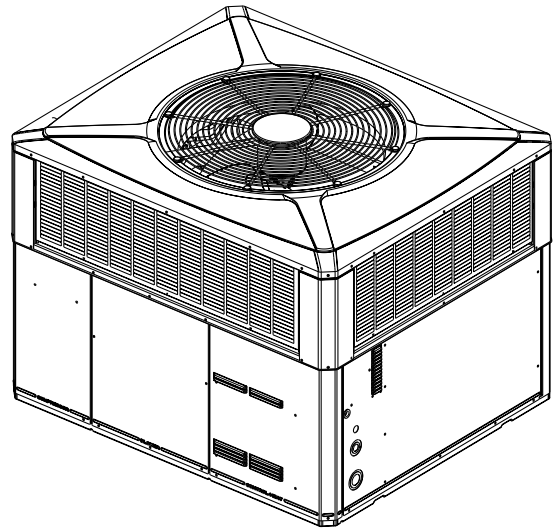


Submittal

Single Packaged Heat Pump, 15 SEER2 Two Stage, Convertible, 2 Ton, R-410A

4WCZ5024E1000A



Note: "Graphics in this document are for representation only. Actual model may differ in appearance."

Note: "Unit specific Service Facts available online."

SAFETY SECTION

Important — This document contains a wiring diagram, a parts list, and service information. This is customer property and is to remain with this unit. Please return to service information pack upon completion of work.

⚠ WARNING

HAZARDOUS VOLTAGE!

Failure to follow this Warning could result in property damage, severe personal injury, or death.

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized.

⚠ WARNING

SAFETY AND ELECTRICAL HAZARD!

Failure to follow this Warning could result in property damage, severe personal injury, or death.

These servicing instructions are for use by qualified personnel only. To reduce the risk of electrical shock, do not perform any servicing other than that contained in these operating instructions unless you are qualified to do so.

⚠ CAUTION

GROUNDING REQUIRED!

Failure to inspect or use proper service tools may result in equipment damage or personal injury.

Reconnect all grounding devices. All parts of this product that are capable of conducting electrical current are grounded. If grounding wires, screws, straps, clips, nuts, or washers used to complete a path to ground are removed for service, they must be returned to their original position and properly fastened.

⚠ WARNING

UNIT CONTAINS R-410A REFRIGERANT!

Failure to use proper service tools may result in equipment damage or personal injury.

R-410A operating pressure exceeds the limit of R-22. Proper service equipment is required. Service using only R-410A Refrigerant and approved POE compressor oil.

⚠ WARNING

SAFETY HAZARD!

Operating the unit without the access panels properly installed may result in severe personal injury or death.

Do not operate the unit without the evaporator fan access panel or evaporator coil access panel in place.

⚠ WARNING

WARNING!

This product can expose you to chemicals including lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Important: Wear appropriate gloves, arm sleeve protectors and eye protection when servicing or maintaining this equipment.

Important: Air filters and media wheels or plates shall meet the test requirements in UL 900.

Product Specification

Model	4WCZ5024E1000A
RATED Volts/PH/Hz	208-230/1/60
PERFORMANCE COOLING^(a)	
BTUH (High)	23800
Indoor Airflow (CFM) (High)	800
Power Input (KW)	1.98
BTUH (High)	19700
Indoor Airflow (CFM) (Low)	630
Power Input (KW)	1.17
EER2 / SEER2 BTUH/Watt-Hr ^(b)	11.0/15.0
Sound Power Rating [dB(A)] ^(c)	66.8
PERFORMANCE HEATING	
(High Temp.) BTUH/COP (High)	22800/3.60
Power Input (KW)	1.89
(Low Temp.) BTUH/COP (High)	13600/2.34
Power Input (KW)	1.70
(High Temp.) BTUH/COP (Low)	16300/3.41
Power Input (KW)	1.40
(Low Temp.) BTUH/COP (Low)	7900/1.77
Power Input (KW)	1.31
HSPF2 (BTUH/Watt-Hr)	7.25
POWER CONN. — V/Ph/Hz	
Min. Brch. Cir. Ampacity ^(d)	19.3
Fuse Size — Max. (amps)	30
Fuse Size — Recmd. (amps)	30
COMPRESSOR	
	2 STAGE SCROLL
VOLTS/PH/HZ	208-230/1/60
R.L. Amps — L.R. Amps	11.7 / 58.3
OUTDOOR COIL — TYPE	
	SPINE FIN
Rows/F.P.I	2 / 24
Face Area (sq. ft.)	15.49
Tube Size (in.)	3/8
Refrigerant Control	EXPANSION VALVE
INDOOR COIL — TYPE	
	PLATE FIN
Rows/F.P.I	4/15
Face Area (sq. ft.)	3.5

