

PRODUCT SPECIFICATIONS

Bulletin No. ZGA-036-060 (03/2014)

Z-SERIES™
DESIGNED TO FIT. FAST.

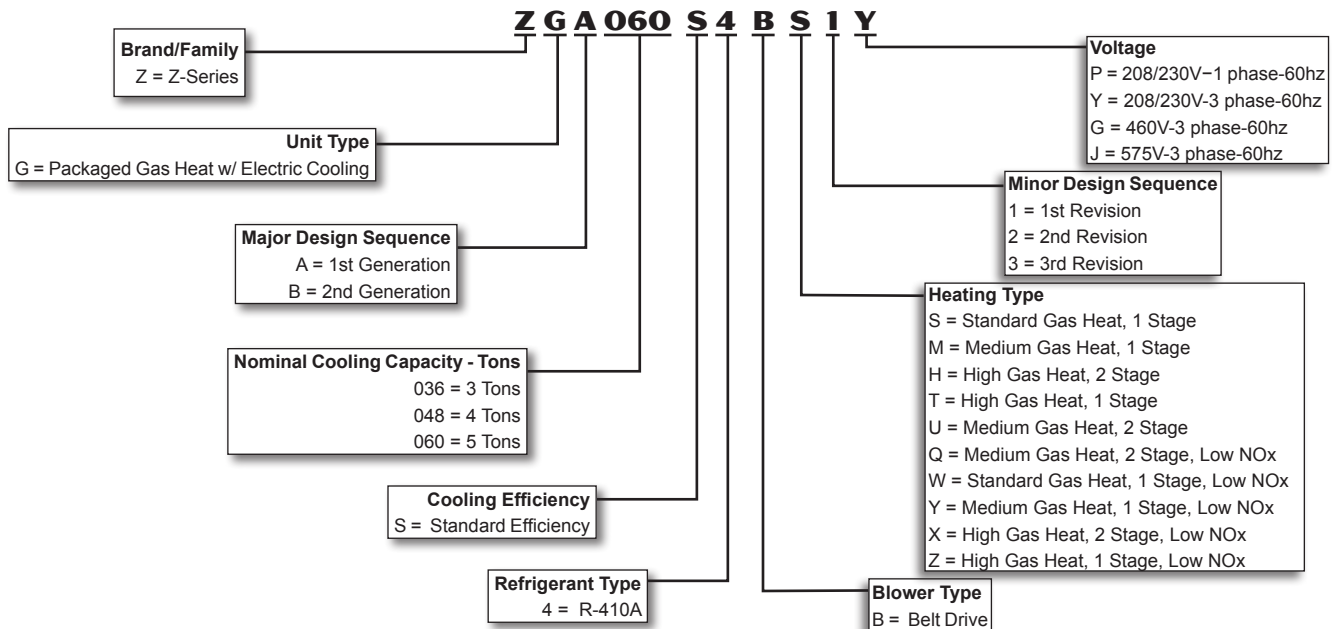


**ASHRAE 90.1
COMPLIANT**

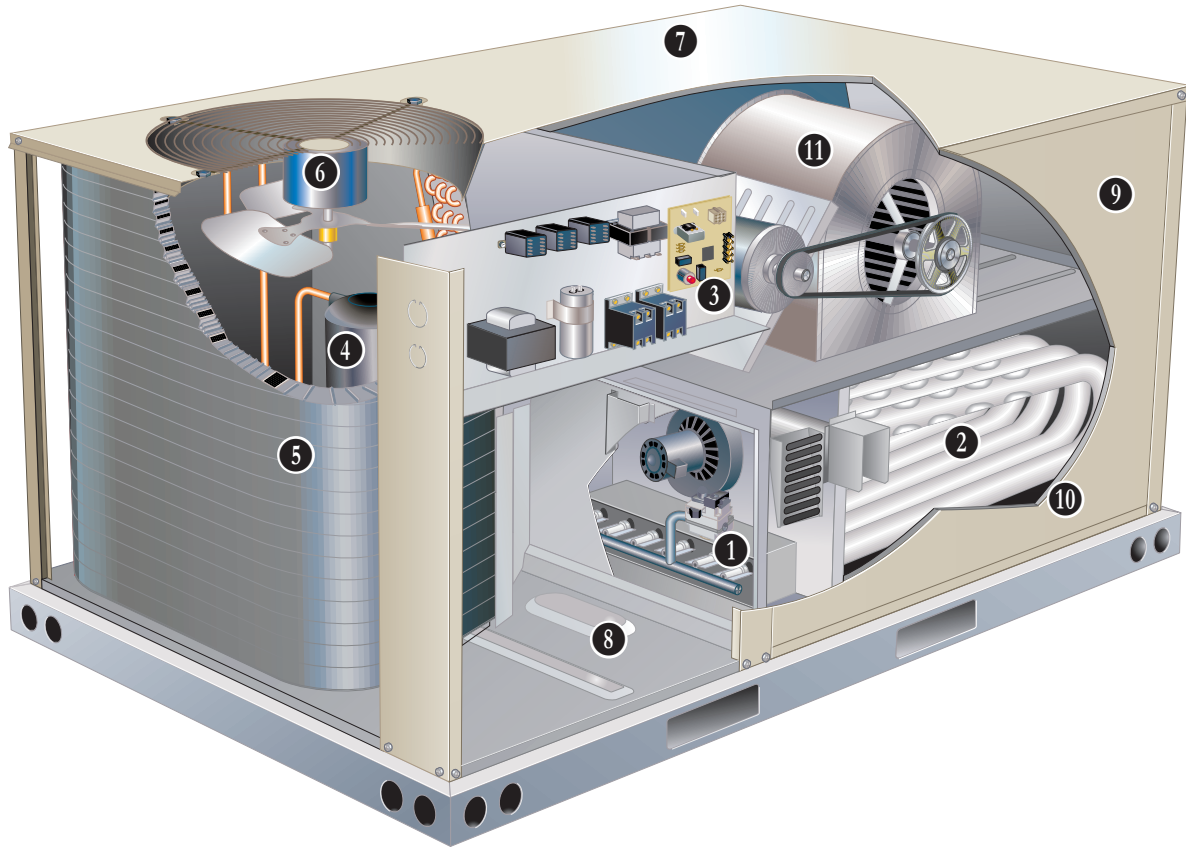
3 to 5 Tons

Net Cooling Capacity – 34,600 to 57,000 Btuh
Gas Input Heat Capacity – 65,000 to 150,000 Btuh

MODEL NUMBER IDENTIFICATION



FEATURES AND BENEFITS



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

Z-Series™ rooftop units feature:

- **Quick and Easy Retrofit** - Fast installation for replacement of many existing rooftop units - fits high volume competitor's roof curbs.
- **R-410A Refrigerant** - Environmentally friendly.
- **Scroll Compressors** - Single speed scroll compressor is furnished on all models.
- **Eco-last™ Coil System** - Smaller, lighter condenser coil.
- **High Pressure Switch** - Protects compressor.
- **Belt Drive Blower Motor** - To maximize air performance.
- **Downflow or Horizontal Airflow** - Easy field conversion.
- **Two Fork Lift Slots on Three Sides** - Easy to pick up and transport units from almost any angle.
- **Corrosion-Resistant Drain Pan** - Provides application flexibility, durability, improved serviceability and meets ASHRAE 62.1 requirements for drain pan slope.

FEATURES AND BENEFITS

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APPROVALS

AHRI Certified to AHRI Standard 210/240-2008.

CSA listed.

Units are Certified by CSA.

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

All models are ASHRAE 90.1 compliant.

ISO 9001 Registered Manufacturing Quality System.

Models equipped with low NO_x gas heat meet the California Nitrogen Oxides (NO_x) Standards that apply in the South Coast Air Quality Management District and the San Francisco Bay Area Air Quality Management District.

WARRANTY

Limited ten years aluminized heat exchanger.

Limited five years on compressors.

Limited three years on the Eco-last™ Coil System.

Limited five years Optional High Performance Economizers.

Limited one year all other covered components.

HEATING SYSTEM

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

② **Heat Exchanger**
Tubular construction, aluminized steel, life cycle tested.

③ **Electronic Pilot Ignition**
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 LED to indicate status and aid in troubleshooting.

Watchguard circuit on module automatically resets ignition controls after one hour of continuous thermostat demand after unit lockout, eliminating nuisance service calls. 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.

Low NO_x Models

All models are available in low NO_x versions.

Required Selections

Gas Input Choice - Order one:

- Standard Gas Heat (1 Stage) 65,000 Btuh
- Medium Gas Heat (1 Stage) 108,000 Btuh
- Medium Gas Heat (2 Stage) 75,600/108,000 Btuh
- High Gas Heat (1 Stage) 150,000 Btuh
- High Gas Heat (2 Stage) 105,000/150,000 Btuh

Standard or Low NO_x

Specify conventional gas heat or Low NO_x option.

Options/Accessories

Field Installed

LPG/Propane Kits

Conversion kit to field change over units from Natural Gas to LPG/Propane.

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.

FEATURES AND BENEFITS

COOLING SYSTEM

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

System can operate from 35°F to 125°F without any additional controls.

R-410A Refrigerant

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

Unit is factory pre-charged with refrigerant. See Specifications Table.

4 Compressor

Scroll compressors for high performance, reliability and quiet operation.

Resiliently mounted on rubber grommets for quiet operation.

Compressor Crankcase Heater

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

High Pressure Switch

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

Automatic reset.

Filter/Drier

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

5 Eco-last™ Coil System

Condenser coil features lightweight, all aluminum brazed fin construction.

Constructed of three components:

a flat extrusion tube, fins in-between the flat extrusion tube and two refrigerant manifolds.

Eco-last™ Coil System Features:

- Improved heat transfer performance due to high primary surface area (flat tubes) versus secondary surface (fins).
- Smaller internal volume (reduced refrigerant charge).
- High durability (all aluminum construction).
- Fewer brazed joints.
- Compact design (reduces unit weight).
- Easy maintenance/cleaning.

Mounting brackets with rubber inserts secure coil to unit providing vibration dampening and corrosion protection.

