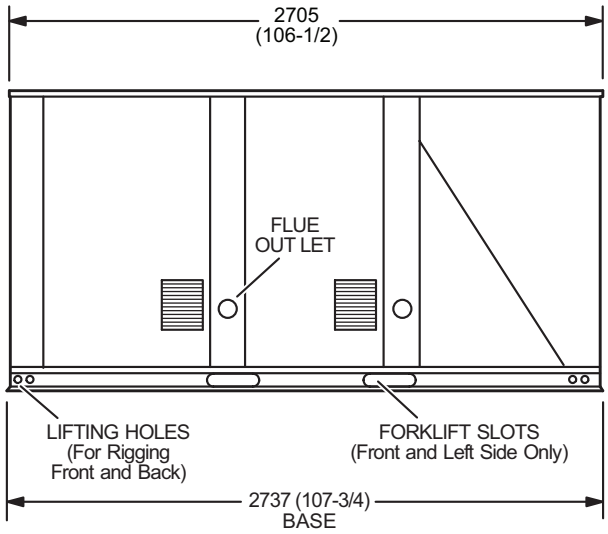
Max. Unit - The unit with ALL INTERNAL OPTIONS Installed. (Economizer, Standard Static Power Exhaust Fans, Controls, etc.). Does not include accessories external to unit or high static power exhaust.



