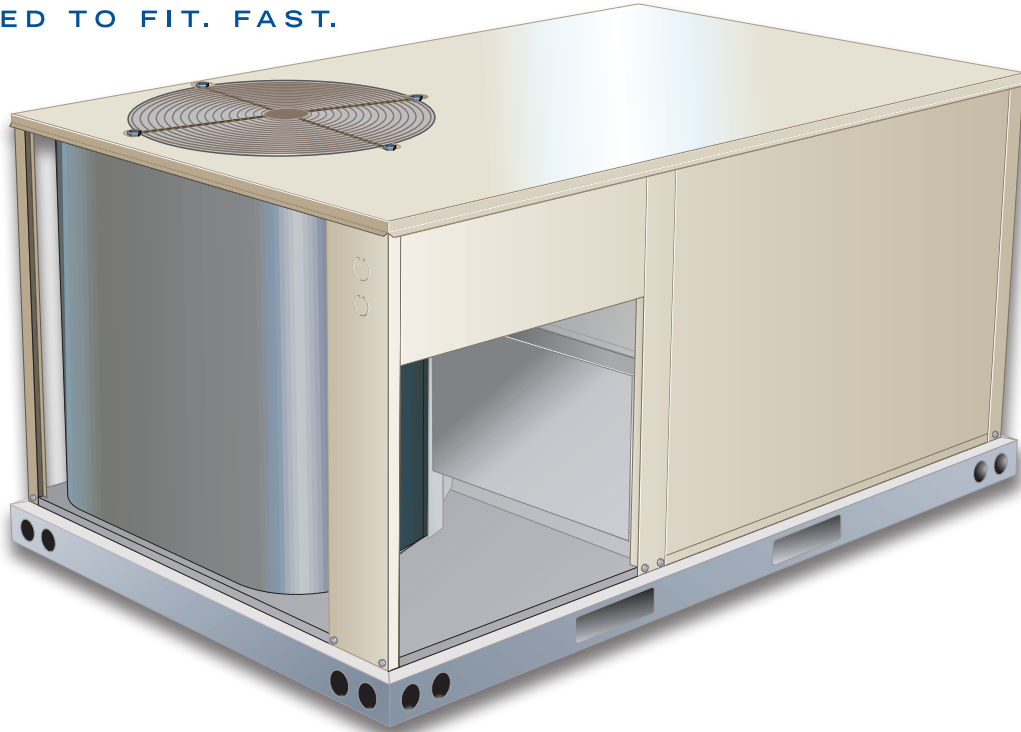


PRODUCT SPECIFICATIONS

Bulletin No. ZHA/ZHB-036-060 (5/2015)

Z-SERIES™

DESIGNED TO FIT. FAST.



**ASHRAE 90.1
COMPLIANT**

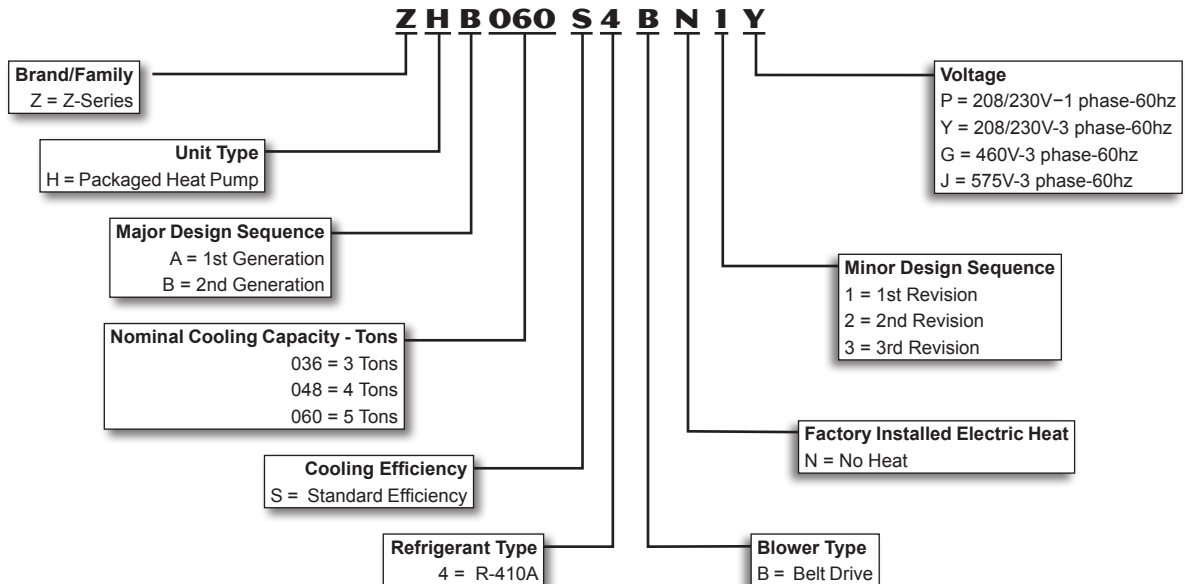
3 to 5 Tons

Net Cooling Capacity – 36,200 to 58,000 Btuh

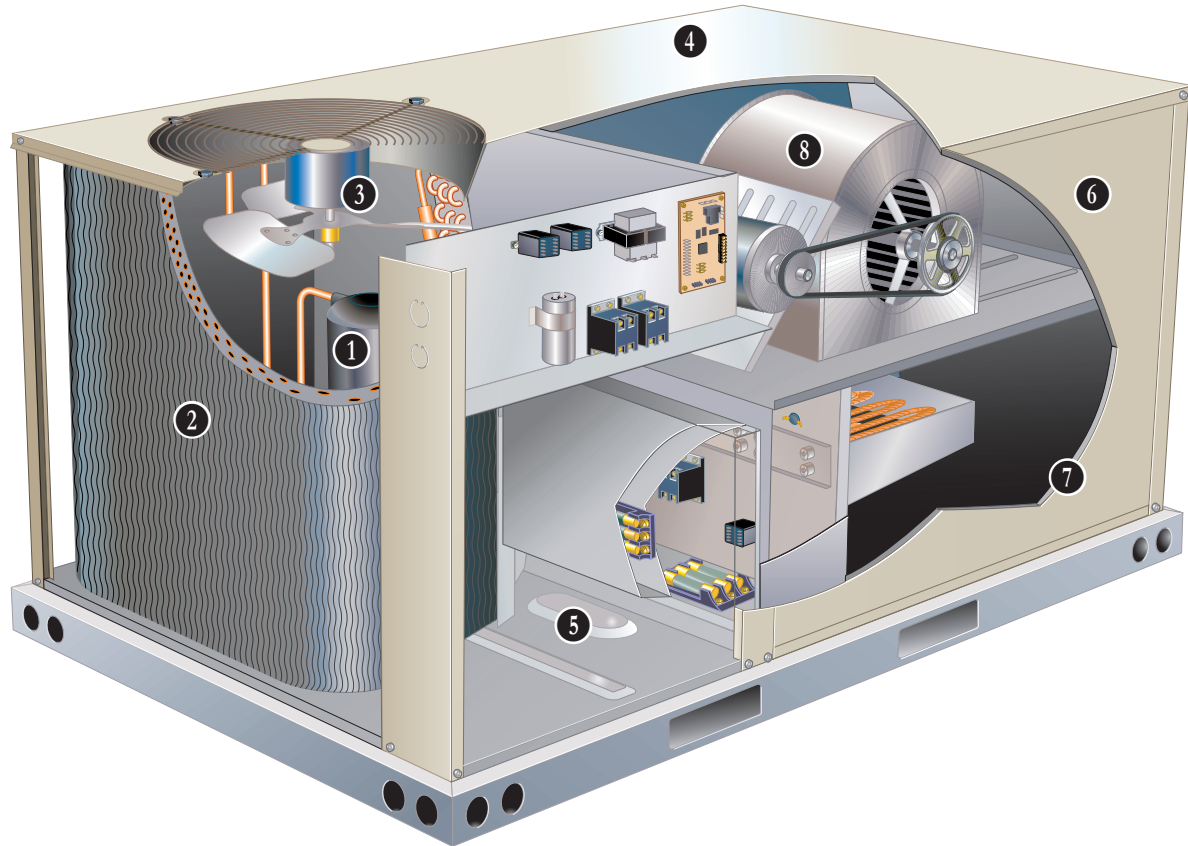
Net Heating Capacity – 34,200 to 58,500 Btuh

Optional Electric Heat - 5 to 22.5 kW

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.
- **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.
- **Thermostatic Expansion Valve** - Provides peak heating performance across the entire application range.

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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.

WARRANTY

Limited five years on compressors.
 Limited five years optional High Performance Economizers.
 Limited one year all other covered components.

COOLING / HEATING SYSTEM

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

System can operate from 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.

1 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.

Refrigerant Metering Orifice

Accurately meters refrigerant in system.

Refrigerant control is accomplished by exact sizing of refrigerant metering orifice.

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.

Reversing Valve

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

Defrost Control

Provides a defrost cycle, if needed, every 30 or 60 or 90 minutes (adjustable) of compressor “on” time at outdoor coil temperature below 35°F. Temperature switch mounted on outdoor coil liquid line terminates defrost cycle.

Filter/Drier

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

2 Coil Construction

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

Indoor Coil

Cross row circuiting with rifled 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.

3 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.

FEATURES AND BENEFITS

COOLING / HEATING SYSTEM (continued)

Required Selections

Cooling Capacity

Specify nominal cooling capacity of the unit.

Options/Accessories

Field Installed

Condensate Drain Trap

Field installed only.

Available in copper or PVC.

Drain Pan Overflow Switch

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

Low Ambient Kit

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

CABINET

4 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.

5 Power Entry

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

Optional Bottom Power Entry Kit is available.

6 Exterior Panels

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

7 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.

FEATURES AND BENEFITS

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.

8 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.

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.

Field Installed

Electric Heat

Helix wound nichrome elements, individual element limit controls, wiring harness. See Options / Accessories tables for ordering information.

NOTE - Unit Fuse Block is required and must be ordered separately. See Electrical/Electric Heat tables for ordering information.

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.

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.	ZHA ZHB 036	ZHA ZHB 048	ZHA ZHB 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	Z1SNSR34A-1	99W68	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 #ZA01 - 678-1035 rpm	Factory	O		
	Kit #ZA02 - 803-1226 rpm	Factory		O	
	Kit #ZA03 - 906-1383 rpm	Factory			⁴ O
	Kit #ZA04 - 964-1471 rpm	Factory	O		
	² Kit #ZA05 -1098-1490 rpm	Factory		O	
	² Kit #ZA06 -1262-1634 rpm	Factory			⁴ O
	Kit #ZAA01 - 522-784 rpm	Factory			³ O
	Kit #ZAA02 - 632-875 rpm	Factory			³ O
	Kit #ZAA03 - 798-1105 rpm	Factory			³ O
CABINET					
Coil/Hail Guards	ZHA models only - Z1GARD10A-1	97W53	X	X	
	ZHA060 and ZHB models only - Z1GARD10AT-1	99W58	X	X	X
Corrosion Protection		Factory	O	O	O
ELECTRICAL					
Voltage 60 hz	208/230V - 1 phase	Factory	³ O	³ O	³ 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
ELECTRIC HEAT					
5 kW	208/230V-1ph - Z1EH0050AN1P	98W96	¹ X	¹ X	¹ X
	208/230V-3ph - Z1EH0050AN1Y	99W01	X	X	X
	460V-3ph - Z1EH0050AN1G	99W06	X	X	X
	575V-3ph - Z1EH0050AN1J	99W11	X	X	X
7.5 kW	208/230V-1ph - Z1EH0075AN1P	98W97	¹ X	¹ X	¹ X
	208/230V-3ph - Z1EH0075AN1Y	99W02	X	X	X
	460V-3ph - Z1EH0075AN1G	99W07	X	X	X
	575V-3ph - Z1EH0075AN1J	99W12	X	X	X
10 kW	208/230V-1ph - Z1EH0100AN1P	98W98	¹ X	¹ X	¹ X
	208/230V-3ph - Z1EH0100AN1Y	99W03	X	X	X
	460V-3ph - Z1EH0100AN1G	99W08	X	X	X
	575V-3ph - Z1EH0100AN1J	99W13	X	X	X
15 kW	208/230V-1ph - Z1EH0150AN1P	98W99	¹ X	¹ X	¹ X
	208/230V-3ph - Z1EH0150AN1Y	99W04	X	X	X
	460V-3ph - Z1EH0150AN1G	99W09	X	X	X
	575V-3ph - Z1EH0150AN1J	99W14	X	X	X
22.5 kW	208/230V-1ph - Z1EH0225AN1P	99W00		¹ X	¹ X
	208/230V-3ph - Z1EH0225AN1Y	99W05		X	X
	460V-3ph - Z1EH0225AN1G	99W10		X	X
	575V-3ph - Z1EH0225AN1J	99W15		X	X
ELECTRIC HEAT ACCESSORIES					
Unit Fuse Block (required) - See Electrical/Electric Heat Tables for Selection			X	X	X

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

² 1.5 hp motor is required with ZA05 and ZA06 drive kits.

³ ZHB models only.

⁴ ZHA models only.

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

OX - Field Installed or Configure to Order (Factory Installed)

O - Configure to Order (Factory Installed)

X - Field Installed.

OPTIONS / ACCESSORIES

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

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

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

OX - Field Installed or Configure to Order (Factory Installed)

O - Configure to Order (Factory Installed)

X - Field Installed.