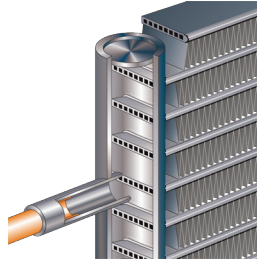
Evaporator Coil

Copper tube construction, enhanced rippled-edge aluminum fins, flared shoulder tubing connections, silver soldered construction for improved heat transfer. Factory leak tested. Cross row circuiting with rifled tubing optimizes both sensible and latent cooling capacity.

Condensate Drain Pan

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

End drain connection.



6 Outdoor Coil Fan Motor

Thermal overload protected, totally enclosed, permanently lubricated bearings, shaft down, fan guard mount.

Outdoor Coil Fan Guard

PVC coated fan guard furnished.

Required Selections

Cooling Capacity

Specify nominal cooling capacity of the unit.

Options/Accessories

Field Installed

Condensate Drain Trap

Field installed only.

Available in copper or PVC.

Drain Pan Overflow Switch

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

Low Ambient Kit

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

FEATURES AND BENEFITS

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 fork slots.

Raised edges around duct and power entry openings in the bottom of the unit provide additional protection against water entering the building.

Airflow Choice

Units are shipped in downflow (vertical) configuration, can be field converted to horizontal airflow configuration without the need of a kit.

8 Power Entry

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

Optional Bottom Power Entry Kit is available.

9 Exterior Panels

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

10 Insulation

All panels adjacent to conditioned air are fully insulated with non-hygroscopic fiberglass insulation.

Access Panels

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

Options/Accessories

Factory Installed

Corrosion Protection

A completely flexible immersed coating with an electro-deposited 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

Outdoor Corrosion Protection:

- Coated coil

Field Installed

Coil/Hail Guards

Constructed of heavy gauge steel, painted to match cabinet, helps protect outdoor coil from damage on all three sides of cabinet.

CONTROLS

Unit Control

All control voltage is provided via a 24V (secondary) transformer with inline fuse protection.

Heat/Cool Staging

Capable of up to 2 heat / 2 cool staging with a thermostat.

Night Setback Mode

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

Smoke Detectors

NOTE - Smoke detectors are not available and must be field provided by installer.

FEATURES AND BENEFITS

11 BLOWER

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

Motor

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

Supply Air Blower

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

Equipped with ball bearings and adjustable pulley (allows speed change).

Required Selections

Supply Air Blower

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

INDOOR AIR QUALITY

Air Filters

Disposable 2 inch filters furnished as standard.

Options/Accessories

Field Installed

Indoor Air Quality (CO₂) Sensor

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

ELECTRICAL

Marked & Color-Coded Wiring

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

Electrical Plugs

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

Required Selections

Voltage Choice

Specify when ordering base unit.

ECONOMIZER OPTIONS

Factory or Field Installed

**Economizer (Downflow or Horizontal)
(Standard and High Performance Common Features)**

Outdoor Air Hood is furnished.

Economizer includes Barometric Relief Dampers with Exhaust Hood.

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

Single Sensible Temperature Control is furnished with the economizer

Outdoor air sensor enables Economizer if the outdoor temperature is less than the setpoint of the control.

Demand Control Ventilation (DCV) ready using optional CO₂ sensors.

NOTE - Horizontal Economizer is field installed only.

Standard Economizer Features (Not for Title 24)

Gear-driven action, return air and outdoor air dampers, plug-in connections to unit, neoprene seals, 24-volt, fully-modulating spring return motor.

Standard Economizer Control Module

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



Economizer Controls:

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

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

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

High Performance Economizer Features

Approved for California Title 24 building standards. ASHRAE 90.1-2010 compliant.

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

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

High Performance Economizer Control Module

Module provides inputs and outputs to control economizer based on parameter settings.



Module automatically detects sensors by polling to determine which sensors are installed in system.

Module displays any alarm messages (fault detection and diagnostics) as an aid in troubleshooting.

Non-volatile memory retains parameter settings in case of power failure.

Keypad with four navigation buttons and LCD screen is furnished for setting economizer parameters.

- Menu Up/Exit (↑) button returns to the main menu.
- Arrow Up (▲) button moves to the previous or next parameter within the selected menu.
- Arrow Down (▼) button moves to the next parameter within the selected menu.
- Select (enter) (↵) button confirms parameter selection.

Main Menu Structure:

- STATUS (economizer and system operation status)
- SETPOINTS (settings for various setpoint parameters)
- SYSTEM SETUP (settings/information about the system)
- ADVANCED SETUP (freeze protection, CO₂ settings, stage 3 delay and additional calibration settings)
- CHECKOUT (damper positions)
- ALARMS (output signal that can be configured for remote alarm monitoring)

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

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

OPTIONS / ACCESSORIES

ECONOMIZER OPTIONS

(continued)

Field Installed

Single Enthalpy Temperature Control

(Not for Title 24)

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

EXHAUST OPTIONS

Field Installed

Power Exhaust Fan - Downflow or Horizontal

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

Fan is 12 in. diameter with 5 fan blades. 1/2 hp motor.

OUTDOOR AIR OPTIONS

Field Installed

Outdoor Air Dampers - Downflow

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

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

Manual model features a slide damper. Maximum mixed air temperature in cooling mode: 100°F.

Outdoor Air Hood is furnished.

ROOF CURBS

Hybrid Roof Curbs, Downflow

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

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

Curb can also be fastened together with furnished hardware.

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

Adaptor Curbs (not shown)

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

CEILING DIFFUSERS

Ceiling Diffusers

(Flush and Step-Down)

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

Transitions (Supply and Return)

NOTE - Ceiling Diffuser Transitions are not furnished and must be field fabricated.

OPTIONS / ACCESSORIES

Item		Catalog No.	036	048	060
COOLING SYSTEM					
Condensate Drain Trap	PVC - C1TRAP20AD2	76W26	X	X	X
	Copper - C1TRAP10AD2	76W27	X	X	X
Drain Pan Overflow Switch	Z1SNSR90A1	99W59	X	X	X
Low Ambient Kit	Z1SNSR33A-1	99W67	X	X	X
HEATING SYSTEM					
Gas Heat Input	Standard 1 Stage - 65 kBtuh input	Factory	O	O	O
	Medium 1 Stage - 108 kBtuh input	Factory	O	O	O
	Medium 2 Stage - 75/108 kBtuh input	Factory	O	O	O
	High 1 Stage - 150 kBtuh input	Factory		O	O
	High 2 Stage - 105/150 kBtuh input	Factory		O	O
	LPG/Propane Conversion Kits	For 1 Stage models - Z1PROP10A-1	10B61	X	X
	For 2 Stage models - Z1PROP20A-1	10B65	X	X	X
Vertical Vent Extension Kit	C1EXTN20FF1	31W62	X	X	X
BLOWER - SUPPLY AIR					
Motors	¹ Belt Drive - 1 hp Standard Efficiency	Factory	O	O	O
	Belt Drive - 1.5 hp Standard Efficiency	Factory	O	O	O
Drive Kits See Blower Data Tables for selection	Kit #Z01 - 678-1035 rpm	Factory	O		
	Kit #Z02 - 803-1226 rpm	Factory		O	
	Kit #Z03 - 906-1383 rpm	Factory			O
	Kit #Z04 - 964-1471 rpm	Factory	O		
	² Kit #Z05 - 1098-1490 rpm	Factory		O	
	² Kit #Z06 - 1262-1634 rpm	Factory			O
CABINET					
Coil/Hail Guards	Z1GARD10A-1	97W53	X	X	X
Corrosion Protection		Factory	O	O	O
ELECTRICAL					
Voltage 60 hz	208/230V - 1 phase	Factory	O	O	O
	208/230V - 3 phase	Factory	O	O	O
	460V - 3 phase	Factory	O	O	O
	575V - 3 phase	Factory	O	O	O
Bottom Power Entry Kit	Z1PEKT01A-1	98W08	X	X	X

¹ 1 hp blower motor is not available for 208/230V-1ph applications.

² 1.5 hp motor is required with Z05 and Z06 drive kits.

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

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

O - Configure to Order (Factory Installed)

X - Field Installed.

OPTIONS / ACCESSORIES

Item		Catalog No.	036	048	060
ECONOMIZERS					
Standard Economizer With Outdoor Air Hood (Not for Title 24)					
Standard Economizer (Downflow)	Z1ECON30A-1	98W09	OX	OX	OX
Includes Barometric Exhaust Dampers and Exhaust Hood					
Standard Economizer (Horizontal)	Z1ECON16A-1	98W68	X	X	X
Includes Barometric Exhaust Dampers and Exhaust Hood					
Standard Economizer Controls (Not for Title 24)					
Single Enthalpy Control	C1SNSR64FF1	53W64	X	X	X
High Performance Economizer With Outdoor Air Hood (Approved for California Title 24 Building Standards)					
High Performance Economizer (Downflow)	Z1ECON32A-1	10U51	OX	OX	OX
Includes Barometric Exhaust Dampers and Exhaust Hood					
High Performance Economizer (Horizontal)	Z1ECON33A-1	10U52	X	X	X
Includes Barometric Exhaust Dampers and Exhaust Hood					
High Performance Economizer Controls (Not for Title 24)					
Single Enthalpy Control	C1SNSR61FF1	11G21	X	X	X
OUTDOOR AIR					
Outdoor Air Dampers With Outdoor Air Hood					
Motorized	Z1DAMP21A-1	95W74	X	X	X
Manual	Z1DAMP11A-1	95W73	X	X	X
POWER EXHAUST FAN					
Standard Static (Downflow)	208/230V-1 or 3ph - Z1PWRE10A-1P	21E01	X	X	X
	460V-3ph - Z1PWRE10A-1G	23E01	X	X	X
Standard Static (Horizontal)	208/230V-1 or 3ph - Z1PWRE15A-1P	24E01	X	X	X
	460V-3ph - Z1PWRE15A-1G	28E01	X	X	X
575V Transformer Kit	575V-3ph - Z1TRFM20A-1J	59E02	X	X	X
NOTE - Order 575V Transformer Kit with 208/230V Power Exhaust Fan for 575V applications.					
INDOOR AIR QUALITY					
Indoor Air Quality (CO₂) Sensors					
Sensor - Wall-mount, off-white plastic cover with LCD display	C0SNSR50AE1L	77N39	X	X	X
Sensor - Wall-mount, black plastic case, no display, rated for plenum mounting	C0SNSR53AE1L	87N54	X	X	X
CO ₂ Sensor Duct Mounting Kit - for downflow applications	C0MISC19AE1	85L43	X	X	X
Aspiration Box - for duct mounting non-plenum rated CO ₂ sensor (77N39)	C0MISC16AE1	90N43	X	X	X
ROOF CURBS					
Hybrid Roof Curbs, Downflow					
8 in. height	Z1CURB70A-1	11F76	X	X	X
14 in. height	Z1CURB71A-1	11F77	X	X	X
18 in. height	Z1CURB72A-1	11F78	X	X	X
24 in. height	Z1CURB73A-1	11F79	X	X	X
CEILING DIFFUSERS					
Step-Down - Order one	RTD9-65-R	27G87	X	X	X
Flush - Order one	FD9-65-R	27G86	X	X	X

NOTE - Ceiling Diffuser Transitions are not furnished and must be field fabricated.