TOP VIEW



END VIEW



SIDE VIEW

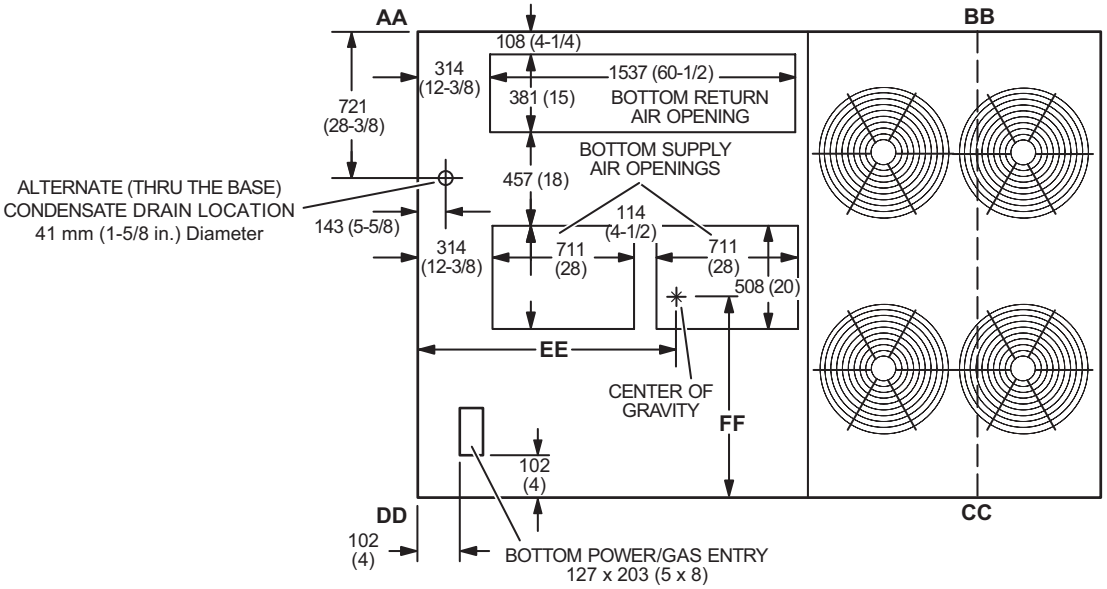
DIMENSIONS - MM (INCHES) KGA240, KGA300

CORNER WEIGHTS | **CENTER OF GRAVITY**

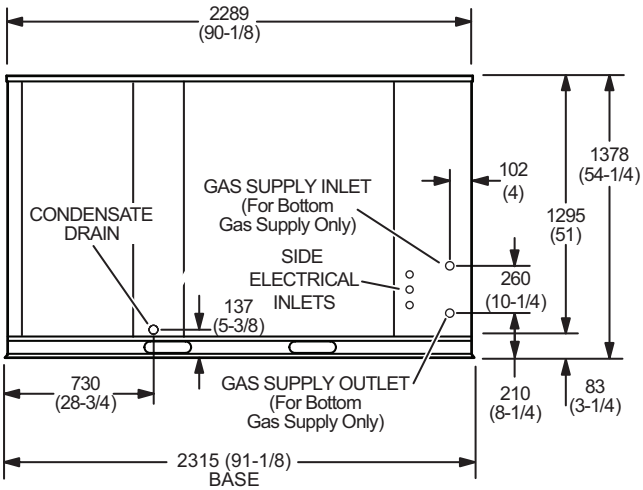
Model No.	AA		BB		CC		DD		EE		FF	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	in.	mm	in.	mm
KGA240 Base Unit	462	218	472	223	676	319	660	312	54-1/2	1384	37-1/2	953
KGA240 Max. Unit	577	272	548	259	716	338	754	356	52-1/2	1334	39-1/2	1003
KGA300 Base Unit	462	218	472	223	676	319	660	312	54-1/2	1384	37-1/2	953