Model	4WCZ5024E1000A
Tube Size (in.)	3/8
Refrigeration Control	EXPANSION VALVE
Drain Conn. Size (in.)	3/4 FEMALE NPT
OUTDOOR FAN — TYPE	
	PROPELLER
DIA. (IN.)	23.4
DRIVE/NO. SPEEDS	DIRECT / 1
CFM @ 0.0 in. w.g. ^(e)	2550
Motor — HP/R.P.M	1/12 / 810
Volts/Ph/Hz	208-230/1/60
F.L. Amps/L.R Amps	0.54 / 0.82
INDOOR FAN — TYPE	
	CENTRIFUGAL
Dia. x Width (in.)	10 x 10
Drive/No. Speeds	DIRECT / VARIABLE
CFM @ 0.0 in. w.g. ^(f)	SEE FAN PERFORMANCE TABLE
Motor — HP / R.P.M.	1/2 / VARIABLE
Volts/Ph/Hz	208-230/1/60
F.L. Amps/L.R Amps	4.3 / 4.3
FILTER / FURNISHED	
	NO
Type Recommended	THROWAWAY
Recmd. Face Area (sq. ft) ^(g)	4.0
REFRIGERANT	
	R-410
Charge (lbs.)	7.87
Subcooling	8° F
DIMENSIONS	
	H X W X L
Crated (in.)	48 / 45 / 52
WEIGHT / Shipping / Net (lbs.)	
	442 / 372

(a) Rated in accordance with AHRI Standard 210/240.

(b) Rated in accordance with D.O.E. test procedure.

(c) Sound Power values are not adjusted for AHRI 270-95 tonal corrections.

(d) Calculated in accordance with currently prevailing Nat'l Electrical Code.