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

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SPECIFICATIONS

General Data		Nominal Tonnage	3 Ton	4 Ton	5 Ton
		Model No.	ZGA036S4B	ZGA048S4B	ZGA060S4B
		Efficiency Type	Standard	Standard	Standard
Cooling Performance	Gross Cooling Capacity - Btuh		36,100	47,000	58,900
	¹ Net Cooling Capacity - Btuh		34,600	45,000	57,000
	AHRI Rated Air Flow - cfm		1200	1550	1650
	² Sound Rating Number (SRN) (dBA)		77	80	83
	Total Unit Power - kW		3.0	4.3	5.3
	¹ SEER (Btuh/Watt)		13.00	13.00	13.00
	¹ EER (Btuh/Watt)		11.50	10.60	10.70
Refrigerant	Type		R-410A	R-410A	R-410A
	Charge Furnished		4 lbs. 1 oz.	4 lbs. 6 oz.	5 lbs. 6 oz.
Gas Heating Options - See page 12			Standard (1 Stage) or Medium (1 or 2 Stage)	Standard (1 Stage), Medium (1 or 2 Stage) or High (1 or 2 Stage)	
Compressor Type (one per unit)			Scroll	Scroll	Scroll
Outdoor Coil	Net face area - sq. ft.		12.8	12.8	15.2
	Number of rows		1	1	1
	Fins / inch		23	23	23
Outdoor Coil Fan	Motor HP		(1) 1/6 (PSC)	(1) 1/4 (PSC)	(1) 1/3 (PSC)
	Motor rpm		825	825	1075
	Total motor watts		200	310	360
	Diameter - in.		(1) 22	(1) 22	(1) 22
	Number of blades		4	4	3
	Total air volume - cfm		2700	3300	3800
Indoor Coil	Net face area - sq. ft.		8.4	8.4	8.4
	Tube diameter - in.		3/8	3/8	3/8
	Number of rows		2	2	3
	Fins per inch		14	14	14
	Drain Connection (no. and size) - in.		(1) 1 NPT	(1) 1 NPT	(1) 1 NPT
	Expansion device type		Fixed Orifice	Fixed Orifice	Fixed Orifice
³ Indoor Blower & Drive Selection	Nominal Motor HP		⁴ 1 hp, 1.5 hp	⁴ 1 hp, 1.5 hp	⁴ 1 hp, 1.5 hp
	Maximum Usable Motor HP		1.15 hp, 1.7 hp	1.15 hp, 1.7 hp	1.15 hp, 1.7 hp
	Available Drive Kits		Kit #Z01 678-1035 rpm Kit #Z04 964-1471 rpm	Kit #Z02 803-1226 rpm ⁵ Kit #Z05 1098-1490 rpm	Kit #Z03 906-1383 rpm ⁵ Kit #Z06 1262-1634 rpm
Wheel nominal diameter x width - in.			10 x 10	10 x 10	10 x 10
Filters	Type		Disposable		
	Number and size - in.		(4) 14 x 20 x 2		
Electrical Characteristics - 60 Hz			208/230V 1 phase 208/230V, 460V & 575V 3 phase	208/230V, 1 phase 208/230V 460V & 575V 3 phase	208/230V, 1 phase 208/230V 460V & 575V 3 phase

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

¹ AHRI Certified to AHRI Standard 210/240: 95°F outdoor air temperature and 80°F db/67°F wb entering evaporator air; minimum external duct static pressure.

² Sound Rating Number (SRN) rated in accordance with test conditions included in ANSI/AHRI Standard 270-2008.

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

⁴ 1 hp blower motor is not available for 208/230V-1ph applications.

⁵ 1.5 hp motor is required with Z05 and Z06 drive kits.

SPECIFICATIONS - GAS HEAT

Model No.		036, 048, 060	036, 048, 060	036. 048, 060	048, 060	048,060
Heat Input Type		Standard (1 Stage)	Medium (1 Stage)	Medium (2 Stage)	High (1 Stage)	High (2 Stage)
Input Btuh	1st Stage	65,000	108,000	75,600	150,000	105,000
	2nd Stage	---	---	108,000	---	150,000
Output Btuh	1st Stage	52,000	84,600	60,480	120,000	84,000
	2nd Stage	---	---	86,400	---	120,000
Temperature Rise	1st stage	15 - 45	35 - 65	20 - 50	45 - 75	25 - 55
	2nd Stage	---	---	35 - 65	---	45 - 75
¹ AFUE		80%	80%	80%	80%	80%
² Thermal Efficiency		80%	80%	80%	80%	80%
Gas Supply Connections		1/2 in. NPT				
Rec. Gas Supply Pressure - Nat./ LPG		7 in.w.g. / 11 in.w.g.				

¹ Annual Fuel Utilization Efficiency based on U.S. DOE test procedures and FTC labeling regulations - 1 phase models.

² 3 phase models.

HIGH ALTITUDE DERATE

NOTE - Units may be installed at altitudes up to 2000 ft. above sea level without any modifications. At altitudes above 2000 ft. units must be derated to match information in the table shown. At altitudes above 4500 ft. unit must be derated 2% for each 1000 ft. above sea level.
NOTE - This is the only permissible derate for these units.

Heat Input Type	Altitude Feet	Gas Manifold Pressure in. w.g.		Input Rate (Btuh)
		Natural Gas	LPG/ Propane	
Standard (1 Stage)	2001 - 4500	3.0	9.0	60,000
Medium (1 Stage)	2001 - 4500	3.0	9.0	99,500
Medium (2 Stage)	2001 - 4500	3.0/1.7	9.0/5.1	99,500 / 75,600
High (1 Stage)	2001 - 4500	3.0	9.0	138,000
High (2 Stage)	2001 - 4500	3.0/1.7	9.0/5.1	138,000 / 105,000

RATINGS

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

3 TON STANDARD EFFICIENCY ZGA036S4

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		85°F					95°F					105°F					115°F				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb		
cfm	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	
63°F	960	33.5	2.11	.69	.84	.97	31.0	2.40	.69	.84	.99	27.8	2.71	.69	.86	1.00	23.6	3.04	.70	.90	1.00
	1200	36.0	2.11	.75	.91	1.00	33.4	2.41	.75	.92	1.00	30.0	2.73	.75	.95	1.00	25.5	3.05	.78	.99	1.00
	1440	38.0	2.12	.79	.97	1.00	35.2	2.42	.80	.98	1.00	31.8	2.74	.81	1.00	1.00	27.3	3.06	.85	1.00	.67
67°F	960	36.0	2.11	.53	.67	.81	33.4	2.41	.52	.67	.81	30.1	2.73	.50	.67	.83	25.6	3.05	.49	.68	.87
	1200	38.6	2.12	.57	.73	.87	35.8	2.42	.56	.73	.89	32.2	2.74	.55	.74	.91	27.3	3.06	.55	.77	.96
	1440	40.5	2.13	.60	.77	.94	37.4	2.43	.60	.78	.95	33.6	2.74	.59	.80	.98	28.7	3.07	.60	.84	1.00
71°F	960	38.4	2.12	.38	.53	.65	35.6	2.42	.36	.52	.65	32.2	2.74	.34	.50	.65	27.5	3.06	.31	.49	.67
	1200	41.1	2.13	.41	.57	.71	38.1	2.43	.40	.56	.71	34.4	2.75	.37	.55	.72	29.4	3.07	.35	.55	.75
	1440	43.0	2.14	.43	.60	.76	39.9	2.44	.42	.59	.76	36.0	2.76	.40	.59	.78	30.6	3.08	.35	.60	.82

4 TON STANDARD EFFICIENCY ZGA048S4

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		85°F					95°F					105°F					115°F				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb		
cfm	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	
63°F	1280	46.0	3.09	.71	.85	.97	42.9	3.48	.71	.86	.99	39.5	3.93	.71	.87	1.00	34.3	4.48	.73	.91	1.00
	1600	49.1	3.09	.76	.91	1.00	45.7	3.48	.77	.93	1.00	41.9	3.94	.78	.95	1.00	36.3	4.50	.81	.99	1.00
	1920	51.5	3.09	.81	.97	1.00	47.8	3.49	.82	.99	1.00	43.9	3.96	.83	1.00	1.00	38.4	4.51	.87	1.00	1.00
67°F	1280	49.2	3.09	.55	.69	.81	45.9	3.49	.54	.69	.83	42.3	3.94	.53	.69	.84	36.9	4.50	.53	.71	.88
	1600	52.5	3.10	.58	.74	.88	48.9	3.49	.58	.75	.89	44.9	3.96	.58	.76	.92	38.9	4.52	.58	.79	.97
	1920	55.0	3.10	.62	.79	.94	51.1	3.50	.61	.80	.96	46.8	3.98	.62	.81	.99	40.4	4.53	.63	.86	1.00
71°F	1280	52.3	3.10	.41	.54	.67	48.8	3.49	.40	.54	.67	44.9	3.96	.38	.53	.68	39.2	4.52	.36	.53	.70
	1600	55.8	3.11	.42	.58	.72	51.9	3.50	.42	.58	.73	47.6	3.97	.40	.57	.74	41.4	4.54	.38	.58	.77
	1920	58.3	3.11	.44	.61	.77	54.2	3.51	.43	.61	.78	49.6	3.99	.42	.62	.80	42.9	4.55	.41	.64	.84