KGA300 Max. Unit	577	272	548	259	716	338	754	356	52-1/2	1334	39-1/2	1003

Base Unit - The unit with NO INTERNAL OPTIONS.

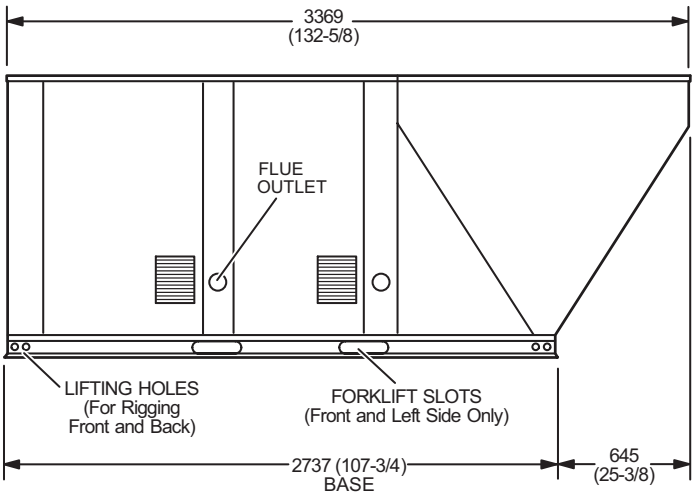
Max. Unit - The unit with ALL INTERNAL OPTIONS Installed. (Economizer, Standard Static Power Exhaust Fans, Controls, etc.). Does not include accessories external to unit or high static power exhaust.



TOP VIEW



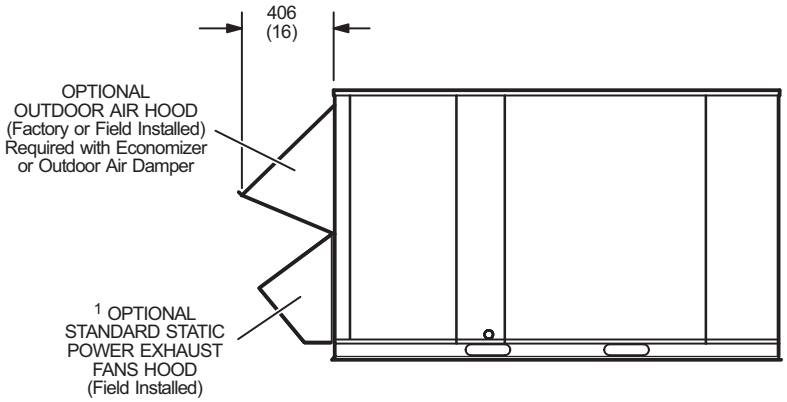
END VIEW



SIDE VIEW

ACCESSORY DIMENSIONS - MM (INCHES)