SPECIFICATIONS - ZHA

General Data		Nominal Tonnage	3 Ton	4 Ton	5 Ton	
		Model No.	ZHA036S4B	ZHA048S4B	ZHA060S4B	
		Efficiency Type	Standard	Standard	Standard	
Cooling Performance	Gross Cooling Capacity - Btuh		37,600	48,500	60,700	
	¹ Net Cooling Capacity - Btuh		36,200	46,500	58,000	
	AHRI Rated Air Flow - cfm		1310	1610	1940	
	² Sound Rating Number (SRN) (dBA) Cooling			79	79	83
		Heating		80	80	83
	Total Unit Power - kW		3.1	4.3	5.3	
	¹ SEER (Btuh/Watt)		13.00	13.00	13.00	
¹ EER (Btuh/Watt)		11.3	10.8	10.9		
Refrigerant	Type		R-410A	R-410A	R-410A	
	Charge Furnished		11 lbs. 12 oz.	12 lbs. 8 oz.	15 lbs. 3 oz.	
Heating Performance	Total High Heating Capacity - Btuh		34,200	45,000	58,500	
	Total Unit Power - kW		2.9	3.9	4.9	
	¹ COP		3.42	3.40	3.50	
	HSPF - Region IV (Region V)		7.70 (6.70)	7.70 (6.70)	7.70 (6.70)	
	Total Low Heating Capacity - Btuh		20,400	27,400	33,400	
	Total Unit Power - kW		2.8	3.6	4.5	
	COP		2.18	2.24	2.20	
Electric Heat Available - See page 8			5, 7.5, 10, 15 kW	5, 7.5, 10, 15, 22.5 kW		
Compressor Type (one per unit)			Scroll	Scroll	Scroll	
Outdoor Coil	Net face area - sq. ft.		16.1	16.1	19.9	
	Tube diameter - in.		3/8	3/8	3/8	
	Number of rows		2	2	2	
	Fins / inch		20	20	20	
	Expansion device type		Balanced port TXV, removable head			
Outdoor Coil Fan	Motor HP		(1) 1/4 (PSC)	(1) 1/4 (PSC)	(1) 1/3 (PSC)	
	Motor rpm		825	825	1075	
	Total motor watts		300	300	340	
	Diameter - in.		(1) 22	(1) 22	(1) 22	
	Number of blades		4	4	3	
	Total air volume - cfm		3200	3200	3600	
	Indoor Coil	Net face area - sq. ft.		8.4	8.4	9.6
Tube diameter - in.			3/8	3/8	3/8	
Number of rows			3	3	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		1 hp, 1.5 hp	1 hp, 1.5 hp	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 #ZA01 678-1035 rpm	Kit #ZA02 803-1226 rpm	Kit #ZA03 906-1383 rpm	
			Kit #ZA04 964-1471 rpm	⁵ Kit #ZA05 1098-1490 rpm	⁵ Kit #ZA06 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	(4) 14 x 20 x 2	(4) 16 x 20 x 2	
Electrical Characteristics - 60 Hz			208/230V, 460V & 575V 3 phase	208/230V, 460V & 575V 3 phase	208/230V, 460V & 575V 3 phase	

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

¹ AHRI Certified to AHRI Standard 210/240:

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

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

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

² Sound Rating Number (SRN) rated in accordance with test conditions included in 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.

⁵ 1.5 hp motor is required with ZA05 and ZA06 drive kits.

SPECIFICATIONS - ZHB

General Data		Nominal Tonnage	3 Ton	4 Ton	5 Ton	
		Model No.	ZHB036S4B	ZHB048S4B	ZHB060S4B	
		Efficiency Type	Standard	Standard	Standard	
Cooling Performance	Gross Cooling Capacity - Btuh		36,300	47,900	59,700	
	¹ Net Cooling Capacity - Btuh		35,000	46,500	58,000	
	AHRI Rated Air Flow - cfm		1260	1520	2015	
	² Sound Rating Number (SRN) (dBA) Cooling		79	77	82	
	Heating		80	78	82	
	Total Unit Power - kW		3.1	4.2	5.2	
	¹ SEER (Btuh/Watt)		14.00	14.00	14.00	
	¹ EER (Btuh/Watt)		11.40	11.20	11.20	
Refrigerant		Type	R-410A	R-410A	R-410A	
		Charge Furnished	14 lbs. 8 oz.	16 lbs. 5 oz.	14 lbs. 4 oz.	
Heating Performance	Total High Heating Capacity - Btuh		34,200	45,000	55,000	
	Total Unit Power - kW		2.9	3.8	4.5	
	¹ COP		3.50	3.50	3.60	
	HSPF - Region IV (Region V)		8.00 (6.70)	8.00 (6.70)	8.00 (6.70)	
	Total Low Heating Capacity - Btuh		20,000	26,100	32,500	
	Total Unit Power - kW		2.7	3.5	4.2	
	COP		2.20	2.20	2.25	
Electric Heat Available - See page 8			5, 7.5, 10, 15 kW	5, 7.5, 10, 15, 22.5 kW		
Compressor Type (one per unit)			Scroll	Scroll	Scroll	
Outdoor Coil	Net face area - sq. ft.		19.9	19.9	19.9	
	Tube diameter - in.		3/8	3/8	3/8	
	Number of rows		2	2	2	
	Fins / inch		20	20	20	
	Expansion device type		Balanced port TXV, removable head			
Outdoor Coil Fan	Motor HP		(1) 1/4	(1) 1/4	(1) 1/3	
	Motor rpm		825	825	1075	
	Total motor watts		300	300	350	
	Diameter - in.		(1) 22	(1) 22	(1) 22	
	Number of blades		4	4	3	
	Total air volume - cfm		3335	3335	3600	
Indoor Coil	Net face area - sq. ft.		9.6	10.8	10.8	
	Tube diameter - in.		3/8	3/8	3/8	
	Number of rows		3	3	3	
	Fins per inch		12	12	12	
	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 #ZA01		678-1035 rpm	803-1226 rpm	522-784 rpm
		Kit #ZA04		964-1471 rpm	⁵ Kit #ZA05 1098-1490 rpm	Kit #ZAA02 632-875 rpm
					⁵ Kit #ZAA03 798-1105 rpm	
Wheel nominal diameter x width - in.			10 x 10	10 x 10	15 x 9	
Filters	Type		Disposable			
	Number and size - in.		(4) 16 x 20 x 2	(4) 16 x 20 x 2	(2) 16 X 20 X 2 (2) 20 X 20 X 2	
Electrical Characteristics - 60 Hz			208/230V 1 phase	208/230V, 1 phase	208/230V, 1 phase	
			208/230V, 460V & 575V 3 phase	208/230V 460V & 575V 3 phase	208/230V 460V & 575V 3 phase	

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

¹ AHRI Certified to AHRI Standard 210/240:

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

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

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

² Sound Rating Number (SRN) rated in accordance with test conditions included in 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 ZA05 and ZAA03 drive kits.

COOLING / HEATING RATINGS - ZHA

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

3 TON COOLING STANDARD EFFICIENCY ZHA036S4

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	34.6	2.05	0.74	0.88	1	33.2	2.35	0.75	0.89	1	31.4	2.68	0.76	0.92	1	28.6	3.01	0.79	0.96	1				
	1200	36.5	2.06	0.79	0.95	1	35.1	2.36	0.81	0.97	1	33	2.68	0.83	1	1	30.3	3.03	0.86	1	1				
	1440	38	2.06	0.85	1	1	36.6	2.36	0.86	1	1	34.7	2.7	0.89	1	1	31.8	3.04	0.94	1	1				
67°F	960	36.8	2.06	0.58	0.71	0.84	35.4	2.36	0.59	0.72	0.86	33.4	2.69	0.59	0.74	0.88	30.3	3.02	0.61	0.77	0.93				
	1200	38.7	2.07	0.61	0.77	0.92	37.1	2.37	0.62	0.78	0.94	34.9	2.7	0.63	0.81	0.97	31.6	3.03	0.66	0.85	1				
	1440	40	2.07	0.65	0.82	0.99	38.2	2.37	0.66	0.84	1	35.9	2.7	0.67	0.87	1	32.4	3.04	0.7	0.92	1				
71°F	960	38.9	2.07	0.44	0.56	0.69	37.3	2.37	0.44	0.57	0.7	35.2	2.7	0.44	0.58	0.72	31.9	3.04	0.45	0.6	0.75				
	1200	40.9	2.08	0.45	0.6	0.74	39.1	2.38	0.45	0.61	0.76	36.7	2.71	0.46	0.62	0.78	33.2	3.05	0.47	0.65	0.83				
	1440	42.4	2.08	0.47	0.64	0.8	40.4	2.39	0.47	0.65	0.82	37.8	2.72	0.47	0.67	0.85	34.1	3.05	0.49	0.7	0.9				

3 TON HEATING STANDARD EFFICIENCY ZHA036S4

Indoor Coil Air Volume 70°F Dry Bulb cfm	Air Temperature Entering Outdoor Coil									
	65°F		45°F		25°F		5°F		-15°F	
	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input
cfm	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW
960	42.2	2.55	32.7	2.39	23.1	2.23	15.1	2.01	7.8	1.51
1200	42.4	2.37	32.9	2.21	23.3	2.04	15.3	1.82	7.9	1.32
1440	42.6	2.27	33.2	2.11	23.6	1.95	15.5	1.72	8.2	1.23

4 TON COOLING STANDARD EFFICIENCY ZHA048S4

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	46.3	2.99	0.73	0.88	1	41.9	3.39	0.73	0.9	1	37.3	3.85	0.74	0.93	1	32.5	4.39	0.76	0.97	1				
	1600	49.4	3.01	0.79	0.96	1	44.8	3.41	0.81	0.98	1	40.2	3.87	0.83	1	1	35.6	4.41	0.86	1	1				
	1920	52	3.03	0.85	1	1	47.7	3.42	0.87	1	1	43.2	3.89	0.9	1	1	38.4	4.44	0.94	1	1				
67°F	1280	50.1	3.01	0.56	0.71	0.85	45.6	3.41	0.55	0.71	0.87	40.9	3.87	0.54	0.72	0.89	35.7	4.41	0.53	0.74	0.93				
	1600	53.2	3.03	0.6	0.77	0.93	48.4	3.43	0.6	0.79	0.95	43.4	3.9	0.6	0.81	0.98	38	4.43	0.6	0.84	1				
	1920	55.3	3.05	0.64	0.84	0.99	50.4	3.45	0.64	0.86	1	45.1	3.91	0.65	0.88	1	39.5	4.45	0.66	0.92	1				
71°F	1280	53.8	3.03	0.4	0.55	0.69	49.3	3.43	0.39	0.54	0.69	44.3	3.9	0.36	0.54	0.71	39.1	4.44	0.33	0.53	0.72				
	1600	57	3.06	0.43	0.59	0.75	52.1	3.46	0.41	0.59	0.77	47	3.93	0.39	0.6	0.79	41.5	4.47	0.37	0.6	0.82				
	1920	59.5	3.08	0.45	0.64	0.82	54.3	3.48	0.43	0.64	0.84	48.8	3.95	0.42	0.65	0.86	43	4.49	0.4	0.67	0.9				

4 TON HEATING STANDARD EFFICIENCY ZHA048S4

Indoor Coil Air Volume 70°F Dry Bulb cfm	Air Temperature Entering Outdoor Coil									
	65°F		45°F		25°F		5°F		-15°F	
	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input
cfm	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW
1280	54.5	3.33	42.3	3.12	29.7	2.91	20	2.64	9.9	1.98
1600	55.2	3.12	43.1	2.91	30.5	2.7	20.8	2.43	10.7	1.77
1920	55.9	3	43.8	2.79	31.2	2.58	21.5	2.31	11.4	1.64

COOLING / HEATING RATINGS - ZHA

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

5 TON COOLING STANDARD EFFICIENCY ZHA060S4

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	58.4	3.7	0.73	0.88	1	53.3	4.17	0.74	0.9	1	47.8	4.72	0.75	0.93	1	42.1	5.37	0.77	0.96	1				
	2000	62	3.72	0.79	0.95	1	56.8	4.2	0.81	0.98	1	51.1	4.75	0.83	1	1	45.7	5.42	0.86	1	1				
	2400	65.2	3.74	0.85	1	1	60.2	4.22	0.87	1	1	54.7	4.79	0.9	1	1	49	5.46	0.94	1	1				
67°F	1600	62.9	3.72	0.56	0.71	0.84	57.7	4.21	0.55	0.71	0.86	51.9	4.76	0.55	0.73	0.89	45.9	5.42	0.54	0.75	0.93				
	2000	66.7	3.75	0.6	0.77	0.92	61.2	4.23	0.6	0.79	0.95	55.1	4.79	0.6	0.81	0.98	48.7	5.46	0.6	0.84	1				
	2400	69.5	3.77	0.64	0.83	0.98	63.5	4.25	0.64	0.85	1	57.3	4.81	0.65	0.88	1	50.7	5.48	0.66	0.91	1				
71°F	1600	67.4	3.75	0.41	0.55	0.68	62.1	4.24	0.39	0.55	0.69	56.1	4.8	0.38	0.54	0.71	50	5.47	0.35	0.54	0.73				
	2000	71.3	3.78	0.43	0.59	0.75	65.7	4.27	0.42	0.59	0.77	59.5	4.84	0.4	0.6	0.79	52.8	5.5	0.39	0.6	0.82				
	2400	74.4	3.8	0.45	0.63	0.81	68.3	4.29	0.44	0.64	0.83	61.7	4.86	0.43	0.65	0.86	54.9	5.54	0.42	0.67	0.89				

5 TON HEATING STANDARD EFFICIENCY ZHA060S4

Indoor Coil Air Volume 70°F Dry Bulb cfm	Air Temperature Entering Outdoor Coil									
	65°F		45°F		25°F		5°F		-15°F	
	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input
1600	72.9	4.28	55.2	3.98	36.8	3.68	23.8	3.28	12.1	2.45
2000	73.7	4.04	56	3.74	37.6	3.44	24.6	3.04	13	2.21
2400	74.4	3.9	56.7	3.6	38.3	3.29	25.3	2.9	13.6	2.07