5 TON STANDARD EFFICIENCY ZGA060S4

Entering Wet Bulb Temperature	Total Air Volume	Outdoor Air Temperature Entering Outdoor Coil																			
		85°F					95°F					105°F					115°F				
		Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cool Cap.	Comp. Motor Input	Sensible To Total Ratio (S/T)		
				Dry Bulb					Dry Bulb					Dry Bulb					Dry Bulb		
cfm	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	kBtuh	kW	75°F	80°F	85°F	
63°F	1600	56.5	3.67	.73	.87	1.00	52.4	4.13	.74	.90	1.00	48.0	4.65	.76	.93	1.00	43.0	5.26	.78	.97	1.00
	2000	59.4	3.70	.78	.95	1.00	55.1	4.16	.80	.98	1.00	50.5	4.69	.83	1.00	1.00	45.9	5.31	.86	1.00	1.00
	2400	61.7	3.72	.84	1.00	1.00	57.7	4.19	.86	1.00	1.00	53.4	4.72	.89	1.00	1.00	48.5	5.36	.94	1.00	1.00
67°F	1600	60.3	3.71	.57	.70	.84	56.0	4.16	.57	.72	.86	51.4	4.70	.57	.73	.89	46.2	5.32	.58	.76	.94
	2000	63.3	3.73	.60	.76	.92	58.8	4.20	.61	.78	.95	53.8	4.74	.62	.81	.99	48.4	5.36	.63	.84	1.00
	2400	65.6	3.76	.64	.82	.99	60.8	4.22	.65	.84	1.00	55.7	4.76	.66	.87	1.00	49.7	5.38	.68	.92	1.00
71°F	1600	64.0	3.74	.42	.55	.68	59.5	4.20	.42	.56	.70	54.7	4.75	.41	.56	.71	49.3	5.37	.40	.57	.74
	2000	67.2	3.77	.44	.59	.74	62.4	4.24	.44	.60	.76	57.3	4.79	.43	.61	.78	51.7	5.42	.43	.63	.82
	2400	69.6	3.80	.45	.63	.80	64.7	4.27	.45	.64	.82	59.3	4.82	.45	.66	.85	53.2	5.45	.45	.68	.90

BLOWER DATA - BELT DRIVE - ZGA036

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

FOR ALL UNITS ADD:

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

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

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

DOWNFLOW

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Furnished				Kit Z01											
900	566	0.16	631	0.18	699	0.19	768	0.21	836	0.22	901	0.25	961	0.27	1016	0.29
1000	591	0.18	656	0.20	724	0.21	793	0.23	859	0.25	922	0.27	979	0.30	1032	0.33
1100	618	0.20	684	0.22	752	0.24	819	0.26	883	0.28	944	0.31	998	0.34	1049	0.37
1200	648	0.23	715	0.25	782	0.27	847	0.29	910	0.32	967	0.35	1020	0.38	1068	0.42
1300	681	0.26	748	0.28	814	0.30	878	0.33	937	0.36	992	0.39	1043	0.43	1089	0.47
1400	718	0.29	783	0.32	848	0.34	909	0.37	966	0.41	1018	0.44	1067	0.48	1112	0.52
1500	757	0.33	821	0.36	883	0.39	941	0.42	995	0.46	1046	0.50	1092	0.54	1136	0.57

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Kit Z04															
900	1067	0.32	1115	0.35	1161	0.37	1205	0.40	1247	0.43	1287	0.47	1326	0.50	1365	0.53
1000	1081	0.36	1128	0.39	1173	0.41	1216	0.44	1258	0.48	1297	0.51	1336	0.54	1374	0.58
1100	1097	0.40	1143	0.43	1187	0.46	1229	0.49	1270	0.52	1309	0.56	1347	0.59	1384	0.63
1200	1115	0.45	1159	0.48	1202	0.51	1244	0.54	1284	0.58	1323	0.61	1360	0.65	1397	0.69
1300	1134	0.50	1177	0.53	1219	0.56	1260	0.60	1300	0.63	1338	0.67	1375	0.71	1411	0.75
1400	1155	0.55	1197	0.59	1238	0.62	1278	0.66	1317	0.70	1354	0.74	1391	0.78	1426	0.82
1500	1177	0.61	1218	0.65	1258	0.68	1298	0.72	1336	0.76	1373	0.81	1409	0.85	1443	0.89

HORIZONTAL

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Furnished				Kit Z01											
900	566	0.13	634	0.16	704	0.18	773	0.20	839	0.23	902	0.25	961	0.28	1016	0.31
1000	590	0.16	658	0.18	728	0.20	795	0.23	860	0.25	920	0.28	977	0.31	1030	0.34
1100	615	0.18	685	0.20	754	0.23	820	0.26	883	0.29	941	0.32	995	0.35	1046	0.38
1200	644	0.21	714	0.23	782	0.26	847	0.29	908	0.33	963	0.36	1015	0.39	1064	0.42
1300	676	0.24	746	0.27	814	0.30	876	0.33	934	0.37	987	0.41	1037	0.44	1083	0.47
1400	713	0.28	782	0.31	847	0.35	907	0.38	962	0.42	1013	0.45	1060	0.49	1105	0.52
1500	755	0.33	821	0.36	883	0.39	939	0.43	991	0.47	1039	0.50	1085	0.54	1128	0.57

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Kit Z04															
900	1068	0.33	1118	0.36	1165	0.38	1211	0.41	1254	0.44	1294	0.47	1332	0.50	1369	0.54
1000	1080	0.37	1128	0.39	1175	0.42	1219	0.45	1262	0.48	1302	0.51	1340	0.55	1377	0.58
1100	1094	0.41	1141	0.43	1186	0.46	1230	0.49	1272	0.52	1311	0.56	1349	0.60	1386	0.64
1200	1110	0.45	1155	0.48	1200	0.51	1243	0.54	1284	0.58	1323	0.61	1361	0.66	1398	0.70
1300	1128	0.50	1172	0.53	1215	0.56	1258	0.59	1298	0.63	1337	0.67	1375	0.72	1411	0.76
1400	1148	0.55	1191	0.58	1233	0.62	1274	0.65	1314	0.69	1353	0.74	1391	0.79	1427	0.83
1500	1170	0.61	1211	0.64	1252	0.68	1293	0.72	1333	0.76	1371	0.81	1408	0.86	1444	0.91

BLOWER DATA - BELT DRIVE - ZGA048

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

FOR ALL UNITS ADD:

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

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

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

DOWNFLOW

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Furnished						Kit Z02									
1200	648	0.23	715	0.25	782	0.27	847	0.29	910	0.32	967	0.35	1020	0.38	1068	0.42
1300	681	0.26	748	0.28	814	0.30	878	0.33	937	0.36	992	0.39	1043	0.43	1089	0.47
1400	718	0.29	783	0.32	848	0.34	909	0.37	966	0.41	1018	0.44	1067	0.48	1112	0.52
1500	757	0.33	821	0.36	883	0.39	941	0.42	995	0.46	1046	0.50	1092	0.54	1136	0.57
1600	798	0.38	860	0.41	919	0.44	974	0.47	1026	0.51	1074	0.55	1119	0.59	1161	0.63
1700	840	0.43	899	0.46	955	0.49	1007	0.53	1057	0.57	1103	0.61	1146	0.66	1187	0.70
1800	882	0.48	938	0.51	991	0.55	1041	0.59	1088	0.63	1132	0.68	1174	0.72	1214	0.77
1900	924	0.54	977	0.58	1027	0.62	1075	0.66	1120	0.70	1163	0.75	1203	0.80	1242	0.85
2000	965	0.61	1016	0.65	1064	0.69	1110	0.74	1153	0.79	1194	0.84	1233	0.89	1271	0.95

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Kit Z02						Kit Z05									
1200	1115	0.45	1159	0.48	1202	0.51	1244	0.54	1284	0.58	1323	0.61	1360	0.65	1397	0.69
1300	1134	0.50	1177	0.53	1219	0.56	1260	0.60	1300	0.63	1338	0.67	1375	0.71	1411	0.75
1400	1155	0.55	1197	0.59	1238	0.62	1278	0.66	1317	0.70	1354	0.74	1391	0.78	1426	0.82
1500	1177	0.61	1218	0.65	1258	0.68	1298	0.72	1336	0.76	1373	0.81	1409	0.85	1443	0.89
1600	1201	0.68	1241	0.71	1280	0.75	1319	0.80	1357	0.84	1393	0.88	1428	0.93	1462	0.97
1700	1226	0.74	1265	0.79	1304	0.83	1342	0.87	1378	0.92	1414	0.96	1448	1.01	1482	1.05
1800	1253	0.82	1291	0.87	1329	0.91	1366	0.96	1402	1.01	1436	1.05	1469	1.10	1502	1.14
1900	1280	0.90	1318	0.95	1355	1.00	1391	1.05	1426	1.10	1459	1.15	1492	1.20	1524	1.24
2000	1309	1.00	1346	1.05	1382	1.10	1417	1.16	1451	1.21	1484	1.25	1515	1.30	1547	1.35

HORIZONTAL

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Furnished						Kit Z02									
1200	644	0.21	714	0.23	782	0.26	847	0.29	908	0.33	963	0.36	1015	0.39	1064	0.42
1300	676	0.24	746	0.27	814	0.3	876	0.33	934	0.37	987	0.41	1037	0.44	1083	0.47
1400	713	0.28	782	0.31	847	0.35	907	0.38	962	0.42	1013	0.45	1060	0.49	1105	0.52
1500	755	0.33	821	0.36	883	0.39	939	0.43	991	0.47	1039	0.5	1085	0.54	1128	0.57
1600	798	0.38	860	0.41	918	0.45	971	0.48	1020	0.52	1067	0.55	1110	0.59	1152	0.63
1700	842	0.43	900	0.47	954	0.5	1004	0.54	1051	0.57	1095	0.61	1137	0.65	1177	0.69
1800	885	0.49	940	0.53	990	0.56	1037	0.6	1081	0.63	1124	0.67	1164	0.72	1204	0.76
1900	928	0.56	979	0.59	1026	0.63	1070	0.67	1113	0.71	1153	0.75	1193	0.79	1231	0.84
2000	969	0.63	1017	0.67	1062	0.7	1104	0.74	1145	0.79	1184	0.83	1222	0.88	1259	0.94