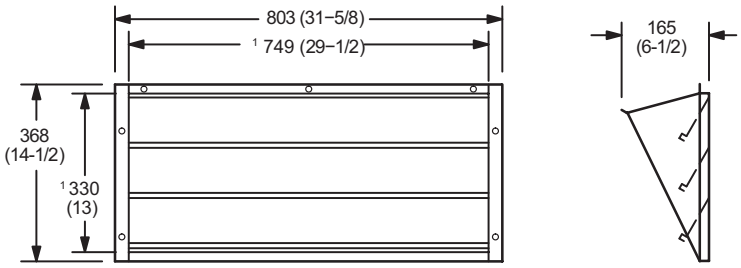
OPTIONAL OUTDOOR AIR HOOD DETAIL WITH STANDARD STATIC POWER EXHAUST FANS



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

HORIZONTAL BAROMETRIC RELIEF DAMPERS

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

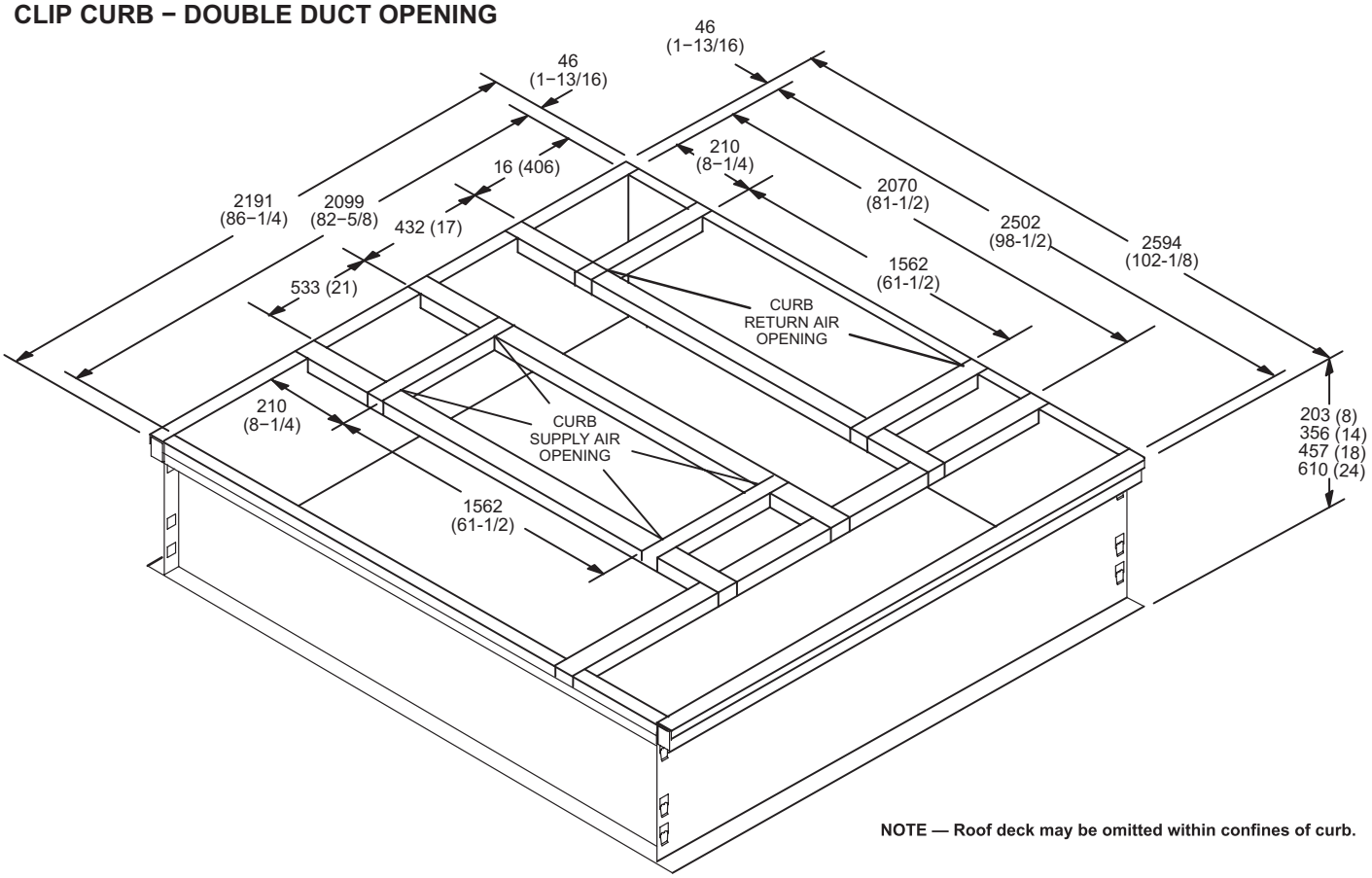


FRONT VIEW **SIDE VIEW**

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

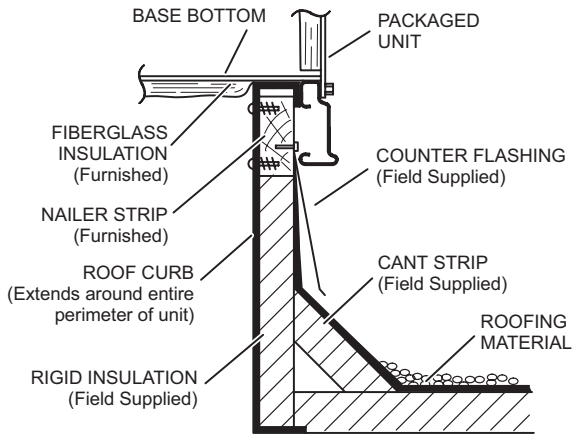
ACCESSORY DIMENSIONS - MM (INCHES)

CLIP CURB − DOUBLE DUCT OPENING

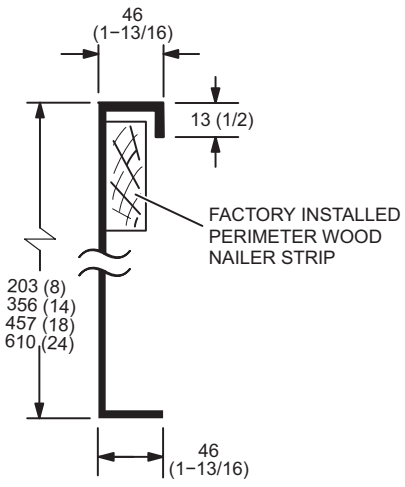


NOTE — Roof deck may be omitted within confines of curb.