COOLING / HEATING RATINGS - ZHB

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

3 TON COOLING STANDARD EFFICIENCY ZHB036S4

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	34.7	2.11	0.7	0.85	1	31.7	2.38	0.7	0.88	1	28.6	2.7	0.72	0.92	1	25.4	3.08	0.74	0.96	1
	1200	36.9	2.12	0.76	0.95	1	33.8	2.39	0.78	0.98	1	30.7	2.71	0.8	1	1	27.7	3.09	0.84	1	1
	1440	38.9	2.13	0.83	1	1	36	2.4	0.85	1	1	33	2.73	0.89	1	1	29.7	3.09	0.93	1	1
67°F	960	37.3	2.12	0.54	0.68	0.82	34.3	2.4	0.53	0.68	0.84	31.1	2.71	0.53	0.7	0.87	27.7	3.08	0.53	0.72	0.92
	1200	39.6	2.13	0.58	0.74	0.91	36.3	2.4	0.58	0.76	0.94	32.9	2.73	0.58	0.78	0.98	29.4	3.09	0.59	0.81	1
	1440	41.2	2.14	0.61	0.8	0.99	37.8	2.41	0.62	0.83	1	34.3	2.73	0.63	0.86	1	30.5	3.09	0.64	0.91	1
71°F	960	40	2.13	0.39	0.53	0.66	36.8	2.41	0.38	0.52	0.66	33.6	2.72	0.37	0.52	0.68	30	3.09	0.35	0.52	0.7
	1200	42.4	2.15	0.41	0.57	0.72	39	2.42	0.4	0.57	0.73	35.5	2.73	0.39	0.58	0.75	31.8	3.1	0.38	0.58	0.79
	1440	44	2.16	0.43	0.61	0.78	40.5	2.43	0.42	0.62	0.81	36.9	2.74	0.42	0.62	0.84	33	3.11	0.41	0.64	0.88

3 TON HEATING STANDARD EFFICIENCY ZHB036S4

Indoor Coil Air Volume 70°F Dry Bulb cfm	Air Temperature Entering Outdoor Coil									
	65°F		45°F		25°F		5°F		-15°F	
	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input
cfm	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW
960	41.2	2.49	32	2.38	22.6	2.27	15.1	2.07	7.5	1.54
1200	41.9	2.32	32.7	2.22	23.3	2.11	15.9	1.91	8.2	1.38
1440	42.5	2.23	33.3	2.13	23.8	2.02	16.4	1.82	8.7	1.29

4 TON COOLING STANDARD EFFICIENCY ZHB048S4

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	45.5	2.92	0.69	0.85	1	41.9	3.32	0.7	0.87	1	38.2	3.78	0.71	0.9	1	34.1	4.32	0.73	0.95	1
	1600	48.4	2.93	0.75	0.94	1	44.7	3.32	0.77	0.97	1	40.9	3.78	0.79	1	1	37	4.32	0.82	1	1
	1920	50.9	2.93	0.81	1	1	47.4	3.35	0.84	1	1	43.7	3.81	0.87	1	1	39.7	4.32	0.91	1	1
67°F	1280	49	2.93	0.53	0.67	0.81	45.3	3.33	0.53	0.68	0.83	41.3	3.78	0.52	0.69	0.86	37.1	4.33	0.53	0.71	0.9
	1600	51.7	2.93	0.57	0.73	0.9	47.8	3.35	0.57	0.74	0.93	43.7	3.79	0.57	0.76	0.97	39.2	4.33	0.58	0.79	1
	1920	53.8	2.94	0.6	0.79	0.98	49.7	3.35	0.61	0.81	1	45.4	3.8	0.62	0.84	1	40.8	4.33	0.63	0.88	1
71°F	1280	52.3	2.93	0.39	0.52	0.65	48.5	3.35	0.38	0.52	0.66	44.5	3.8	0.37	0.52	0.67	40.1	4.35	0.35	0.52	0.69
	1600	55.3	2.94	0.41	0.56	0.71	51.3	3.35	0.4	0.56	0.72	47	3.82	0.39	0.57	0.74	42.3	4.35	0.38	0.58	0.77
	1920	57.4	2.95	0.43	0.6	0.77	53.1	3.37	0.42	0.6	0.79	48.8	3.84	0.41	0.62	0.82	43.8	4.35	0.41	0.63	0.86

4 TON HEATING STANDARD EFFICIENCY ZHB048S4

Indoor Coil Air Volume 70°F Dry Bulb cfm	Air Temperature Entering Outdoor Coil									
	65°F		45°F		25°F		5°F		-15°F	
	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input
cfm	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW	kBtuh	kW
1280	50.8	3.58	43.4	3.18	36.2	2.77	25.6	2.42	12.2	1.85
1600	51.8	3.35	44.3	2.95	37.1	2.55	26.5	2.19	13.1	1.62
1920	52.5	3.21	45	2.82	37.9	2.41	27.3	2.06	13.9	1.48

COOLING / HEATING RATINGS - ZHB

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

5 TON COOLING STANDARD EFFICIENCY ZHB060S4

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	56.7	3.61	0.68	0.86	1	50.2	4.08	0.68	0.87	1	43.5	4.65	0.68	0.9	1	36.6	5.32	0.68	0.94	1
	2000	61.2	3.63	0.75	0.95	1	54.6	4.11	0.76	0.98	1	47.7	4.68	0.78	1	1	41.2	5.36	0.8	1	1
	2400	65.3	3.66	0.82	1	1	58.9	4.14	0.84	1	1	52.4	4.7	0.86	1	1	45.4	5.38	0.9	1	1
67°F	1600	62.3	3.64	0.51	0.67	0.82	55.6	4.12	0.49	0.66	0.84	48.7	4.69	0.46	0.66	0.86	41.3	5.34	0.43	0.67	0.9
	2000	66.8	3.66	0.56	0.74	0.91	59.7	4.14	0.54	0.74	0.94	52.4	4.71	0.53	0.76	0.97	44.7	5.38	0.51	0.78	1
	2400	69.9	3.68	0.6	0.8	0.99	62.7	4.16	0.59	0.82	1	55.1	4.72	0.59	0.84	1	47.1	5.39	0.58	0.88	1
71°F	1600	67.9	3.66	0.36	0.51	0.65	61.2	4.15	0.33	0.49	0.65	53.9	4.71	0.28	0.47	0.65	46.5	5.4	0.24	0.45	0.65
	2000	72.6	3.69	0.39	0.56	0.72	65.4	4.18	0.36	0.55	0.73	57.8	4.74	0.33	0.54	0.74	49.8	5.41	0.28	0.52	0.76
	2400	75.9	3.71	0.41	0.6	0.78	68.4	4.19	0.39	0.6	0.8	60.5	4.76	0.36	0.59	0.82	52.2	5.44	0.32	0.6	0.86

5 TON HEATING STANDARD EFFICIENCY ZHB060S4

Indoor Coil Air Volume 70°F Dry Bulb cfm	Air Temperature Entering Outdoor Coil									
	65°F		45°F		25°F		5°F		-15°F	
	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input	Total Heating Capacity	Comp. Motor Input
1600	61.7	3.84	52.8	3.65	44.4	3.46	31.7	3.14	15.1	2.34
2000	62.7	3.59	53.9	3.4	45.5	3.21	32.8	2.9	16.2	2.1
2400	63.7	3.45	54.8	3.26	46.4	3.07	33.7	2.75	17.1	1.95

BLOWER DATA - BELT DRIVE - ZHA036

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 22 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 ZA01													
900	562	0.16	629	0.18	699	0.19	771	0.2	840	0.22	904	0.24	962	0.26	1015	0.29		
1000	586	0.18	654	0.2	725	0.21	796	0.23	864	0.25	927	0.27	983	0.3	1034	0.33		
1100	612	0.2	681	0.22	752	0.24	823	0.26	890	0.28	950	0.31	1004	0.34	1054	0.37		
1200	641	0.23	711	0.25	783	0.27	852	0.29	917	0.32	975	0.35	1027	0.39	1074	0.42		
1300	673	0.25	744	0.28	815	0.3	882	0.33	944	0.36	1000	0.4	1050	0.44	1096	0.48		
1400	709	0.29	779	0.32	849	0.34	914	0.37	973	0.41	1026	0.45	1074	0.49	1118	0.53		
1500	747	0.33	816	0.36	883	0.39	945	0.42	1001	0.46	1052	0.51	1098	0.55	1141	0.59		

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 ZA04															
900	1065	0.32	1112	0.35	1158	0.38	1202	0.41	1243	0.44	1284	0.48	1323	0.52	1364	0.55
1000	1082	0.36	1128	0.39	1173	0.42	1216	0.45	1257	0.49	1297	0.53	1336	0.57	1375	0.6
1100	1100	0.4	1145	0.44	1189	0.47	1231	0.51	1272	0.54	1311	0.58	1349	0.62	1388	0.66
1200	1119	0.45	1163	0.49	1206	0.52	1247	0.56	1287	0.6	1326	0.64	1364	0.68	1402	0.72
1300	1139	0.51	1182	0.55	1224	0.58	1265	0.62	1304	0.66	1342	0.71	1379	0.75	1416	0.79
1400	1160	0.57	1202	0.61	1243	0.65	1283	0.69	1322	0.73	1359	0.78	1396	0.82	1432	0.87
1500	1182	0.64	1223	0.68	1263	0.72	1303	0.76	1341	0.81	1378	0.85	1414	0.9	1449	0.94

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 ZA01										Kit ZA04	
900	580	0.14	649	0.17	721	0.19	794	0.22	868	0.24	938	0.27	998	0.3	1045	0.33
1000	612	0.17	681	0.19	752	0.22	825	0.25	897	0.27	963	0.3	1017	0.33	1061	0.37
1100	647	0.2	717	0.23	788	0.26	858	0.28	926	0.31	986	0.34	1036	0.38	1077	0.41
1200	687	0.23	757	0.26	826	0.29	893	0.32	955	0.35	1008	0.39	1054	0.42	1095	0.46
1300	730	0.27	798	0.3	864	0.33	926	0.37	982	0.4	1030	0.44	1073	0.47	1116	0.51
1400	775	0.31	840	0.34	902	0.38	959	0.42	1009	0.46	1054	0.5	1096	0.53	1140	0.56
1500	820	0.36	881	0.4	939	0.44	993	0.49	1039	0.53	1082	0.56	1124	0.59	1168	0.62

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 ZA04															
900	1091	0.36	1140	0.38	1188	0.4	1232	0.43	1272	0.46	1309	0.49	1346	0.53	1383	0.57
1000	1105	0.4	1154	0.42	1201	0.45	1245	0.47	1284	0.5	1321	0.54	1357	0.58	1394	0.62
1100	1121	0.44	1169	0.47	1216	0.49	1259	0.52	1298	0.56	1335	0.6	1370	0.64	1406	0.69
1200	1139	0.49	1187	0.52	1234	0.54	1276	0.58	1314	0.62	1350	0.66	1385	0.71	1421	0.75
1300	1161	0.54	1208	0.57	1254	0.6	1295	0.64	1332	0.69	1366	0.73	1401	0.78	1436	0.83
1400	1185	0.59	1232	0.63	1276	0.67	1315	0.71	1351	0.76	1384	0.81	1419	0.86	1454	0.9
1500	1212	0.66	1257	0.7	1299	0.74	1337	0.79	1371	0.84	1404	0.89	1438	0.94	1473	0.99

BLOWER DATA - BELT DRIVE - ZHA048

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 22 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 ZA02									
1200	641	0.23	711	0.25	783	0.27	852	0.29	917	0.32	975	0.35	1027	0.39	1074	0.42
1300	673	0.25	744	0.28	815	0.30	882	0.33	944	0.36	1000	0.40	1050	0.44	1096	0.48
1400	709	0.29	779	0.32	849	0.34	914	0.37	973	0.41	1026	0.45	1074	0.49	1118	0.53
1500	747	0.33	816	0.36	883	0.39	945	0.42	1001	0.46	1052	0.51	1098	0.55	1141	0.59
1600	787	0.38	854	0.41	918	0.44	976	0.48	1030	0.52	1078	0.56	1123	0.61	1164	0.66
1700	827	0.43	892	0.46	952	0.49	1007	0.53	1058	0.58	1105	0.63	1148	0.68	1189	0.73
1800	868	0.48	929	0.52	986	0.55	1038	0.59	1087	0.64	1132	0.69	1174	0.75	1214	0.80
1900	907	0.54	966	0.58	1019	0.62	1069	0.66	1116	0.71	1160	0.77	1200	0.82	1240	0.88
2000	946	0.60	1001	0.65	1053	0.69	1101	0.74	1146	0.79	1188	0.85	1228	0.91	1267	0.98

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 ZA02						Kit ZA05									
1200	1119	0.45	1163	0.49	1206	0.52	1247	0.56	1287	0.60	1326	0.64	1364	0.68	1402	0.72
1300	1139	0.51	1182	0.55	1224	0.58	1265	0.62	1304	0.66	1342	0.71	1379	0.75	1416	0.79
1400	1160	0.57	1202	0.61	1243	0.65	1283	0.69	1322	0.73	1359	0.78	1396	0.82	1432	0.87
1500	1182	0.64	1223	0.68	1263	0.72	1303	0.76	1341	0.81	1378	0.85	1414	0.90	1449	0.94
1600	1205	0.70	1245	0.75	1284	0.79	1323	0.84	1361	0.88	1397	0.93	1432	0.98	1467	1.03
1700	1228	0.78	1268	0.82	1307	0.87	1345	0.92	1382	0.97	1417	1.02	1452	1.07	1486	1.11
1800	1253	0.85	1292	0.91	1331	0.96	1368	1.01	1404	1.06	1439	1.11	1473	1.16	1506	1.21
1900	1279	0.94	1317	1.00	1355	1.05	1392	1.10	1427	1.16	1461	1.21	1494	1.26	1527	1.31
2000	1305	1.04	1343	1.10	1380	1.15	1416	1.21	1450	1.26	1484	1.32	1516	1.37	1549	1.42