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Kit Z02						Kit Z05									
1200	1110	0.45	1155	0.48	1200	0.51	1243	0.54	1284	0.58	1323	0.61	1361	0.66	1398	0.7
1300	1128	0.5	1172	0.53	1215	0.56	1258	0.59	1298	0.63	1337	0.67	1375	0.72	1411	0.76
1400	1148	0.55	1191	0.58	1233	0.62	1274	0.65	1314	0.69	1353	0.74	1391	0.79	1427	0.83
1500	1170	0.61	1211	0.64	1252	0.68	1293	0.72	1333	0.76	1371	0.81	1408	0.86	1444	0.91
1600	1193	0.67	1233	0.71	1273	0.75	1313	0.79	1352	0.84	1390	0.89	1427	0.94	1463	1
1700	1217	0.73	1256	0.78	1296	0.82	1335	0.87	1374	0.93	1411	0.98	1447	1.03	1482	1.09
1800	1242	0.81	1281	0.86	1320	0.91	1359	0.96	1396	1.02	1433	1.07	1468	1.13	1503	1.18
1900	1269	0.9	1307	0.95	1346	1.01	1383	1.06	1420	1.12	1456	1.18	1491	1.23	1525	1.29
2000	1297	0.99	1334	1.05	1372	1.11	1409	1.17	1445	1.23	1480	1.29	1514	1.34	1547	1.4

BLOWER DATA - BELT DRIVE - ZGA060

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

FOR ALL UNITS ADD:

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

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

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

DOWNFLOW

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Furnished				Kit Z03											
1600	817	0.39	877	0.42	935	0.45	989	0.48	1040	0.52	1087	0.56	1131	0.60	1173	0.65
1700	859	0.44	917	0.47	972	0.50	1023	0.54	1071	0.58	1117	0.62	1159	0.67	1199	0.71
1800	902	0.49	957	0.53	1008	0.56	1057	0.60	1103	0.64	1147	0.69	1188	0.74	1227	0.79
1900	944	0.56	996	0.59	1045	0.63	1092	0.68	1136	0.72	1178	0.77	1218	0.82	1257	0.87
2000	986	0.63	1035	0.67	1083	0.71	1127	0.76	1170	0.81	1210	0.86	1249	0.91	1287	0.97
2100	1027	0.71	1075	0.75	1120	0.80	1163	0.85	1204	0.90	1243	0.96	1281	1.02	1318	1.07
2200	1069	0.80	1115	0.84	1158	0.90	1200	0.95	1239	1.01	1277	1.07	1314	1.13	1350	1.19
2300	1111	0.90	1155	0.95	1197	1.01	1237	1.07	1275	1.13	1312	1.19	1348	1.25	1383	1.31
2400	1154	1.01	1196	1.07	1236	1.13	1274	1.19	1311	1.25	1347	1.32	1382	1.38	1417	1.45

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Kit Z03								Kit Z06							
1600	1213	0.69	1252	0.73	1292	0.77	1330	0.81	1367	0.85	1403	0.89	1438	0.94	1472	0.98
1700	1239	0.76	1278	0.80	1316	0.84	1354	0.89	1390	0.93	1425	0.98	1459	1.02	1492	1.07
1800	1266	0.83	1304	0.88	1342	0.93	1378	0.98	1414	1.02	1448	1.07	1481	1.12	1514	1.16
1900	1294	0.92	1332	0.97	1369	1.02	1404	1.07	1439	1.12	1472	1.17	1504	1.21	1536	1.26
2000	1324	1.02	1360	1.07	1396	1.13	1431	1.18	1465	1.23	1497	1.27	1529	1.32	1560	1.37
2100	1354	1.13	1390	1.18	1425	1.24	1459	1.29	1491	1.34	1523	1.39	1554	1.43	1585	1.48
2200	1385	1.25	1420	1.30	1454	1.36	1487	1.41	1519	1.46	1550	1.51	1581	1.55	1611	1.60
2300	1418	1.37	1452	1.43	1485	1.48	1517	1.53	1548	1.58	1578	1.63	1608	1.68	1639	1.72
2400	1451	1.51	1484	1.56	1516	1.62	1547	1.67	1578	1.72	1607	1.76	1637	1.81	1667	1.85

HORIZONTAL

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Furnished				Kit Z03											
1600	817	0.39	878	0.42	934	0.46	985	0.49	1034	0.53	1080	0.56	1123	0.60	1164	0.64
1700	861	0.45	918	0.48	970	0.51	1018	0.55	1065	0.58	1108	0.62	1150	0.66	1190	0.70
1800	904	0.51	957	0.54	1006	0.57	1052	0.61	1096	0.65	1138	0.69	1178	0.73	1217	0.78
1900	946	0.57	996	0.61	1042	0.64	1086	0.68	1128	0.72	1168	0.76	1207	0.81	1245	0.86
2000	988	0.64	1035	0.68	1079	0.72	1120	0.76	1161	0.81	1199	0.85	1237	0.90	1275	0.96
2100	1028	0.72	1073	0.76	1115	0.81	1155	0.85	1194	0.90	1231	0.95	1268	1.01	1305	1.07
2200	1068	0.81	1111	0.86	1151	0.90	1190	0.95	1227	1.00	1263	1.06	1299	1.12	1336	1.18
2300	1108	0.91	1149	0.96	1188	1.01	1225	1.06	1261	1.12	1296	1.18	1332	1.24	1367	1.31
2400	1148	1.02	1187	1.07	1224	1.13	1260	1.18	1295	1.25	1330	1.31	1365	1.38	1400	1.45

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Kit Z03								Kit Z06							
1600	1204	0.68	1245	0.72	1285	0.76	1325	0.81	1363	0.86	1401	0.91	1437	0.96	1473	1.01
1700	1229	0.75	1269	0.79	1309	0.84	1348	0.89	1386	0.94	1423	1.00	1458	1.05	1493	1.10
1800	1256	0.83	1295	0.88	1334	0.93	1372	0.98	1409	1.04	1445	1.09	1481	1.15	1515	1.20
1900	1283	0.92	1322	0.97	1360	1.03	1397	1.08	1434	1.14	1469	1.20	1504	1.25	1537	1.31
2000	1312	1.02	1350	1.07	1387	1.13	1424	1.19	1459	1.25	1494	1.31	1528	1.37	1561	1.42
2100	1342	1.13	1378	1.19	1415	1.25	1451	1.31	1486	1.37	1519	1.43	1553	1.49	1586	1.54
2200	1372	1.25	1408	1.31	1444	1.37	1479	1.44	1513	1.50	1546	1.56	1579	1.61	1611	1.67
2300	1403	1.38	1438	1.44	1473	1.51	1507	1.57	1541	1.63	1573	1.69	1606	1.75	1638	1.80
2400	1434	1.52	1469	1.58	1503	1.65	1537	1.71	1569	1.77	1601	1.83	1633	1.88	1665	1.94

BLOWER DATA

DRIVE KIT SPECIFICATIONS

Model No.	Blower Motor Choice (HP)				Drive Kit No.	RPM Range
	Nominal	Maximum	Nominal	Maximum		
036	1	1.15	1.5	1.7	Z01	678 - 1035
					Z04	964 - 1471
048	1	1.15	1.5	1.7	Z02	803 - 1226
					¹ Z05	1098 - 1490
060	1	1.15	1.5	1.7	Z03	906 - 1383
					¹ Z06	1262 - 1634

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

¹ 1.5 hp motor is required with Z05 and Z06 drive kits.

POWER EXHAUST FAN PERFORMANCE

Return Air System Static Pressure - in. w.g.	Air Volume Exhausted cfm
0.00	1865
0.05	1785
0.10	1710
0.15	1630
0.20	1545
0.25	1450
0.30	1350
0.35	1240

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

Air Volume cfm	Wet Indoor Coil		Gas Heat		Economizer	
	036-048	060	Medium Input	High Input	Downflow	Horizontal
900	0.01	---	0.02	0.02	0.04	0.05
1000	0.01	---	0.02	0.02	0.04	0.05
1100	0.02	---	0.02	0.02	0.04	0.06
1200	0.02	---	0.02	0.03	0.05	0.06
1300	0.02	---	0.02	0.03	0.05	0.07
1400	0.03	---	0.03	0.04	0.06	0.07
1500	0.03	---	0.03	0.04	0.07	0.08
1600	0.03	0.04	0.03	0.04	0.08	0.09
1700	0.04	0.05	0.03	0.05	0.08	0.10
1800	0.04	0.05	0.03	0.05	0.09	0.11
1900	0.04	0.06	0.04	0.06	0.10	0.12
2000	0.05	0.06	0.04	0.06	0.12	0.13
2100	---	0.07	0.04	0.06	0.13	0.14
2200	---	0.08	0.04	0.07	0.14	0.15
2300	---	0.08	0.04	0.07	0.15	0.17
2400	---	0.09	0.05	0.08	0.17	0.18

BLOWER DATA

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

Air Volume cfm	RTD9-65 Step-Down Diffuser			FD9-65 Flush Diffuser
	2 Ends Open	1 Side & 2 Ends Open	All Ends & Sides Open	
800	0.15	0.13	0.11	0.11
1000	0.19	0.16	0.14	0.14
1200	0.25	0.20	0.17	0.17
1400	0.33	0.26	0.20	0.20
1600	0.43	0.32	0.20	0.24
1800	0.56	0.40	0.30	0.30
2000	0.73	0.50	0.36	0.36
2200	0.95	0.63	0.44	0.44