TYPICAL FLASHING DETAIL FOR ROOF CURB

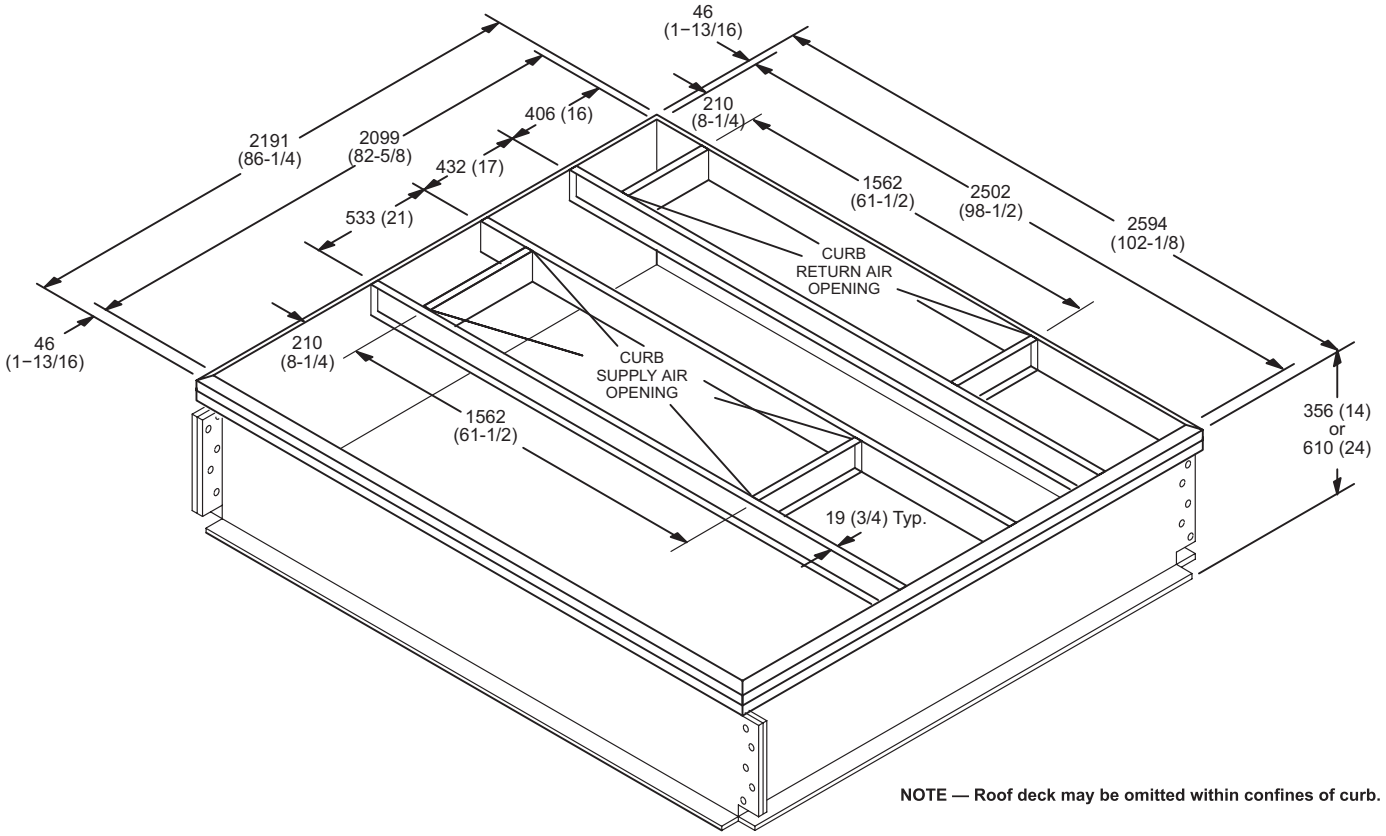


DETAIL ROOF CURB



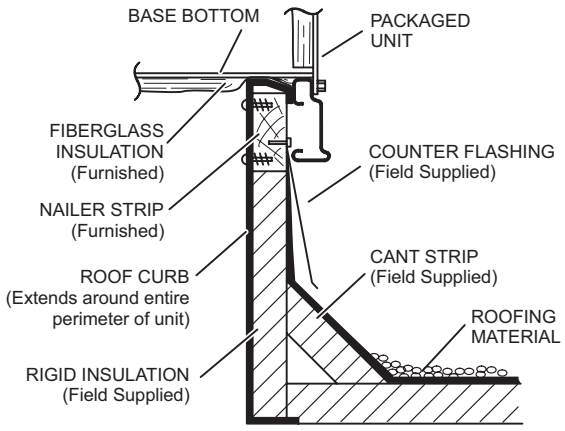
ACCESSORY DIMENSIONS - MM (INCHES)

STANDARD ROOF CURBS – DOUBLE DUCT OPENING

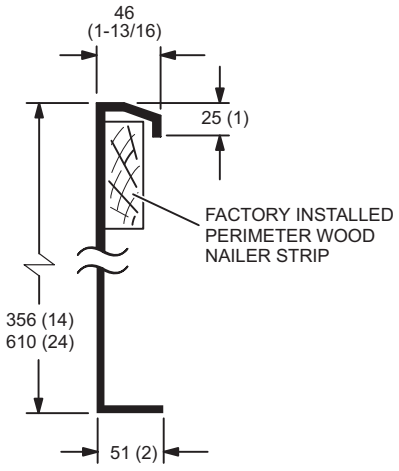


NOTE — Roof deck may be omitted within confines of curb.