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 ZA02									
1200	687	0.23	757	0.26	826	0.29	893	0.32	955	0.35	1008	0.39	1054	0.42	1095	0.46
1300	730	0.27	798	0.30	864	0.33	926	0.37	982	0.40	1030	0.44	1073	0.47	1116	0.51
1400	775	0.31	840	0.34	902	0.38	959	0.42	1009	0.46	1054	0.50	1096	0.53	1140	0.56
1500	820	0.36	881	0.40	939	0.44	993	0.49	1039	0.53	1082	0.56	1124	0.59	1168	0.62
1600	864	0.42	921	0.46	976	0.51	1027	0.56	1072	0.60	1113	0.63	1155	0.66	1198	0.69
1700	907	0.48	961	0.53	1013	0.58	1061	0.63	1105	0.67	1146	0.70	1187	0.73	1230	0.77
1800	948	0.56	999	0.61	1049	0.66	1096	0.71	1139	0.75	1180	0.78	1221	0.82	1262	0.86
1900	987	0.64	1037	0.69	1086	0.74	1132	0.79	1174	0.83	1214	0.86	1255	0.90	1295	0.95
2000	1028	0.73	1076	0.78	1123	0.83	1168	0.87	1210	0.91	1250	0.96	1289	1.00	1328	1.06

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 ZA02						Kit ZA05									
1200	1139	0.49	1187	0.52	1234	0.54	1276	0.58	1314	0.62	1350	0.66	1385	0.71	1421	0.75
1300	1161	0.54	1208	0.57	1254	0.60	1295	0.64	1332	0.69	1366	0.73	1401	0.78	1436	0.83
1400	1185	0.59	1232	0.63	1276	0.67	1315	0.71	1351	0.76	1384	0.81	1419	0.86	1454	0.90
1500	1212	0.66	1257	0.70	1299	0.74	1337	0.79	1371	0.84	1404	0.89	1438	0.94	1473	0.99
1600	1242	0.73	1284	0.77	1324	0.82	1360	0.88	1394	0.93	1426	0.99	1460	1.04	1495	1.08
1700	1272	0.81	1312	0.86	1350	0.92	1385	0.98	1418	1.04	1451	1.09	1485	1.14	1519	1.19
1800	1302	0.90	1341	0.96	1377	1.02	1411	1.08	1444	1.15	1477	1.20	1510	1.25	1544	1.30
1900	1334	1.01	1371	1.07	1406	1.13	1439	1.20	1471	1.26	1504	1.32	1537	1.37	1571	1.41
2000	1365	1.12	1401	1.19	1435	1.25	1468	1.32	1500	1.38	1532	1.44	1565	1.49	1598	1.53

BLOWER DATA - BELT DRIVE - ZHA060

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 22 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 ZA03									
1600	764	0.35	822	0.39	880	0.42	936	0.46	991	0.51	1042	0.55	1091	0.60	1136	0.64
1700	801	0.40	857	0.44	913	0.48	968	0.52	1020	0.57	1070	0.61	1117	0.66	1162	0.71
1800	838	0.46	893	0.50	947	0.54	1000	0.58	1051	0.63	1099	0.68	1145	0.73	1188	0.78
1900	876	0.52	929	0.56	982	0.61	1033	0.65	1082	0.70	1129	0.75	1173	0.80	1215	0.85
2000	914	0.59	966	0.63	1017	0.68	1067	0.72	1115	0.77	1160	0.83	1203	0.88	1244	0.94
2100	953	0.66	1004	0.71	1054	0.76	1102	0.81	1148	0.86	1192	0.92	1233	0.98	1273	1.04
2200	993	0.74	1042	0.79	1090	0.85	1137	0.90	1181	0.96	1224	1.02	1264	1.09	1303	1.15
2300	1033	0.83	1081	0.89	1128	0.94	1173	1.01	1216	1.07	1257	1.14	1296	1.20	1334	1.27
2400	1074	0.93	1120	0.99	1166	1.05	1209	1.12	1251	1.19	1291	1.26	1329	1.33	1366	1.41

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 ZA03								Kit ZA06							
1600	1180	0.68	1222	0.72	1263	0.76	1303	0.80	1341	0.85	1378	0.90	1414	0.94	1449	0.99
1700	1204	0.75	1245	0.79	1285	0.84	1325	0.88	1362	0.93	1398	0.98	1434	1.03	1468	1.08
1800	1229	0.83	1270	0.87	1309	0.92	1347	0.97	1384	1.02	1420	1.07	1454	1.12	1488	1.17
1900	1256	0.91	1296	0.96	1334	1.01	1371	1.07	1407	1.12	1442	1.17	1476	1.23	1509	1.28
2000	1284	1.00	1322	1.06	1360	1.11	1396	1.17	1431	1.23	1465	1.28	1498	1.33	1531	1.38
2100	1312	1.10	1350	1.16	1386	1.22	1422	1.28	1456	1.34	1489	1.40	1521	1.45	1554	1.50
2200	1341	1.22	1378	1.28	1414	1.34	1448	1.41	1481	1.46	1513	1.52	1546	1.57	1578	1.62
2300	1371	1.34	1407	1.41	1442	1.47	1475	1.54	1507	1.59	1539	1.65	1571	1.70	1602	1.75
2400	1402	1.48	1436	1.55	1470	1.61	1503	1.67	1535	1.73	1566	1.79	1597	1.84	1628	1.89

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 ZA03									
1600	783	0.38	844	0.41	902	0.44	957	0.48	1008	0.52	1056	0.56	1100	0.60	1142	0.64
1700	825	0.44	882	0.47	938	0.50	989	0.54	1038	0.57	1083	0.62	1126	0.66	1166	0.71
1800	866	0.50	921	0.53	973	0.56	1021	0.60	1067	0.64	1111	0.68	1152	0.73	1191	0.78
1900	907	0.56	959	0.59	1008	0.63	1054	0.66	1098	0.71	1139	0.75	1179	0.80	1217	0.86
2000	948	0.63	996	0.66	1042	0.70	1086	0.74	1128	0.78	1168	0.83	1207	0.89	1244	0.94
2100	987	0.70	1033	0.74	1077	0.78	1119	0.82	1159	0.87	1198	0.93	1235	0.99	1272	1.05
2200	1026	0.78	1070	0.82	1112	0.87	1152	0.92	1191	0.98	1228	1.03	1265	1.10	1301	1.16
2300	1064	0.88	1106	0.92	1147	0.97	1186	1.03	1223	1.09	1260	1.15	1295	1.22	1331	1.28
2400	1102	0.98	1143	1.03	1182	1.08	1220	1.15	1256	1.21	1292	1.28	1327	1.35	1362	1.42

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 ZA03								Kit ZA06							
1600	1183	0.68	1223	0.72	1263	0.76	1302	0.81	1340	0.86	1377	0.91	1413	0.95	1448	1.00
1700	1205	0.75	1245	0.79	1284	0.84	1322	0.89	1360	0.94	1396	0.99	1431	1.04	1465	1.09
1800	1230	0.83	1268	0.87	1306	0.92	1344	0.98	1380	1.03	1416	1.08	1450	1.13	1483	1.19
1900	1255	0.91	1292	0.96	1330	1.02	1367	1.07	1402	1.13	1437	1.18	1470	1.24	1503	1.29
2000	1281	1.00	1318	1.06	1355	1.12	1391	1.18	1425	1.23	1459	1.29	1492	1.35	1524	1.40
2100	1308	1.11	1345	1.17	1381	1.23	1416	1.29	1450	1.35	1482	1.41	1514	1.46	1546	1.52
2200	1337	1.23	1372	1.29	1408	1.35	1442	1.42	1475	1.47	1507	1.53	1538	1.59	1569	1.64
2300	1366	1.35	1401	1.42	1435	1.49	1469	1.55	1501	1.61	1532	1.67	1563	1.72	1594	1.77
2400	1396	1.49	1431	1.56	1464	1.63	1496	1.69	1528	1.75	1559	1.81	1589	1.86	1619	1.91

BLOWER DATA - BELT DRIVE - ZHBO36

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 22 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 ZA01											
900	562	0.11	621	0.13	685	0.16	752	0.18	818	0.21	883	0.24	944	0.27	1001	0.30
1000	584	0.13	644	0.16	707	0.18	773	0.21	838	0.24	901	0.27	960	0.3	1015	0.33
1100	609	0.16	669	0.18	732	0.21	796	0.24	860	0.27	921	0.30	978	0.34	1031	0.37
1200	635	0.19	696	0.21	758	0.24	821	0.27	883	0.31	942	0.34	997	0.38	1049	0.42
1300	664	0.22	725	0.25	786	0.28	848	0.31	908	0.35	965	0.39	1018	0.43	1068	0.47
1400	696	0.26	756	0.29	816	0.32	876	0.36	935	0.40	989	0.44	1041	0.48	1089	0.52
1500	729	0.30	788	0.33	848	0.37	906	0.41	962	0.45	1015	0.50	1065	0.54	1112	0.58

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 ZA04															
900	1053	0.32	1103	0.35	1149	0.38	1193	0.41	1234	0.43	1274	0.47	1312	0.50	1351	0.53
1000	1066	0.36	1114	0.39	1160	0.42	1204	0.45	1245	0.48	1284	0.51	1322	0.54	1361	0.58
1100	1081	0.40	1128	0.43	1173	0.46	1216	0.49	1257	0.53	1296	0.56	1334	0.60	1372	0.63
1200	1097	0.45	1144	0.48	1188	0.51	1231	0.54	1271	0.58	1310	0.62	1347	0.66	1385	0.69
1300	1115	0.50	1161	0.53	1204	0.56	1246	0.60	1286	0.64	1325	0.68	1362	0.72	1399	0.76
1400	1135	0.56	1179	0.59	1222	0.62	1264	0.66	1303	0.70	1341	0.75	1378	0.79	1415	0.83
1500	1157	0.62	1200	0.65	1242	0.69	1282	0.73	1321	0.77	1359	0.82	1396	0.86	1431	0.91

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 ZA01											
900	560	0.16	624	0.18	692	0.20	761	0.21	830	0.23	896	0.25	956	0.27	1012	0.29
1000	583	0.18	647	0.20	715	0.22	783	0.24	850	0.25	914	0.27	972	0.30	1025	0.33
1100	609	0.20	673	0.22	740	0.24	808	0.26	873	0.28	934	0.31	990	0.34	1041	0.37
1200	637	0.23	702	0.25	769	0.27	835	0.29	898	0.32	956	0.35	1009	0.38	1058	0.41
1300	669	0.26	734	0.28	800	0.30	863	0.33	924	0.36	979	0.39	1030	0.43	1077	0.46
1400	704	0.29	768	0.32	832	0.35	894	0.37	951	0.41	1004	0.44	1052	0.48	1097	0.52
1500	742	0.33	805	0.36	867	0.39	925	0.42	980	0.46	1030	0.50	1076	0.54	1119	0.58

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 ZA04															
900	1064	0.32	1114	0.35	1162	0.38	1208	0.41	1251	0.45	1293	0.49	1333	0.52	1373	0.56
1000	1076	0.36	1124	0.39	1170	0.42	1216	0.46	1259	0.49	1300	0.53	1340	0.57	1379	0.61
1100	1089	0.40	1136	0.43	1181	0.46	1225	0.50	1268	0.54	1308	0.58	1347	0.62	1386	0.66
1200	1104	0.45	1150	0.48	1194	0.51	1237	0.55	1279	0.59	1319	0.63	1357	0.67	1394	0.71
1300	1121	0.5	1165	0.53	1209	0.57	1251	0.61	1292	0.65	1331	0.69	1368	0.73	1405	0.78
1400	1140	0.56	1183	0.59	1225	0.63	1266	0.67	1306	0.71	1345	0.76	1382	0.8	1417	0.85
1500	1161	0.62	1202	0.65	1243	0.69	1284	0.73	1323	0.78	1360	0.83	1396	0.87	1432	0.92

BLOWER DATA - BELT DRIVE - ZHBO48

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 22 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 ZA02									
1200	620	0.23	681	0.29	744	0.34	809	0.39	875	0.43	941	0.47	1004	0.51	1060	0.54
1300	652	0.28	713	0.34	775	0.39	839	0.44	903	0.48	967	0.51	1025	0.55	1078	0.59
1400	687	0.33	747	0.39	809	0.44	871	0.49	934	0.53	994	0.57	1048	0.61	1098	0.64
1500	724	0.40	784	0.45	844	0.50	905	0.54	965	0.59	1021	0.62	1071	0.66	1118	0.70
1600	764	0.46	823	0.51	882	0.56	940	0.60	997	0.65	1048	0.69	1094	0.72	1140	0.75
1700	806	0.53	863	0.58	919	0.62	975	0.67	1028	0.71	1075	0.75	1119	0.78	1164	0.81
1800	849	0.60	903	0.65	957	0.69	1010	0.74	1058	0.78	1102	0.82	1145	0.85	1189	0.88
1900	892	0.68	944	0.72	995	0.77	1045	0.82	1089	0.86	1131	0.89	1174	0.92	1217	0.95
2000	935	0.76	984	0.81	1033	0.86	1079	0.91	1122	0.95	1163	0.97	1204	1.00	1247	1.03