CEILING DIFFUSER AIR THROW DATA

Air Volume - cfm	¹ Effective Throw - ft.		
	Model No.	RTD9-65	FD9-65
800		10 - 17	14 - 18
1000		10 - 17	15 - 20
1200		11 - 18	16 - 22
1400		12 - 19	17 - 24
1600		12 - 20	18 - 25
1800		13 - 21	20 - 28
2000		14 - 23	21 - 29
2200		16 - 25	22 - 30

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

ELECTRICAL DATA**3 TON****ZGA036S4**

¹ Voltage - 60hz		208/230V - 1 Ph	208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph	
Compressor	Rated Load Amps	15.3	8.7		4		3.6	
	Locked Rotor Amps	70	70		31		27	
Outdoor Fan Motor	Full Load Amps	1	1		0.6		0.45	
Power Exhaust (1) 0.5 HP	Full Load Amps	1.5	1.5		0.6		0.6	
Indoor Blower Motor	Horsepower	1.5	1	1.5	1	1.5	1	1.5
	Full Load Amps	11	4.6	6.6	2.1	3	1.7	2.4
² Maximum Overcurrent Protection	Unit Only	45	25	25	15	15	15	15
	With (1) 0.5 HP Power Exhaust	45	25	25	15	15	15	15
³ Minimum Circuit Ampacity	Unit Only	32	17	19	8	9	7	8
	With (1) 0.5 HP Power Exhaust	33	18	20	9	10	8	8

ELECTRICAL DATA**4 TON****ZGA048S4**

¹ Voltage - 60hz		208/230V - 1 Ph	208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph	
Compressor	Rated Load Amps	20	11		5.5		4.7	
	Locked Rotor Amps	99	86		37		34	
Outdoor Fan Motor	Full Load Amps	1.7	1.7		0.9		0.7	
Power Exhaust (1) 0.5 HP	Full Load Amps	1.5	1.5		0.6		0.6	
Indoor Blower Motor	Horsepower	1.5	1	1.5	1	1.5	1	1.5
	Full Load Amps	11	4.6	6.6	2.1	3	1.7	2.4
² Maximum Overcurrent Protection	Unit Only	50	30	30	15	15	15	15
	With (1) 0.5 HP Power Exhaust	50	30	30	15	15	15	15
³ Minimum Circuit Ampacity	Unit Only	38	21	23	10	11	9	9
	With (1) 0.5 HP Power Exhaust	40	22	24	11	12	9	10

ELECTRICAL DATA**5 TON****ZGA060S4**

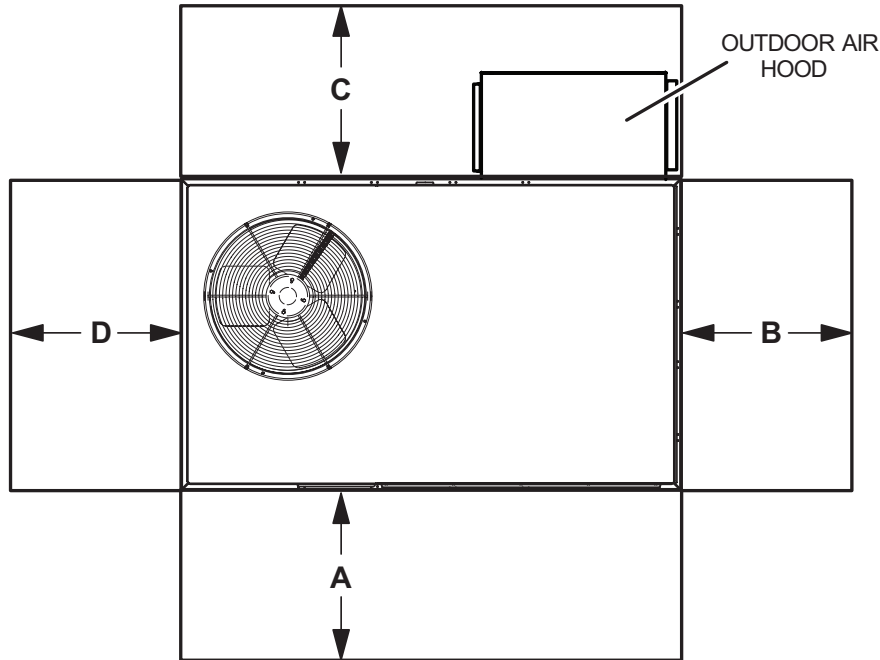
¹ Voltage - 60hz		208/230V - 1 Ph	208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph	
Compressor	Rated Load Amps	22.1	13.5		8		5	
	Locked Rotor Amps	125	109		59		40	
Outdoor Fan Motor	Full Load Amps	1.7	1.7		1		0.9	
Power Exhaust (1) 0.5 HP	Full Load Amps	1.5	1.5		0.6		0.6	
Indoor Blower Motor	Horsepower	1.5	1	1.5	1	1.5	1	1.5
	Full Load Amps	11	4.6	6.6	2.1	3	1.7	2.4
² Maximum Overcurrent Protection	Unit Only	60	35	35	20	20	15	15
	With (1) 0.5 HP Power Exhaust	60	35	40	20	20	15	15
³ Minimum Circuit Ampacity	Unit Only	41	24	26	14	14	9	10
	With (1) 0.5 HP Power Exhaust	42	25	27	14	15	10	11

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

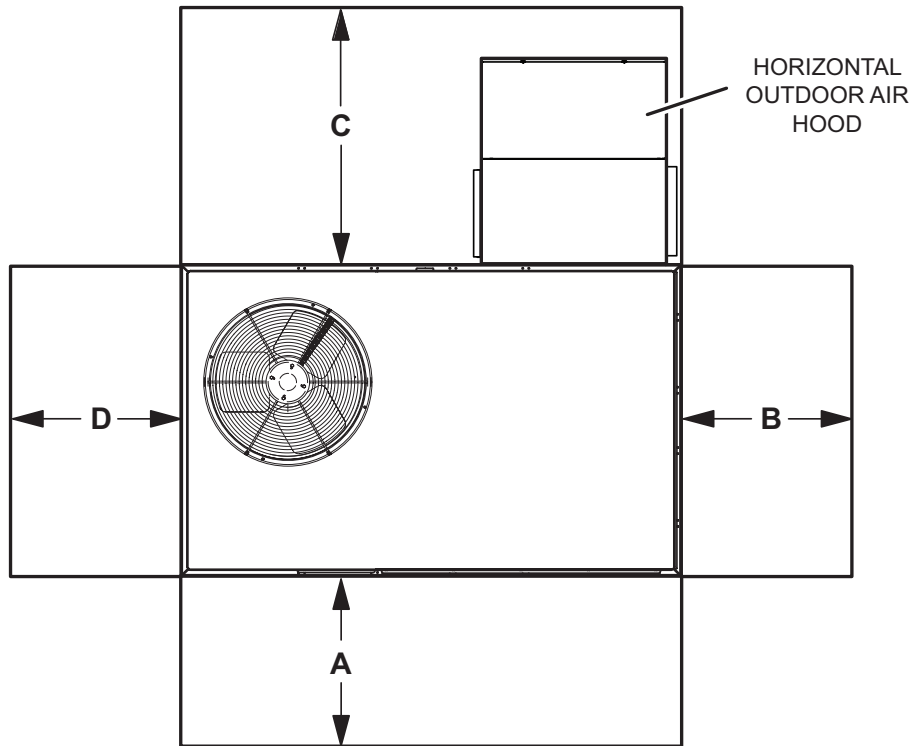
¹ Extremes of operating range are plus and minus 10% of line voltage.² HACR type breaker or fuse.³ Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

UNIT CLEARANCES - INCHES (MM)

UNIT WITH DOWNFLOW ECONOMIZER



UNIT WITH HORIZONTAL ECONOMIZER



1 Unit Clearance	A		B		C Downflow		C Horizontal		D		Top Clearance
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	
Service Clearance	36	914	36	914	36	914	60	1524	36	914	Unobstructed
Clearance to Combustibles	36	914	1	25	1	25	1	25	1	25	
Minimum Operation Clearance	36	914	36	914	36	914	60	1524	36	914	

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

¹ Service Clearance - Required for removal of serviceable parts.

Minimum Operation Clearance - Required clearance for proper unit operation.

OUTDOOR SOUND DATA

Unit Model No.	Octave Band Linear Sound Power Levels dB, re 10 ⁻¹² Watts - Center Frequency - Hz							¹ Sound Rating Number (SRN) (dBA)
	125	250	500	1000	2000	4000	8000	
036	81	78	77	72	68	66	61	77
048	84	80	79	74	70	67	63	80
060	86	82	82	78	74	68	65	83

¹ Sound Rating Number according to ANSI/AHRI Standard 270-2008. "SRN" is the overall A-Weighted Sound Power Level, (LWA), dB (100 Hz to 10,000 Hz).

WEIGHT DATA

Model Number	Net				Shipping			
	Base		Max.		Base		Max.	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
036S	484	220	542	246	489	222	547	248
048S	498	226	568	258	503	228	573	260
060S	530	240	602	273	535	243	607	275

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

Max. Unit - The unit with ALL OPTIONS Installed. (High Input Heat Exchanger, Economizer, etc.)