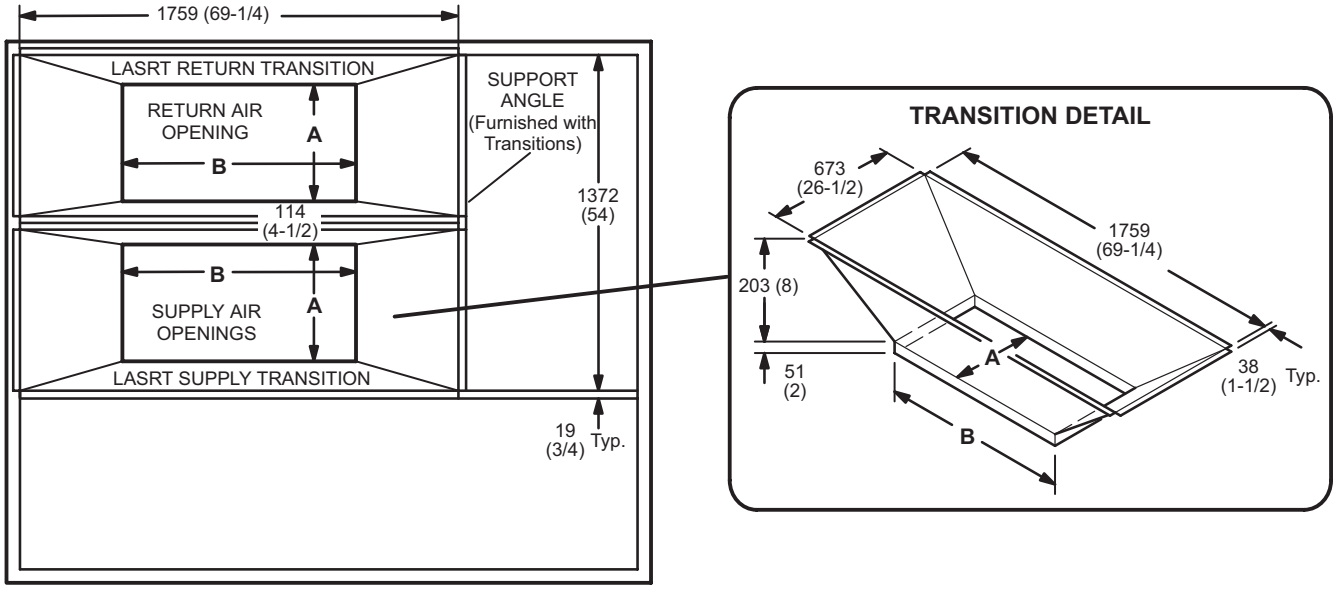
TYPICAL FLASHING DETAIL FOR ROOF CURB



DETAIL ROOF CURB

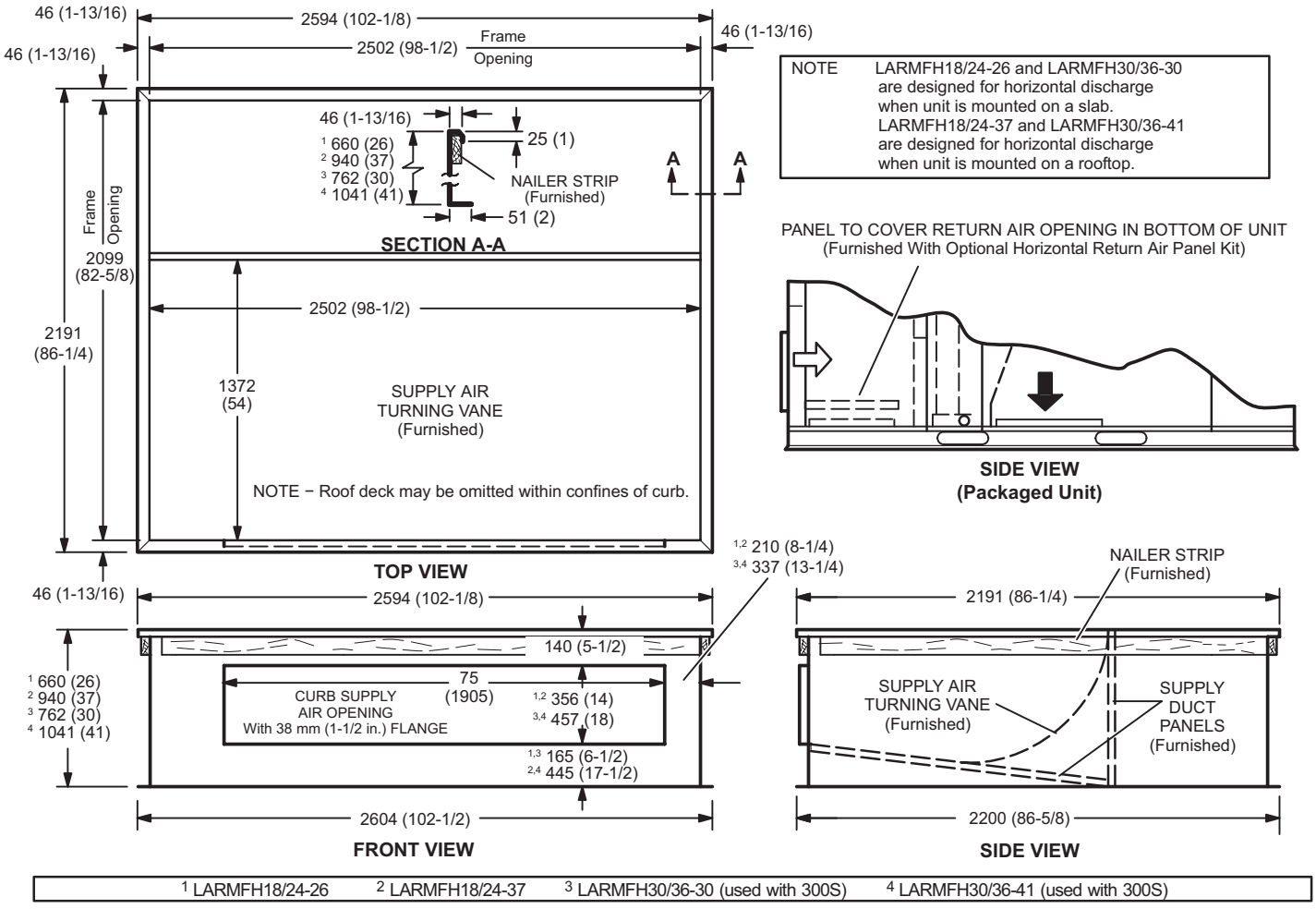


ROOF CURBS WITH SUPPLY & RETURN AIR TRANSITIONS FOR CEILING DIFFUSERS



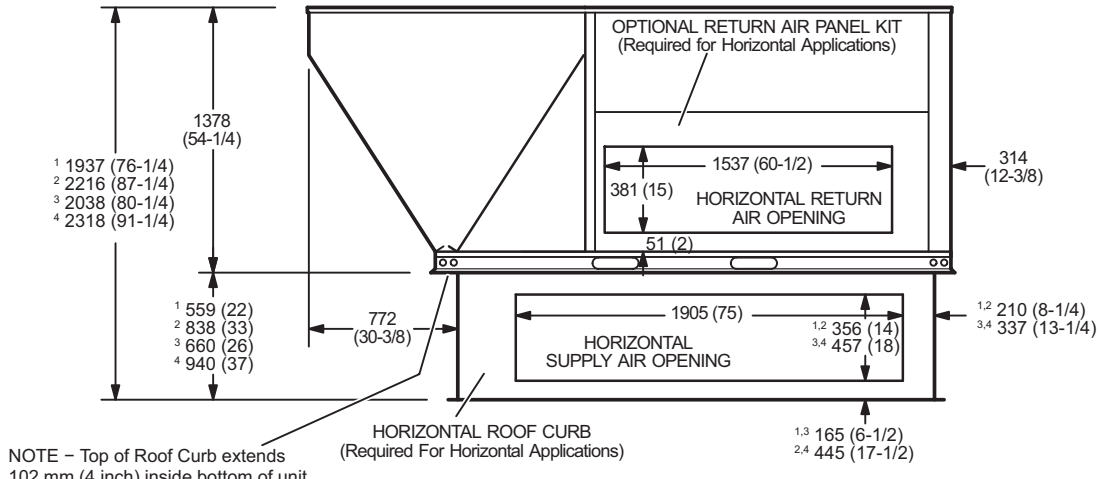
TOP VIEW

HORIZONTAL ROOF CURBS − Requires Optional Horizontal Return Air Panel Kit



1 LARMFH18/24-26 2 LARMFH18/24-37 3 LARMFH30/36-30 (used with 300S) 4 LARMFH30/36-41 (used with 300S)