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 ZA02						Kit ZA05									
1200	1111	0.58	1156	0.60	1199	0.62	1241	0.63	1284	0.65	1326	0.67	1367	0.71	1408	0.74
1300	1127	0.62	1172	0.65	1214	0.66	1256	0.68	1299	0.70	1341	0.73	1381	0.77	1421	0.81
1400	1145	0.68	1189	0.70	1231	0.72	1274	0.74	1316	0.76	1357	0.79	1397	0.83	1436	0.88
1500	1164	0.73	1208	0.75	1251	0.78	1293	0.80	1334	0.83	1374	0.86	1413	0.91	1451	0.95
1600	1185	0.79	1229	0.81	1271	0.84	1313	0.86	1354	0.90	1393	0.94	1431	0.98	1468	1.03
1700	1208	0.84	1252	0.87	1294	0.90	1335	0.94	1375	0.98	1413	1.02	1449	1.07	1485	1.12
1800	1233	0.91	1276	0.94	1318	0.98	1358	1.02	1397	1.06	1434	1.11	1469	1.16	1504	1.21
1900	1261	0.98	1303	1.02	1343	1.06	1382	1.11	1420	1.16	1455	1.21	1490	1.26	1525	1.31
2000	1289	1.07	1330	1.11	1370	1.16	1407	1.21	1444	1.27	1478	1.32	1513	1.37	1547	1.42

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 ZA02									
1200	614	0.21	681	0.25	752	0.30	821	0.34	888	0.39	950	0.43	1006	0.46	1057	0.49
1300	644	0.24	712	0.29	782	0.34	850	0.39	915	0.43	974	0.47	1027	0.51	1076	0.53
1400	677	0.29	746	0.34	814	0.39	880	0.44	942	0.48	998	0.52	1049	0.55	1097	0.58
1500	714	0.34	781	0.40	848	0.45	911	0.49	970	0.53	1023	0.57	1072	0.60	1119	0.63
1600	752	0.40	818	0.45	882	0.50	943	0.55	999	0.59	1050	0.62	1097	0.66	1142	0.69
1700	792	0.46	855	0.52	917	0.56	975	0.61	1028	0.64	1077	0.68	1123	0.72	1166	0.75
1800	832	0.53	894	0.58	952	0.63	1007	0.67	1058	0.70	1105	0.74	1149	0.78	1192	0.82
1900	873	0.60	932	0.65	988	0.69	1040	0.73	1088	0.77	1134	0.81	1177	0.85	1219	0.90
2000	914	0.67	970	0.72	1023	0.76	1073	0.80	1120	0.85	1163	0.89	1205	0.94	1246	0.99

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 ZA02						Kit ZA05									
1200	1105	0.51	1152	0.53	1197	0.55	1240	0.58	1280	0.61	1320	0.64	1358	0.68	1395	0.72
1300	1123	0.55	1169	0.57	1213	0.60	1255	0.63	1295	0.67	1334	0.70	1372	0.74	1409	0.79
1400	1142	0.60	1187	0.63	1230	0.66	1272	0.69	1312	0.73	1350	0.77	1388	0.82	1424	0.86
1500	1163	0.66	1207	0.69	1249	0.72	1290	0.76	1330	0.80	1368	0.85	1405	0.90	1441	0.94
1600	1185	0.72	1228	0.75	1270	0.79	1310	0.83	1349	0.88	1387	0.93	1423	0.98	1459	1.03
1700	1209	0.78	1251	0.82	1292	0.87	1331	0.92	1370	0.97	1407	1.02	1443	1.07	1478	1.12
1800	1234	0.86	1275	0.91	1315	0.96	1354	1.01	1391	1.06	1428	1.11	1463	1.17	1498	1.22
1900	1260	0.95	1300	1.00	1340	1.05	1377	1.11	1414	1.16	1450	1.22	1485	1.27	1519	1.32
2000	1287	1.04	1326	1.10	1365	1.16	1402	1.21	1437	1.27	1472	1.33	1507	1.38	1541	1.43

BLOWER DATA - BELT DRIVE - ZHB060

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 22 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
	Kit ZAA01								Kit ZAA02							
1600	522	0.27	552	0.32	585	0.37	619	0.43	656	0.48	693	0.53	732	0.59	771	0.64
1700	539	0.32	570	0.37	603	0.43	638	0.48	674	0.53	711	0.59	749	0.64	787	0.69
1800	558	0.38	589	0.43	623	0.48	658	0.54	694	0.59	730	0.64	767	0.70	803	0.75
1900	578	0.44	610	0.49	643	0.54	678	0.60	714	0.65	749	0.70	785	0.76	819	0.82
2000	600	0.50	632	0.56	665	0.61	699	0.66	734	0.71	769	0.77	803	0.83	837	0.90
2100	623	0.57	655	0.62	688	0.68	721	0.73	755	0.79	789	0.84	822	0.91	854	0.98
2200	647	0.65	678	0.70	711	0.75	743	0.81	776	0.86	809	0.93	841	1.00	872	1.06
2300	671	0.73	702	0.78	734	0.83	766	0.89	798	0.95	829	1.02	860	1.09	890	1.16
2400	696	0.81	726	0.87	757	0.92	788	0.98	819	1.04	850	1.11	880	1.19	909	1.26

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 ZAA02								Kit ZAA03							
1600	809	0.69	844	0.74	877	0.80	908	0.85	936	0.91	963	0.97	989	1.02	1014	1.08
1700	823	0.75	857	0.80	889	0.86	919	0.92	947	0.97	973	1.03	999	1.09	1024	1.14
1800	838	0.81	870	0.87	901	0.92	931	0.98	958	1.04	984	1.10	1009	1.16	1034	1.22
1900	853	0.88	885	0.94	915	0.99	944	1.05	971	1.11	996	1.17	1021	1.23	1045	1.29
2000	869	0.96	899	1.01	929	1.07	957	1.13	984	1.19	1009	1.25	1033	1.31	1058	1.38
2100	885	1.04	915	1.10	944	1.15	971	1.22	997	1.28	1022	1.34	1046	1.40	1070	1.46
2200	902	1.13	931	1.19	959	1.24	986	1.31	1012	1.37	1036	1.43	1060	1.50	1084	1.56
2300	920	1.23	948	1.29	975	1.35	1001	1.41	1027	1.47	1051	1.53	1075	1.60	1098	1.66
2400	938	1.33	965	1.39	992	1.45	1017	1.52	1042	1.58	1066	1.64	1090	1.70	1113	1.77

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
	Kit ZAA01								Kit ZAA02							
1600	525	0.30	561	0.34	597	0.39	635	0.43	673	0.47	711	0.51	748	0.56	784	0.61
1700	543	0.34	578	0.39	615	0.43	653	0.48	691	0.52	728	0.57	765	0.62	800	0.67
1800	561	0.39	597	0.44	635	0.49	672	0.53	710	0.58	746	0.63	782	0.68	816	0.73
1900	581	0.44	618	0.49	655	0.54	692	0.59	729	0.64	765	0.69	800	0.75	833	0.80
2000	602	0.50	639	0.55	676	0.61	713	0.66	749	0.71	784	0.76	818	0.82	850	0.88
2100	625	0.57	661	0.62	698	0.67	735	0.73	770	0.78	804	0.84	837	0.90	868	0.96
2200	648	0.64	685	0.69	721	0.75	757	0.80	791	0.86	824	0.92	856	0.98	886	1.05
2300	673	0.71	709	0.77	745	0.83	780	0.88	813	0.94	845	1.01	876	1.08	905	1.15
2400	699	0.79	734	0.85	769	0.91	803	0.97	835	1.04	866	1.11	896	1.18	924	1.25

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 ZAA02								Kit ZAA03							
1600	819	0.66	851	0.72	883	0.77	913	0.83	943	0.89	971	0.95	998	1.01	1024	1.07
1700	833	0.72	865	0.78	896	0.84	926	0.90	954	0.96	982	1.02	1009	1.08	1034	1.14
1800	848	0.79	880	0.85	910	0.92	939	0.98	967	1.04	994	1.10	1020	1.16	1045	1.23
1900	864	0.87	895	0.93	924	0.99	953	1.06	980	1.12	1007	1.18	1032	1.25	1056	1.31
2000	881	0.95	911	1.01	940	1.08	967	1.14	994	1.21	1020	1.27	1044	1.34	1068	1.40
2100	898	1.03	927	1.10	955	1.17	982	1.23	1008	1.30	1033	1.37	1057	1.43	1080	1.50
2200	916	1.12	944	1.19	971	1.26	998	1.33	1023	1.40	1047	1.47	1071	1.54	1093	1.60
2300	934	1.22	961	1.29	988	1.36	1014	1.43	1038	1.50	1062	1.58	1085	1.65	1107	1.71
2400	952	1.32	979	1.40	1005	1.47	1030	1.54	1054	1.62	1077	1.69	1099	1.76	1121	1.83

BLOWER DATA

DRIVE KIT SPECIFICATIONS

Model No.	Blower Motor Choice (HP)				Drive Kit No.	RPM Range
	Nominal	Maximum	Nominal	Maximum		
ZHA/ZHB036	1 1	1 1.15	1.5	1.7	ZA01	678 - 1035
					ZA04	964 - 1471
ZHA/ZHB048	1 1	1 1.15	1.5	1.7	ZA02	803 - 1226
					² ZA05	1098 - 1490
ZHA060	1 1	1 1.15	1.5	1.7	ZA03	906-1383
					² ZA06	1262-1634
ZHB060	1 1	1 1.15	1.5	1.7	ZAA01	522 - 784
					ZAA02	632 - 875
					² ZAA03	798 - 1105

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

² 1.5 hp motor is required with ZA05, ZA06 and ZAA03 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			Electric Heat	Economizer	
	ZHA036, ZHA048	ZHA060, ZHB036	ZHB048, ZHB060		Downflow	Horizontal
900	0.01	0.01	---	0.05	0.03	0.04
1000	0.02	0.01	---	0.06	0.03	0.05
1100	0.02	0.02	---	0.08	0.04	0.05
1200	0.02	0.02	0.01	0.09	0.05	0.06
1300	0.03	0.02	0.02	0.12	0.05	0.07
1400	0.03	0.03	0.02	0.17	0.06	0.08
1500	0.04	0.03	0.02	0.22	0.07	0.08
1600	0.04	0.03	0.03	0.26	0.08	0.09
1700	0.05	0.04	0.03	0.30	0.09	0.10
1800	0.05	0.04	0.03	0.33	0.10	0.11
1900	0.06	0.05	0.04	0.33	0.11	0.12
2000	0.06	0.05	0.04	0.31	0.12	0.13
2100	---	0.06	0.05	0.27	0.13	0.14
2200	---	0.06	0.05	0.29	0.14	0.15
2300	---	0.07	0.05	0.31	0.15	0.16
2400	---	0.07	0.06	0.32	0.16	0.18

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.	
	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/ELECTRIC HEAT DATA - ZHA

3 TON

ZHA036S4

¹ Voltage - 60hz		208/230V - 3 Ph		460V - 3 Ph		575V - 3 Ph	
Compressor	Rated Load Amps	8.7		4		3.6	
	Locked Rotor Amps	70		31		27	
Outdoor Fan Motor	Full Load Amps	1.7		0.9		0.7	
Power Exhaust (1) 0.5 HP	Full Load Amps	1.5		0.6		0.6	
Indoor Blower Motor	Horsepower	1	1.5	1	1.5	1	1.5
	Full Load Amps	4.6	6.6	2.1	3	1.7	2.4
² Maximum Overcurrent Protection	Unit Only	25	25	15	15	15	15
	With (1) 0.5 HP Power Exhaust	25	25	15	15	15	15
³ Minimum Circuit Ampacity	Unit Only	18	20	8	9	7	8
	With (1) 0.5 HP Power Exhaust	19	21	9	10	8	9

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	208V	240V	480V	480V	600V	600V
² Maximum Overcurrent Protection	Unit+ Electric Heat	5 kW	35	35	35	35	20	20	15	15
		7.5 kW	40	40	40	45	20	25	20	20
		10 kW	45	50	50	50	25	25	20	20
		15 kW	60	70	60	70	35	35	25	30
³ Minimum Circuit Ampacity	Unit+ Electric Heat	5 kW	31	33	33	35	16	17	13	14
		7.5 kW	37	40	39	42	20	21	16	17
		10 kW	44	48	46	50	24	24	19	20
		15 kW	57	63	59	65	31	32	25	26
² Maximum Overcurrent Protection	Unit+ Electric Heat and (1) 0.5 HP Power Exhaust	5 kW	35	35	35	40	20	20	15	15
		7.5 kW	40	45	45	45	20	25	20	20
		10 kW	45	50	50	60	25	25	20	25
		15 kW	60	70	60	70	35	35	30	30
³ Minimum Circuit Ampacity	Unit+ Electric Heat and (1) 0.5 HP Power Exhaust	5 kW	32	34	34	36	17	18	14	15
		7.5 kW	39	42	41	44	20	21	17	18
		10 kW	45	49	47	51	24	25	20	21
		15 kW	58	64	60	66	32	33	26	27

ELECTRIC HEAT ACCESSORIES

Unit Fuse Block	Unit Only	10A27	10A27	10A29	10A29	10A29	10A29
	Unit + Power Exhaust	10A27	10A27	10A29	10A29	10A29	10A29

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

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

² HACR type breaker or fuse.