OPTIONS / ACCESSORIES

		Shipping Weights	
		lbs.	kg
ECONOMIZER			
Economizer			
Economizer, Includes Outdoor Air Hood and Barometric Relief Dampers with Hood	Downflow	75	34
	Horizontal	102	46
OUTDOOR AIR			
Outdoor Air Dampers			
Motorized		30	14
Manual		23	10
POWER EXHAUST			
Standard Static	Downflow	54	24
	Horizontal	41	19
GAS HEAT			
Medium Heat (adder over standard heat)		8	4
High Heat (adder over standard heat)		19	9
ROOF CURBS			
Hybrid Roof Curbs, Downflow			
8 in. height		63	29
14 in. height		83	38
18 in. height		93	42
24 in. height		113	51
CEILING DIFFUSERS			
Step-Down		67	30
Flush		37	17

DIMENSIONS - INCHES (MM)

Model No.	CORNER WEIGHTS														CENTER OF GRAVITY									
	AA				BB				CC				DD				EE				FF			
	Base		Max.		Base		Max.		Base		Max.		Base		Max.		Base		Max.		Base		Max.	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	in.	mm	in.	mm	in.	mm	in.	mm		
036	124	56	142	65	115	52	146	66	117	53	129	58	127	58	125	57	39.5	1003	37.5	953	23.25	591	25	635
048	128	58	149	68	118	54	153	69	121	55	135	61	131	59	131	60	39.5	1003	37.5	953	23.25	591	25	635
060	136	62	158	72	126	57	162	74	129	58	143	65	139	63	139	63	39.5	1003	37.5	953	23.25	591	25	635

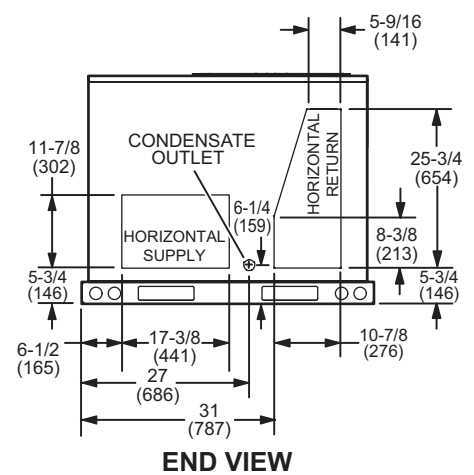
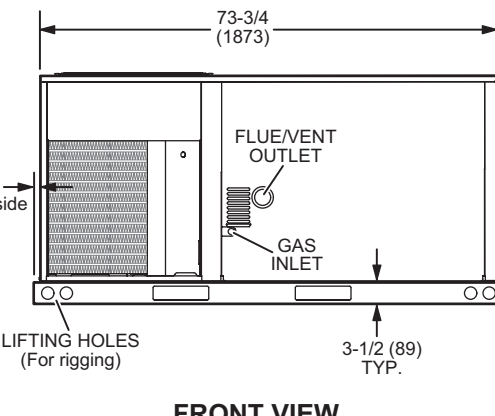
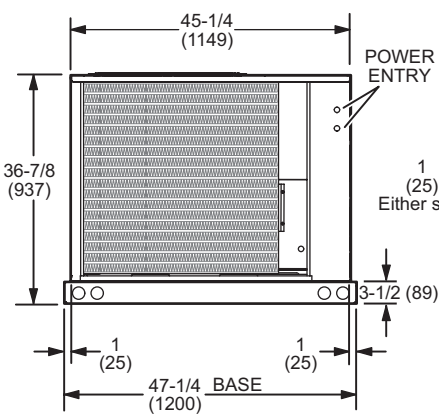
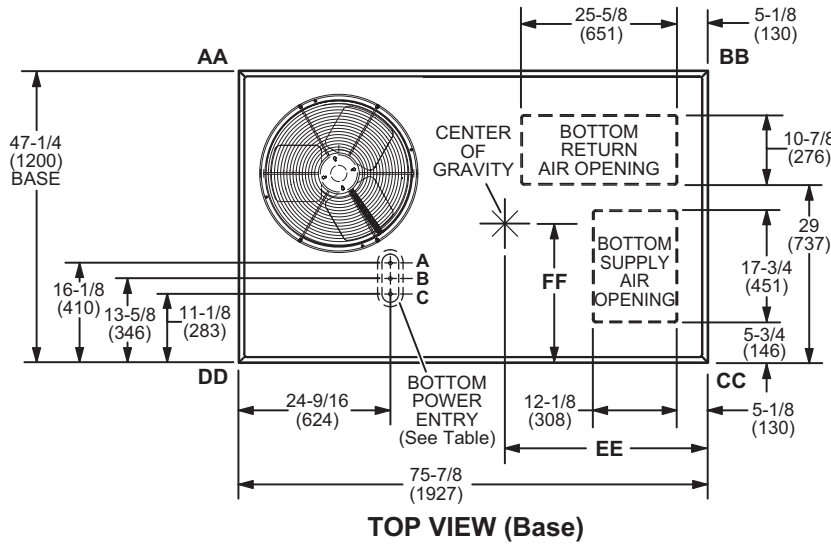
Base Unit - The unit with NO OPTIONS.

Max. Unit - The unit with ALL OPTIONS Installed. (Economizer, high heat, largest blower motor, etc.).

BOTTOM POWER ENTRY

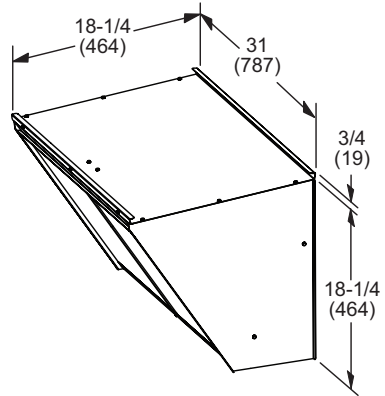
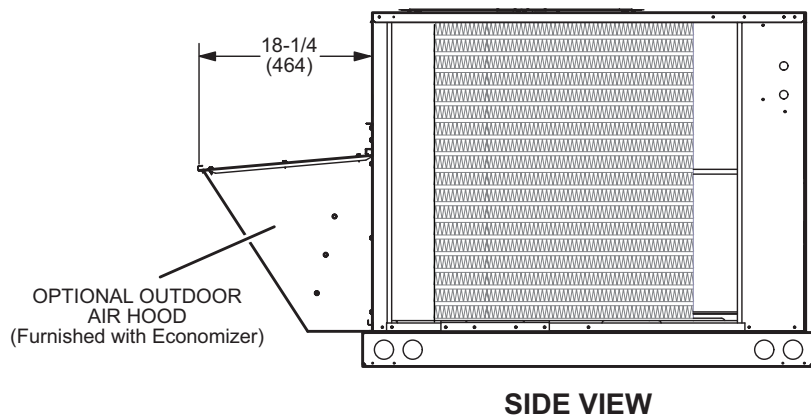
Holes required for Optional Bottom Power Entry Kit

	Threaded Conduit Fittings (Provided in Kit)	Wire Use	Hole Diameter Required in Unit Base (Max.)
A	1/2	ACC	7/8 (23)
B	1/2	24V	7/8 (23)
C	3/4	POWER	1-1/8 (29)

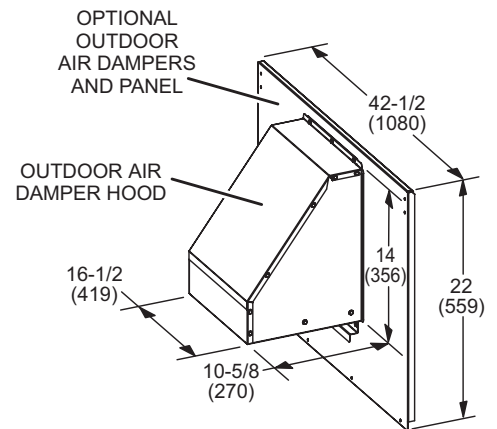
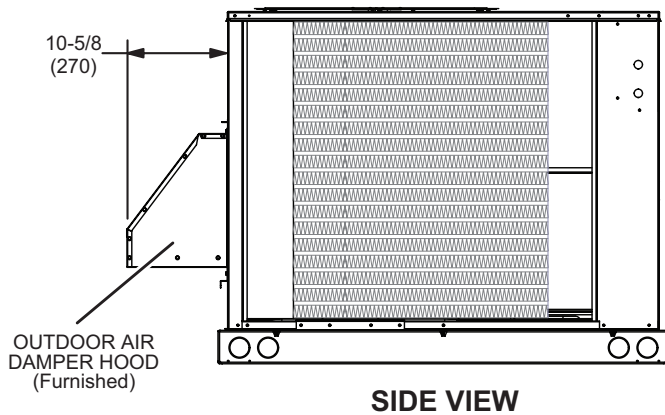


ACCESSORY DIMENSIONS - INCHES (MM)

OUTDOOR AIR HOOD DETAIL FOR OPTIONAL ECONOMIZER (Downflow Applications)