HORIZONTAL SUPPLY AND RETURN AIR OPENINGS WITH HORIZONTAL ROOF CURB

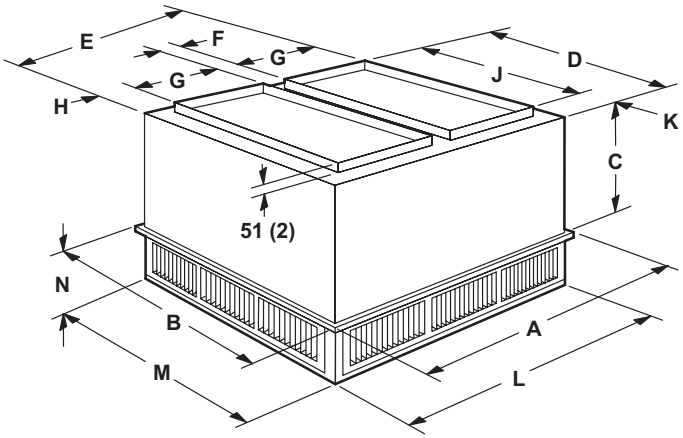


1 LARMFH18/24-26
2 LARMFH18/24-37
3 LARMFH30/36-30 (used with 300S Models Only)
4 LARMFH30/36-41 (used with 300S Models Only)

ACCESSORY DIMENSIONS - MM (INCHES)

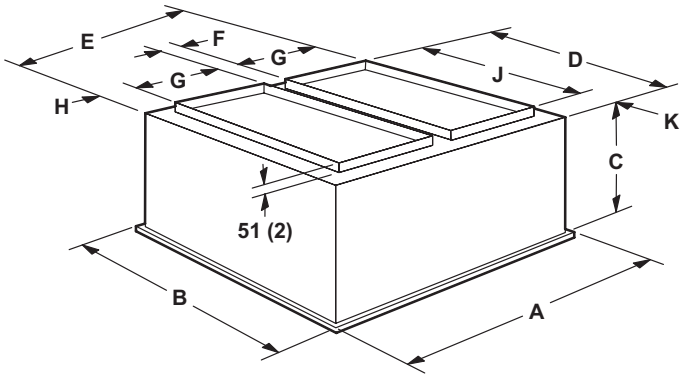
COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

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

Visit us at www.lennox.com

For the latest technical information, www.lennoxcommercial.com

Contact us at 1-800-4-LENNOX

NOTE - Due to Lennox' ongoing commitment to quality, Specifications, Ratings and Dimensions subject to change without notice and without incurring liability.
Improper installation, adjustment, alteration, service or maintenance can cause property damage or personal injury.
Installation and service must be performed by a qualified installer and servicing agency.

©2012 Lennox Industries, Inc.