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

ELECTRICAL/ELECTRIC HEAT DATA - ZHA

4 TON

ZHA048S4

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

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	208V	240V	480V	480V	600V	600V
² Maximum Overcurrent Protection	Unit+ Electric Heat	5 kW	40	40	40	45	20	20	15	15
		7.5 kW	45	45	45	50	25	25	20	20
		10 kW	50	60	50	60	25	30	25	25
		15 kW	60	70	70	70	35	35	30	30
		22.5 kW	80	90	90	90	45	45	40	40
³ Minimum Circuit Ampacity	Unit+ Electric Heat	5 kW	34	36	36	38	18	19	15	15
		7.5 kW	40	43	42	45	22	23	18	18
		10 kW	47	51	49	53	25	26	21	22
		15 kW	60	66	62	68	33	34	27	28
		22.5 kW	79	88	81	90	44	45	36	37
² Maximum Overcurrent Protection	Unit+ Electric Heat and (1) 0.5 HP Power Exhaust	5 kW	40	40	40	45	20	20	15	20
		7.5 kW	45	50	50	50	25	25	20	20
		10 kW	50	60	50	60	30	30	25	25
		15 kW	70	70	70	70	35	35	30	30
			90	90	90	100	45	50	40	40
³ Minimum Circuit Ampacity	Unit+ Electric Heat and (1) 0.5 HP Power Exhaust	5 kW	35	37	37	39	18	19	15	16
		7.5 kW	42	45	44	47	22	23	18	19
		10 kW	48	52	50	54	26	27	21	22
		15 kW	61	67	63	69	34	34	27	28
		22.5 kW	81	90	83	92	45	46	36	37

ELECTRIC HEAT ACCESSORIES

Unit Fuse Block	Unit Only	10A27	10A27	10A29	10A29	10A29	10A29
	Unit + Power Exhaust	10A27	10A27	10A29	10A29	10A29	10A29

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

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

² HACR type breaker or fuse.

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

ELECTRICAL/ELECTRIC HEAT DATA - ZHA

5 TON

ZHA060S4

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

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	208V	240V	480V	480V	600V	600V
² Maximum Overcurrent Protection	Unit+ Electric Heat	5 kW	45	45	45	50	25	25	15	20
		7.5 kW	50	50	50	50	30	30	20	20
		10 kW	50	60	60	60	30	30	25	25
		15 kW	70	70	70	80	40	40	30	30
		22.5 kW	90	100	90	100	50	50	40	40
³ Minimum Circuit Ampacity	Unit+ Electric Heat	5 kW	37	39	39	41	21	22	15	16
		7.5 kW	43	46	45	48	25	26	18	19
		10 kW	50	54	52	56	29	30	21	22
		15 kW	63	69	65	71	36	37	27	28
		22.5 kW	82	91	84	93	47	48	36	37
² Maximum Overcurrent Protection	Unit+ Electric Heat and (1) 0.5 HP Power Exhaust	5 kW	45	50	50	50	25	25	20	20
		7.5 kW	50	50	50	50	30	30	20	20
		10 kW	60	60	60	60	30	30	25	25
		15 kW	70	70	70	80	40	40	30	30
		22.5 kW	90	100	90	100	50	50	40	40
³ Minimum Circuit Ampacity	Unit+ Electric Heat and (1) 0.5 HP Power Exhaust	5 kW	38	40	40	42	22	23	16	17
		7.5 kW	45	48	47	50	25	26	19	20
		10 kW	51	55	53	57	29	30	22	23
		15 kW	64	70	66	72	37	38	28	29
		22.5 kW	84	93	86	95	48	49	37	38

ELECTRIC HEAT ACCESSORIES

Unit Fuse Block	Unit Only	10A28	10A28	10A29	10A29	10A29	10A29
	Unit + Power Exhaust	10A28	10A28	10A29	10A29	10A29	10A29

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

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

² HACR type breaker or fuse.

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

ELECTRICAL/ELECTRIC HEAT DATA - ZHB

3 TON

ZHB036S4

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

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	208V	240V	208V	240V	480V	480V	600V	600V
² Maximum Overcurrent Protection	Unit+ Electric Heat	5 kW	60	60	35	35	35	35	20	20	15	15
		7.5 kW	70	80	40	40	40	45	20	20	20	20
		10 kW	80	90	45	50	45	50	25	25	20	20
		15 kW	100	110	60	70	60	70	35	35	25	30
³ Minimum Circuit Ampacity	Unit+ Electric Heat	5 kW	54	58	30	32	32	34	16	17	13	14
		7.5 kW	65	71	37	40	39	42	19	20	16	17
		10 kW	77	84	43	47	45	49	23	24	19	20
		15 kW	99	110	56	62	58	64	31	32	25	26
² Maximum Overcurrent Protection	Unit+ Electric Heat and (1) 0.5 HP Power Exhaust	5 kW	60	60	35	35	35	40	20	20	15	15
		7.5 kW	70	80	40	45	40	45	20	25	20	20
		10 kW	80	90	45	50	50	60	25	25	20	20
		15 kW	110	125	60	70	60	70	35	35	30	30
³ Minimum Circuit Ampacity	Unit+ Electric Heat and (1) 0.5 HP Power Exhaust	5 kW	56	59	32	34	34	36	16	17	14	14
		7.5 kW	67	72	38	41	40	43	20	21	17	17
		10 kW	78	85	45	49	47	51	24	25	20	20
		15 kW	101	111	58	64	60	66	31	32	26	26

ELECTRIC HEAT ACCESSORIES

Unit Fuse Block	Unit Only	10A26	10A27	10A27	10A29	10A29	10A29	10A29
	Unit + Power Exhaust	10A26	10A27	10A27	10A29	10A29	10A29	10A29

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

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

² HACR type breaker or fuse.

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

ELECTRICAL/ELECTRIC HEAT DATA - ZHB

4 TON

ZHB048S4

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

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	208V	240V	208V	240V	480V	480V	600V	600V
² Maximum Overcurrent Protection	Unit+ Electric Heat	5 kW	70	70	40	40	40	45	20	20	15	15
		7.5 kW	80	80	45	45	45	50	25	25	20	20
		10 kW	90	90	50	60	50	60	25	30	25	25
		15 kW	110	125	60	70	70	70	35	35	30	30
		22.5 kW	150	175	80	90	90	90	45	45	40	40
³ Minimum Circuit Ampacity	Unit+ Electric Heat	5 kW	61	64	34	36	36	38	18	19	15	15
		7.5 kW	72	77	40	43	42	45	22	23	18	18
		10 kW	83	90	47	51	49	53	25	26	21	22
		15 kW	106	116	60	66	62	68	33	34	27	28
		22.5 kW	140	155	79	88	81	90	44	45	36	37
² Maximum Overcurrent Protection	Unit+ Electric Heat and (1) 0.5 HP Power Exhaust	5 kW	70	80	40	40	40	45	20	20	15	20
		7.5 kW	80	90	45	50	50	50	25	25	20	20
		10 kW	90	100	50	60	50	60	30	30	25	25
		15 kW	110	125	70	70	70	70	35	35	30	30
		22.5 kW	150	175	90	90	90	100	45	50	40	40
³ Minimum Circuit Ampacity	Unit+ Electric Heat and (1) 0.5 HP Power Exhaust	5 kW	62	66	35	37	37	39	18	19	15	16
		7.5 kW	74	79	42	45	44	47	22	23	18	19
		10 kW	85	92	48	52	50	54	26	27	21	22
		15 kW	107	118	61	67	63	69	34	34	27	28
		22.5 kW	141	157	81	90	83	92	45	46	36	37

ELECTRIC HEAT ACCESSORIES

Unit Fuse Block	Unit Only	10A26	10A27	10A27	10A29	10A29	10A29	10A29
	Unit + Power Exhaust	10A26	10A27	10A27	10A29	10A29	10A29	10A29

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

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

² HACR type breaker or fuse.

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

ELECTRICAL/ELECTRIC HEAT DATA - ZHB

5 TON

ZHB060S4

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

ELECTRIC HEAT DATA

Electric Heat Voltage			208V	240V	208V	240V	208V	240V	480V	480V	600V	600V
² Maximum Overcurrent Protection	Unit+ Electric Heat	5 kW	80	80	45	45	45	50	25	25	15	20
		7.5 kW	80	90	50	50	50	50	30	30	20	20
		10 kW	90	100	50	60	60	60	30	30	25	25
		15 kW	110	125	70	70	70	80	40	40	30	30
		22.5 kW	150	175	90	100	90	100	50	50	40	40
³ Minimum Circuit Ampacity	Unit+ Electric Heat	5 kW	63	67	37	39	39	41	21	22	15	16
		7.5 kW	75	80	43	46	45	48	25	26	18	19
		10 kW	86	93	50	54	52	56	29	30	21	22
		15 kW	109	119	63	69	65	71	36	37	27	28
		22.5 kW	142	158	82	91	84	93	47	48	36	37
² Maximum Overcurrent Protection	Unit+ Electric Heat and (1) 0.5 HP Power Exhaust	5 kW	80	80	45	50	50	50	25	25	20	20
		7.5 kW	90	90	50	50	50	50	30	30	20	20
		10 kW	100	100	60	60	60	60	30	30	25	25
		15 kW	110	125	70	70	70	80	40	40	30	30
		22.5 kW	150	175	90	100	90	100	50	50	40	40
³ Minimum Circuit Ampacity	Unit+ Electric Heat and (1) 0.5 HP Power Exhaust	5 kW	65	68	38	40	40	42	22	23	16	17
		7.5 kW	76	81	45	48	47	50	25	26	19	20
		10 kW	87	94	51	55	53	57	29	30	22	23
		15 kW	110	120	64	70	66	72	37	38	28	29
		22.5 kW	144	160	84	93	86	95	48	49	37	38

ELECTRIC HEAT ACCESSORIES

Unit Fuse Block	Unit Only	10A26	10A28	10A28	10A29	10A29	10A29	10A29
	Unit + Power Exhaust	10A26	10A28	10A28	10A29	10A29	10A29	10A29

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

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

² HACR type breaker or fuse.

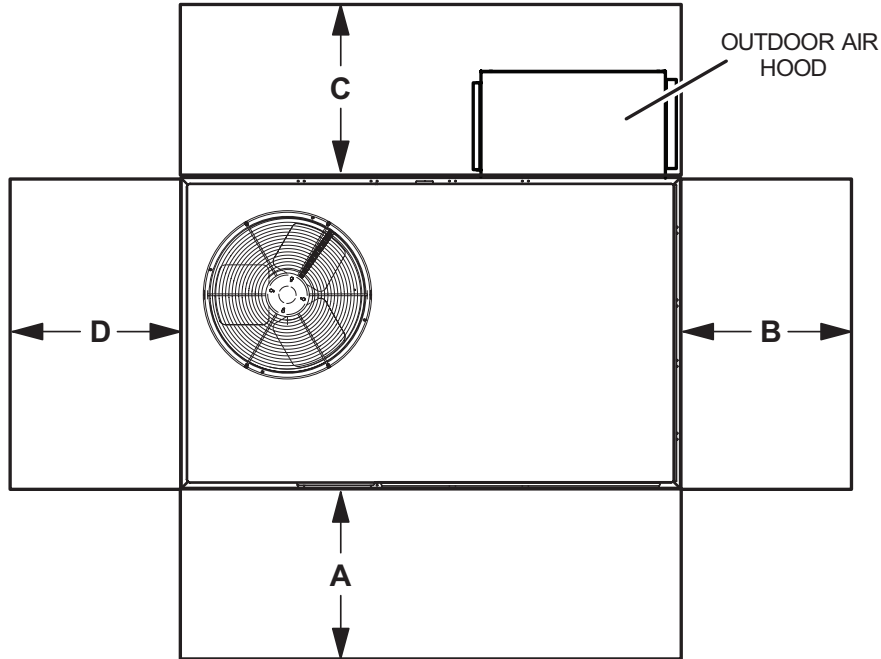
³ Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

ELECTRIC HEAT CAPACITIES

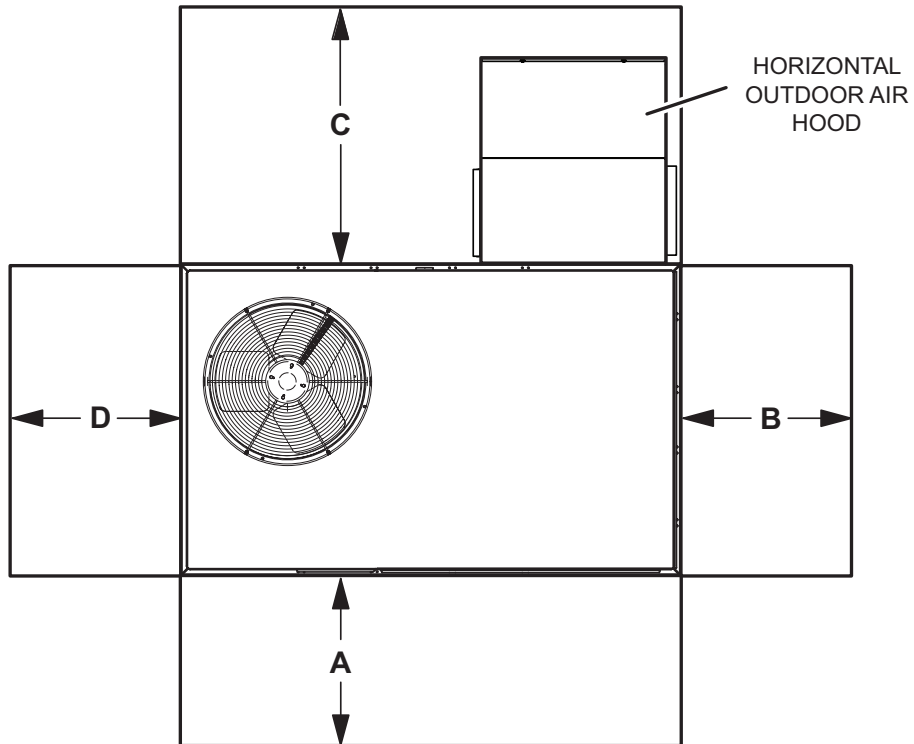
Input Voltage	5 kW			7.5 kW			10 kW			15 kW			22.5 kW		
	No of Stages	kW input	Btuh Output	No of Stages	kW input	Btuh Output	No of Stages	kW input	Btuh Output	No of Stages	kW input	Btuh Output	No of Stages	kW input	Btuh Output
208	1	3.8	12,800	1	5.6	19,200	1	7.5	25,600	1	11.2	38,400	1	16.9	57,700
220	1	4.2	14,300	1	6.3	21,500	1	8.4	28,700	1	12.6	43,000	1	18.9	64,500
230	1	4.6	15,700	1	6.9	23,500	1	9.2	31,400	1	13.8	47,000	1	20.7	70,700
240	1	5.0	17,100	1	7.5	25,600	1	10.0	34,200	1	15.0	51,200	1	22.5	76,800
440	1	4.2	14,300	1	6.3	21,500	1	8.4	28,700	1	12.6	43,000	1	18.9	64,500
460	1	4.6	15,700	1	6.9	23,500	1	9.2	31,400	1	13.8	47,000	1	20.7	70,700
480	1	5.0	17,100	1	7.5	25,600	1	10.0	34,200	1	15.0	51,200	1	22.5	76,800
550	1	4.2	14,300	1	6.3	21,500	1	8.4	28,700	1	12.6	43,000	1	18.9	64,500
575	1	4.6	15,700	1	6.9	23,500	1	9.2	31,400	1	13.8	47,000	1	20.7	70,700
600	1	5.0	17,100	1	7.5	25,600	1	10.0	34,200	1	15.0	51,200	1	22.5	76,800