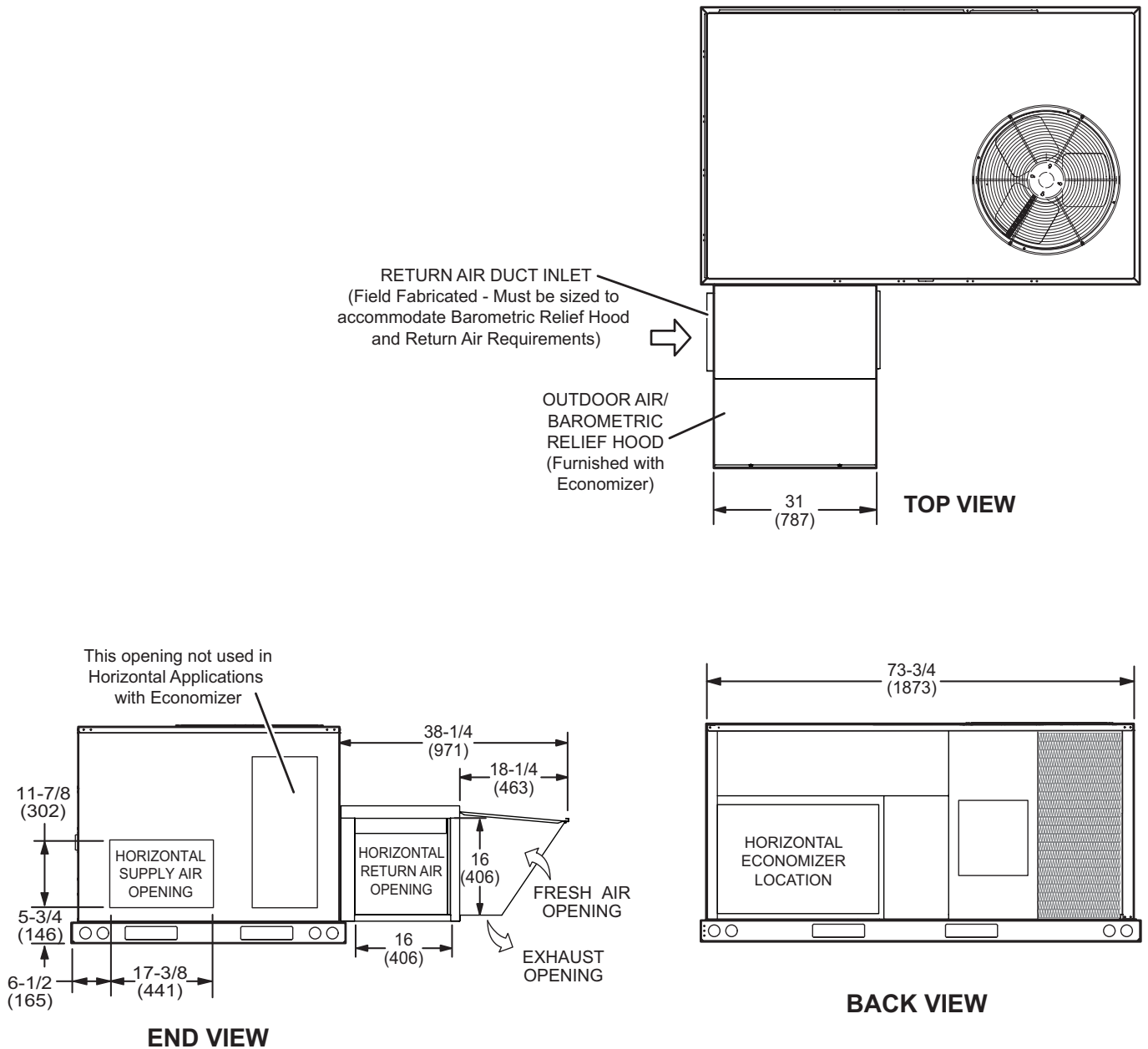


OUTDOOR AIR DAMPER HOOD DETAIL FOR OPTIONAL MANUAL OR MOTORIZED OUTDOOR AIR DAMPERS (Downflow or Horizontal Applications)



ACCESSORY DIMENSIONS - INCHES (MM)

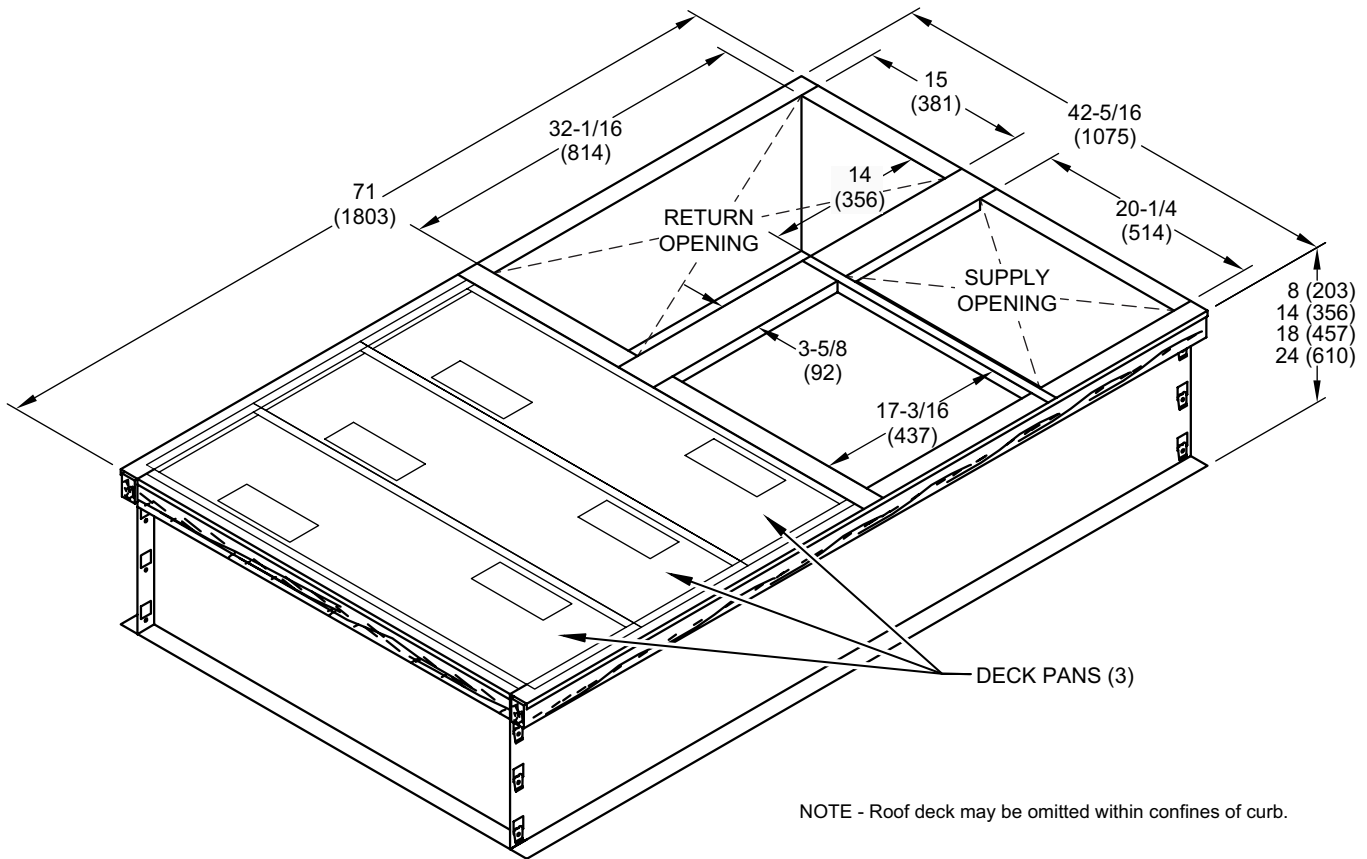
OUTDOOR AIR HOOD DETAIL WITH OPTIONAL ECONOMIZER AND BAROMETRIC RELIEF DAMPERS (Horizontal Applications)



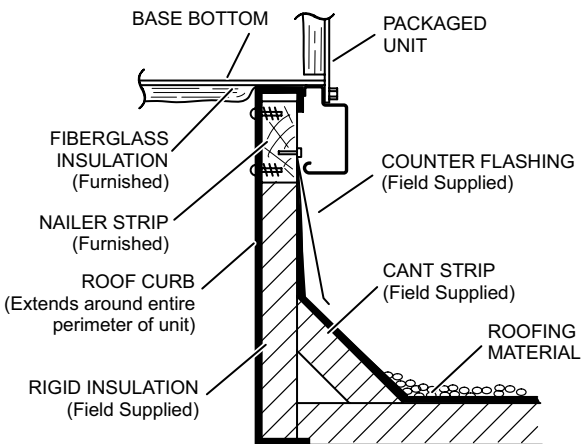
Note - Return Air Duct and Transition must be supported.

ACCESSORY DIMENSIONS - INCHES (MM)

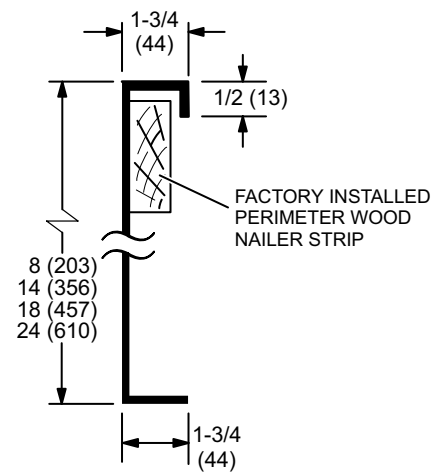
HYBRID ROOF CURBS - DOUBLE DUCT OPENING



TYPICAL FLASHING DETAIL FOR ROOF CURB



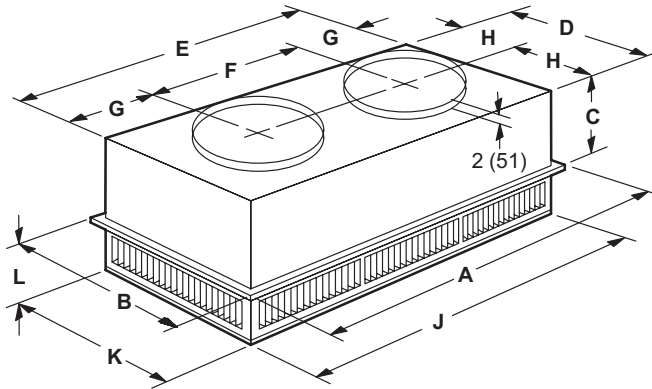
DETAIL ROOF CURB



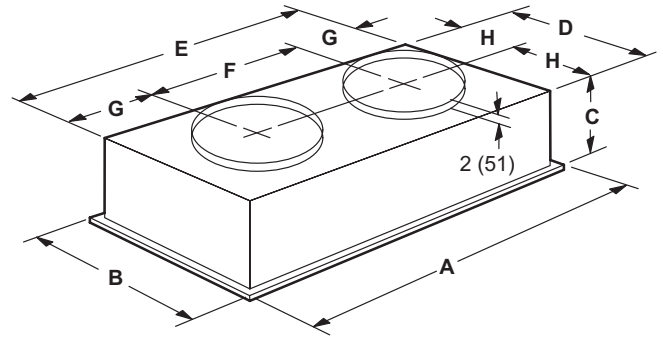
ACCESSORY DIMENSIONS - INCHES (MM)

COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

STEP-DOWN CEILING DIFFUSER



FLUSH CEILING DIFFUSER



Model Number		RTD9-65
A	in.	47-5/8
	mm	1159
B	in.	23-5/8
	mm	600
C	in.	11-3/8
	mm	289
D	in.	21-1/2
	mm	546
E	in.	45-1/2
	mm	1156
F	in.	22-1/2
	mm	572
G	in.	11-1/2
	mm	292
H	in.	10-3/4
	mm	273
J	in.	45-1/2
	mm	1156
K	in.	21-1/2
	mm	546
L	in.	7-1/8
	mm	181
Duct Size	in.	18 round
	mm	457 round

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

REVISIONS

Sections	Description of Change
Dimensions	Added new Hybrid Roof Curbs.
Options/Accessories	Added new High Performance Economizers for Title 24 applications. Added new Hybrid Roof Curbs.



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