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
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
ZHA036	Cooling	82	79	78	74	70	66	61	79
	Heating	82	79	79	74	71	67	63	80
ZHA048	Cooling	82	79	78	74	70	66	61	79
	Heating	82	79	79	74	71	67	63	80
ZHA060	Cooling	86	83	82	77	73	70	67	83
	Heating	85	83	82	78	73	70	66	83
ZHB036	Cooling	82	79	78	74	70	66	61	79
	Heating	82	79	79	74	71	67	63	80
ZHB048	Cooling	82	79	78	74	70	66	61	77
	Heating	82	79	79	74	71	67	63	78
ZHB060	Cooling	86	83	82	77	73	70	67	82
	Heating	85	83	82	78	73	70	66	82

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
ZHA036S	530	240	581	264	535	243	586	266
ZHB036S	580	263	634	288	585	265	639	290
ZHA048S	539	244	590	268	544	247	595	270
ZHB048S	585	265	639	290	590	268	644	292
ZHA060S	585	265	639	290	590	268	644	292
ZHB060S	610	277	664	301	615	279	669	303

Base Unit - The unit with NO OPTIONS.

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

OPTIONS / ACCESSORIES

		Shipping Weights	
		lbs.	kg
ECONOMIZER			
Economizer			
Economizer, Includes Outdoor Air Hood and Barometric Relief Dampers with Hood	Downflow	62	28
	Horizontal	92	42
OUTDOOR AIR			
Outdoor Air Dampers			
Motorized		30	14
Manual		23	10
POWER EXHAUST			
Standard Static	Downflow	54	24
	Horizontal	41	19
ELECTRIC HEAT			
	5 kW - Z1EH0050AN1	25	11
	7.5 kW - Z1EH0075AN1	26	12
	10 kW - Z1EH0100AN1	27	12
	15 kW - Z1EH0150AN1	27	12
	22.5 kW - Z1EH0225AN1	29	13
ROOF CURBS			
Hybrid Roof Curbs, Downflow			
8 in. height	Z1CURB70A-1	63	29
14 in. height	Z1CURB71A-1	83	38
18 in. height	Z1CURB72A-1	93	42
24 in. height	Z1CURB73A-1	113	51
CEILING DIFFUSERS			
Step-Down	RTD9-65-R	67	30
Flush	FD9-65-R	37	17

DIMENSIONS - INCHES (MM) - ZHA

Model No.	CORNER WEIGHTS												CENTER OF GRAVITY											
	AA		BB		CC		DD		EE		FF		EE		FF									
	Base	Max.	Base	Max.	Base	Max.	Base	Max.	Base	Max.	Base	Max.	Base	Max.	Base	Max.								
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	in.	mm	in.	mm	in.	mm								
036	136	62	152	69	126	57	157	71	129	58	138	62	139	63	134	61	39.5	1003	37.5	953	23.25	591	25	635
048	139	63	155	70	128	58	159	72	131	59	140	63	142	64	136	62	39.5	1003	37.5	953	23.25	591	25	635
060	172	78	190	86	139	63	171	77	123	56	132	60	151	69	147	67	42	1067	40	1016	25	635	26.5	673

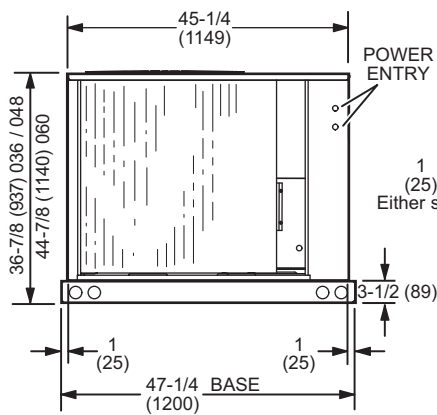
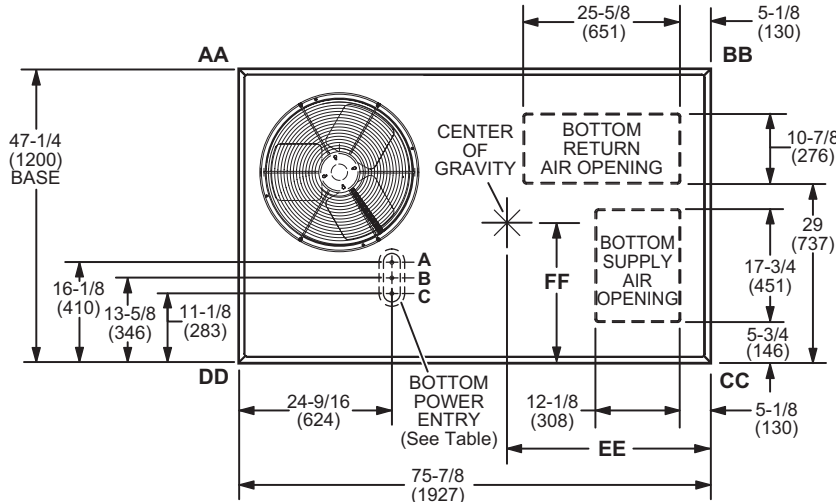
Base Unit - The unit with NO OPTIONS.

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

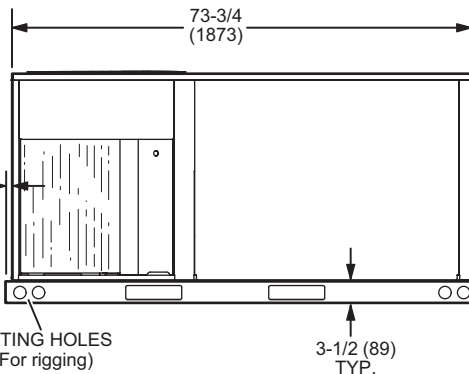
BOTTOM POWER ENTRY

Holes required for Optional Bottom Power Entry Kit

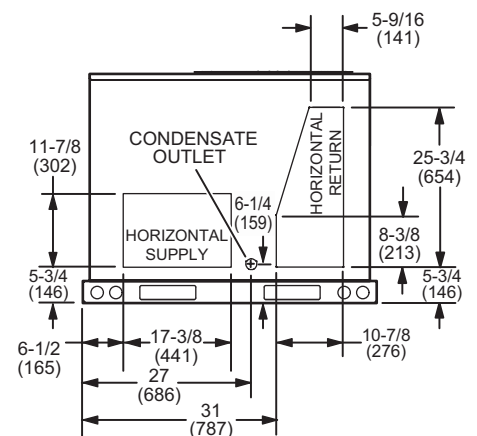
	Threaded Conduit Fittings (Provided in Kit)	Wire Use	Hole Diameter Required in Unit Base (Max.)
A	1/2	ACC	7/8 (23)
B	1/2	24V	7/8 (23)
C	3/4	POWER	1-1/8 (29)



END VIEW



FRONT VIEW



END VIEW

DIMENSIONS - INCHES (MM) - ZHB

Model No.	CORNER WEIGHTS														CENTER OF GRAVITY									
	AA		BB		CC		DD		EE		FF													
	Base	Max.	Base	Max.	Base	Max.	Base	Max.	Base	Max.	Base	Max.	Base	Max.	Base	Max.	Base	Max.						
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg	in.	mm	in.	mm	in.	mm	in.	mm				
036	158	72	173	78	133	60	145	66	124	56	135	61	147	67	160	73	41.25	1048	39.25	997	24.5	622	25.75	654
048	168	76	183	83	136	62	148	67	120	54	130	59	148	67	161	73	42	1067	40	1016	25	635	26.5	673
060	163	74	177	80	142	64	155	70	142	64	155	70	163	74	177	80	40.5	1029	38.5	978	23.5	597	25	635

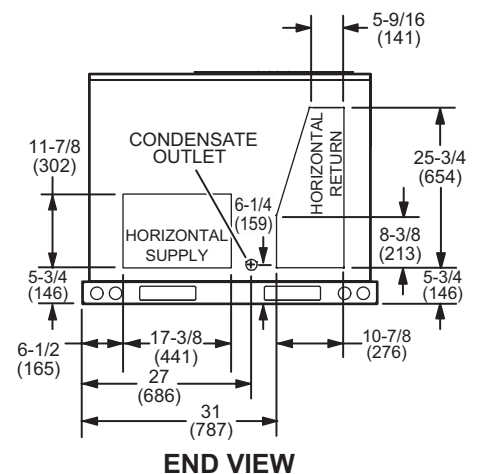
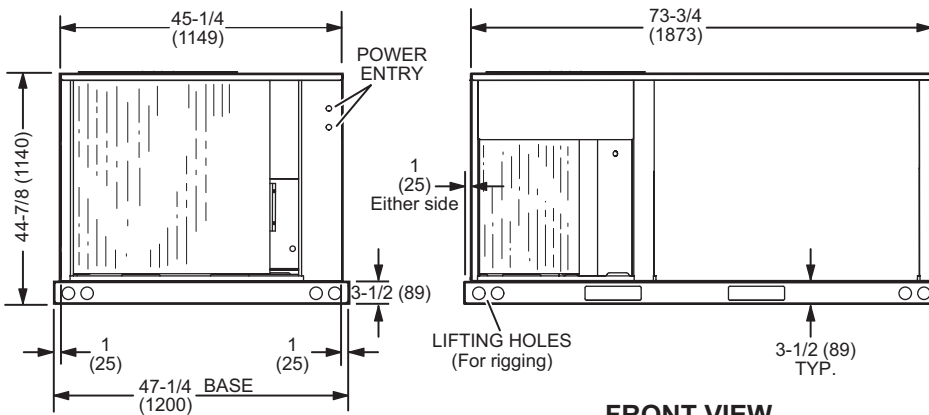
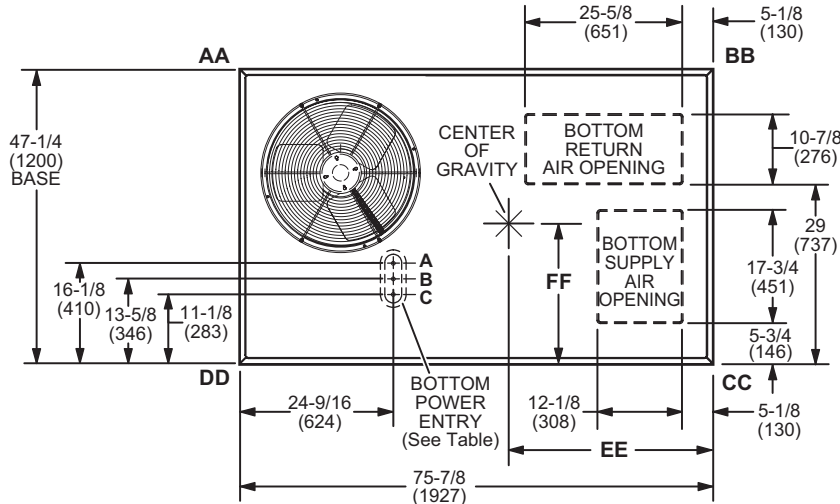
Base Unit - The unit with NO OPTIONS.

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

BOTTOM POWER ENTRY

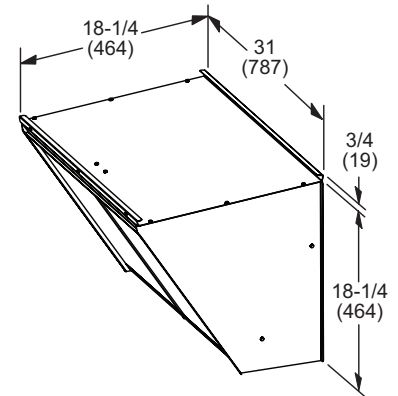
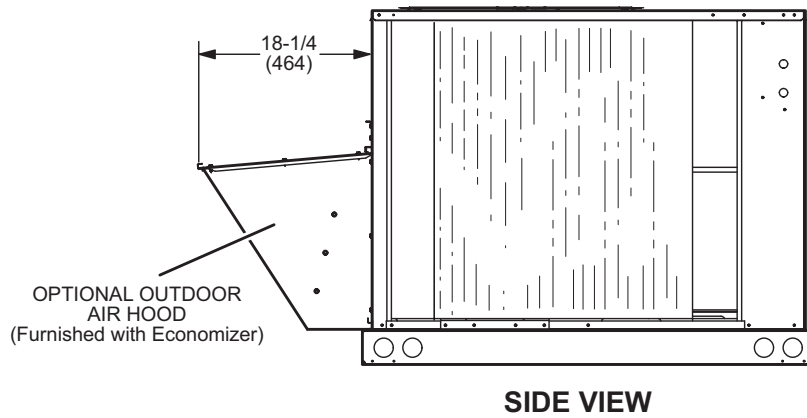
Holes required for Optional Bottom Power Entry Kit

	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)

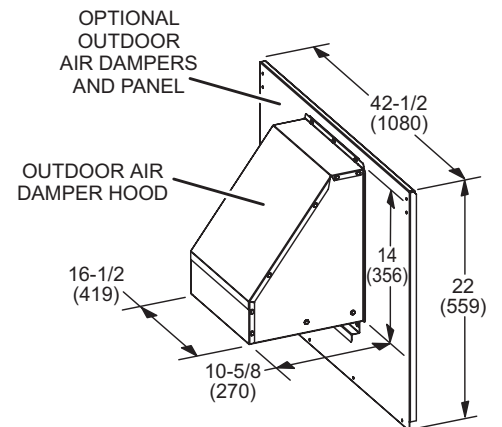
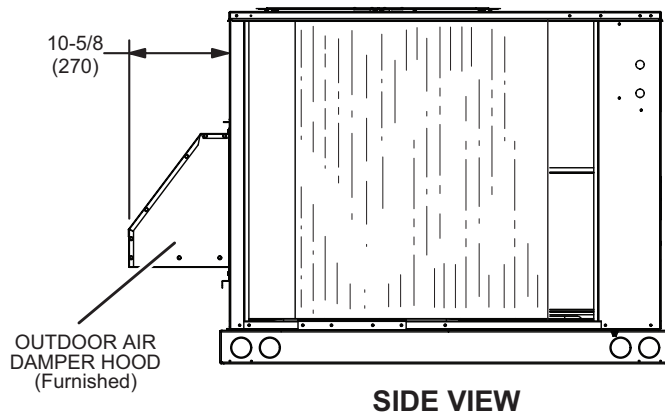


ACCESSORY DIMENSIONS - INCHES (MM)

**OUTDOOR AIR HOOD DETAIL FOR OPTIONAL ECONOMIZER
(Downflow Applications)**

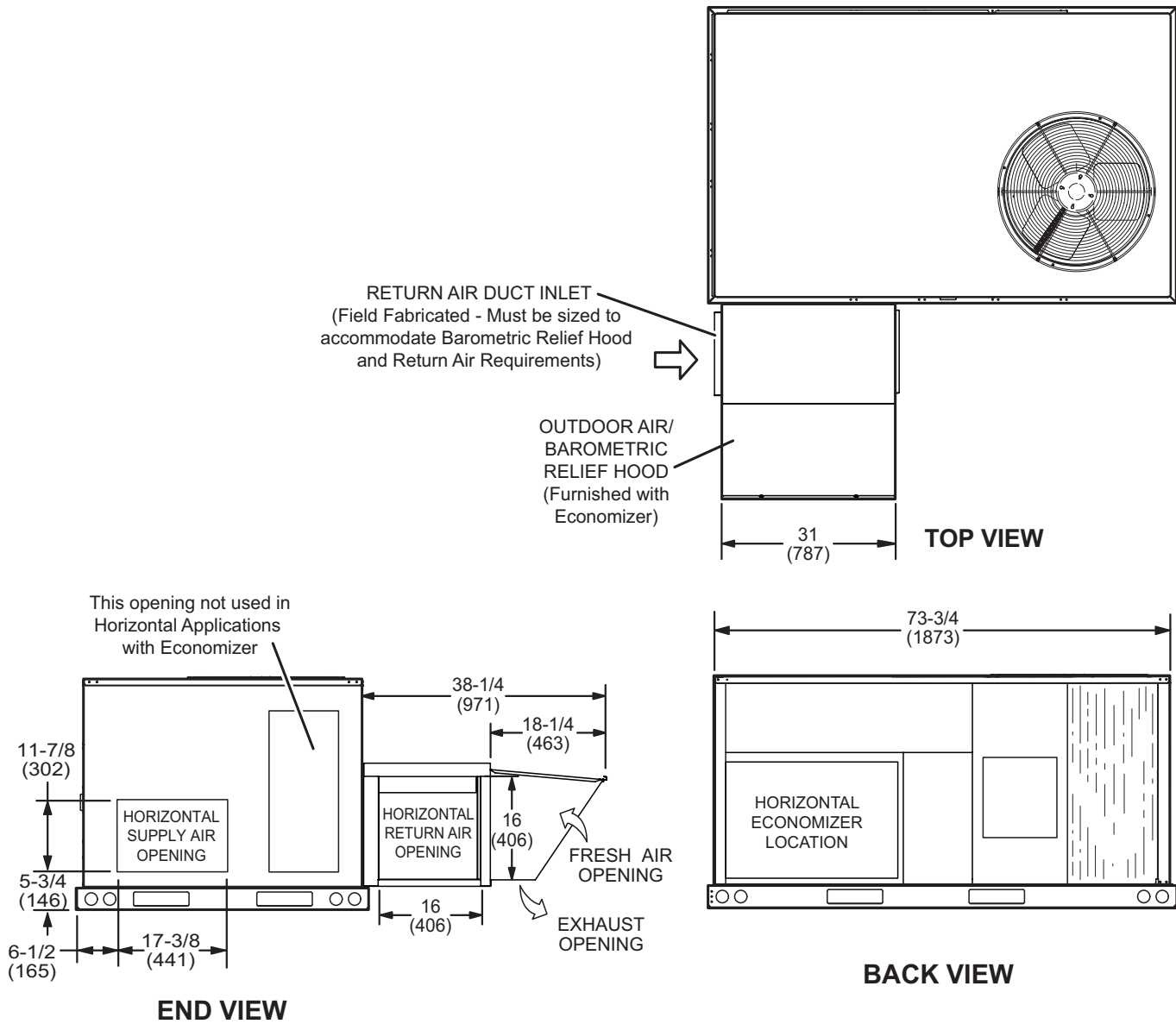


**OUTDOOR AIR DAMPER HOOD DETAIL FOR OPTIONAL MANUAL OR MOTORIZED OUTDOOR AIR DAMPERS
(Downflow or Horizontal Applications)**



ACCESSORY DIMENSIONS - INCHES (MM)

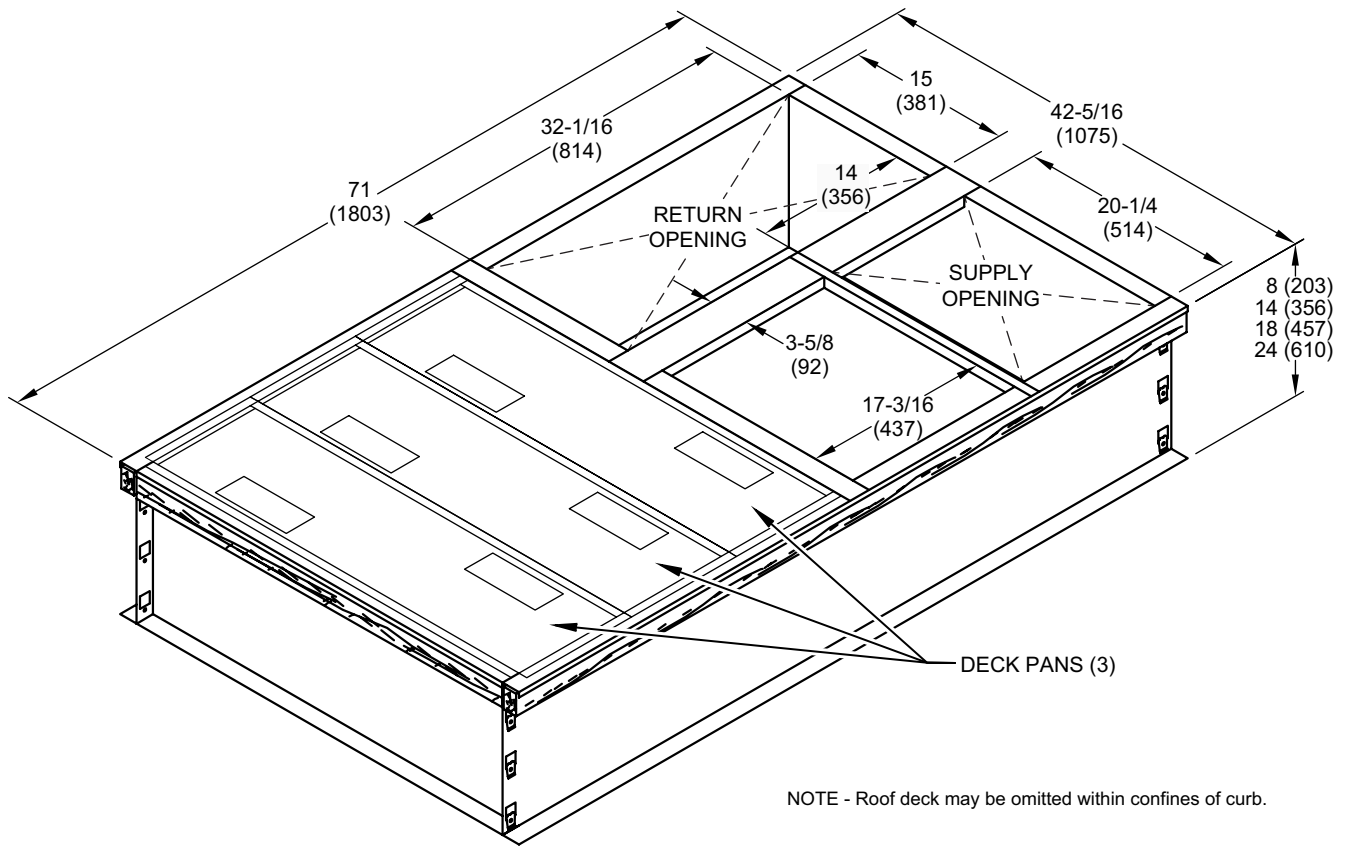
**OUTDOOR AIR HOOD DETAIL WITH OPTIONAL ECONOMIZER AND BAROMETRIC RELIEF DAMPERS
(Horizontal Applications)**



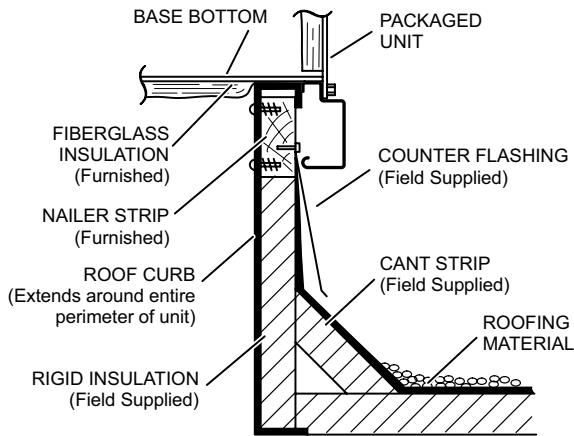
Note - Return Air Duct and Transition must be supported.

ACCESSORY DIMENSIONS - INCHES (MM)

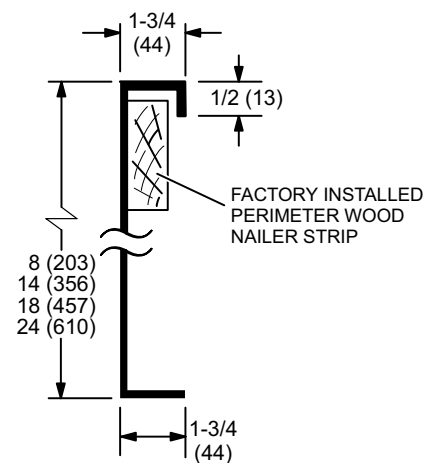
HYBRID ROOF CURBS - DOUBLE DUCT OPENING



TYPICAL FLASHING DETAIL FOR ROOF CURB



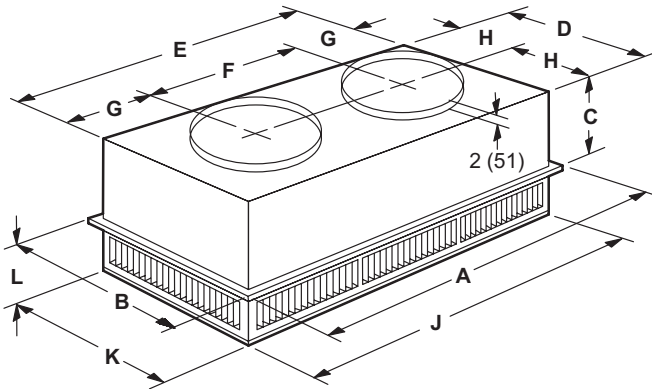
DETAIL ROOF CURB



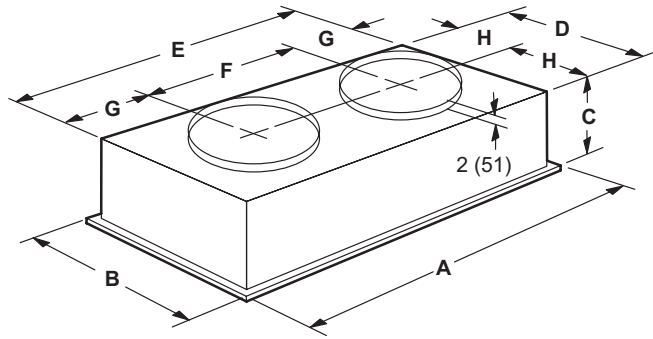
ACCESSORY DIMENSIONS - INCHES (MM)

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
Document	New Product - ZHB High efficiency models specifications, ratings, dimensions and options added.



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