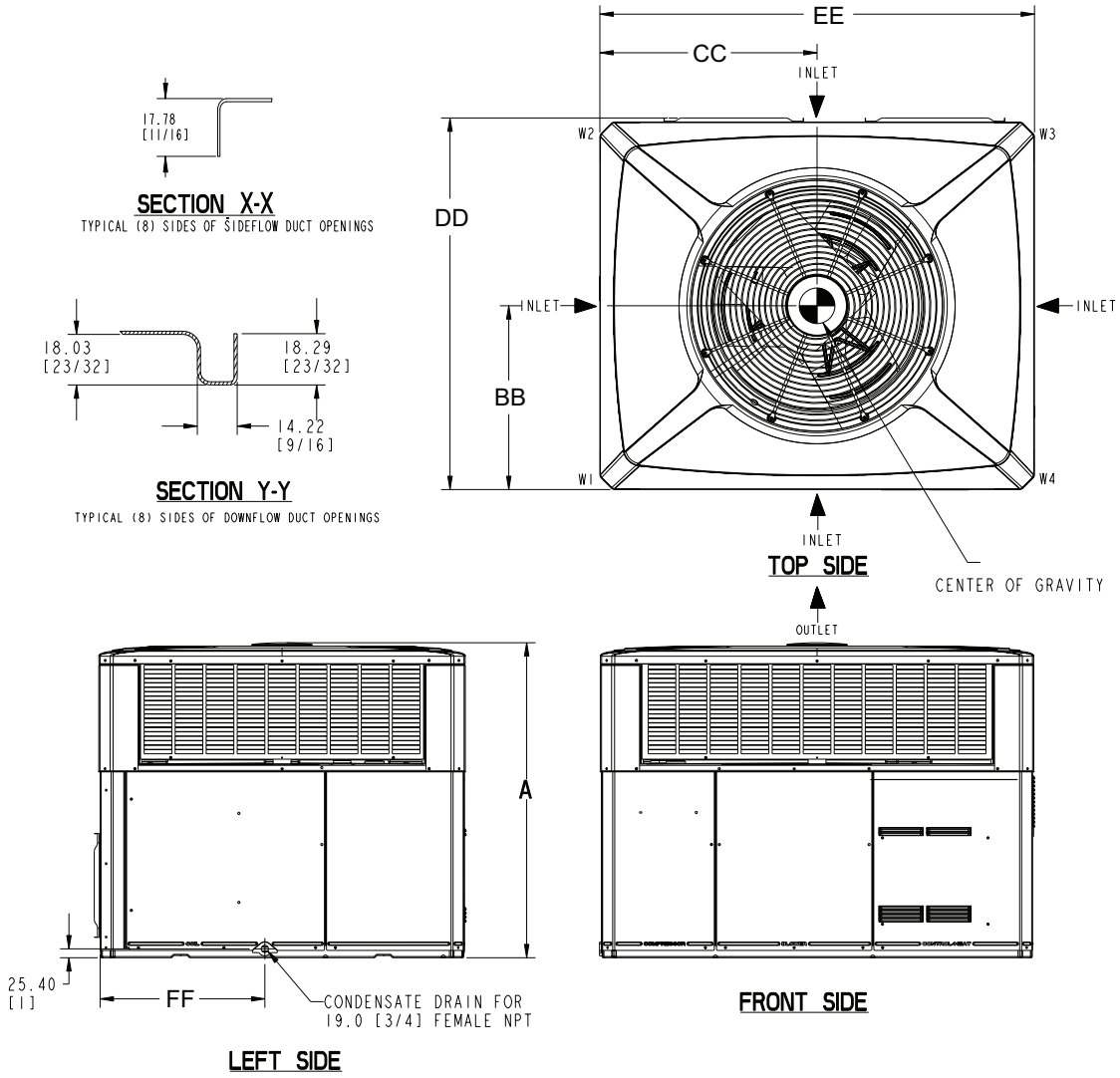
(e) Standard Air — Dry Coil — Outdoor.

(f) Standard Air — Dry Coil — Indoor

(g) Filters must be installed in return air stream. Square footages listed are based on 300 f.p.m. face velocity. If permanent filters are used size per manufacturer's recommendation with a clean resistance of 0.05" W.C.

Outline Drawings

Figure 1. 2 - 5 Ton Models



	2 - 3 TON Units		3.5 - 5 TON Units	
	RECOMMENDED SERVICE CLEARANCE mm [Inches]			
	W/ ECONOMIZER		W/ ECONOMIZER	
BACK SIDE	305 [12]	762 [30]	305 [12]	762 [30]
LEFT SIDE	762 [30]	914 [36]	914 [36]	1067 [42]
RIGHT SIDE	610 [24]	-	610 [24]	-
FRONT SIDE	1067 [42]	-	762 [30]	-
CLEARANCE TO COMBUSTIBLE MATERIAL mm [Inches]				
BOTTOM	0		0	
BACK SIDE	25 [1]		25 [1]	
LEFT SIDE	152 [6]		152 [6]	
RIGHT SIDE	152 [6]		152 [6]	
FRONT SIDE	305 [12]		305 [12]	
TOP	914 [36]		914 [36]	
DIMENSIONS mm [Inches]				
A	HEIGHT OF UNIT - TABLE NEXT PAGE			
BB	CENTER OF GRAVITY - TABLE NEXT PAGE			
CC	CENTER OF GRAVITY - TABLE NEXT PAGE			
DD -Depth	1093.72 [43-1/16]		1173.99 [46-1/4]	
EE -Width	1284.99 [50-5/8]		1535.94 [60-1/2]	
FF	497.8 [19-5/8]		576.00 [22-11/16]	

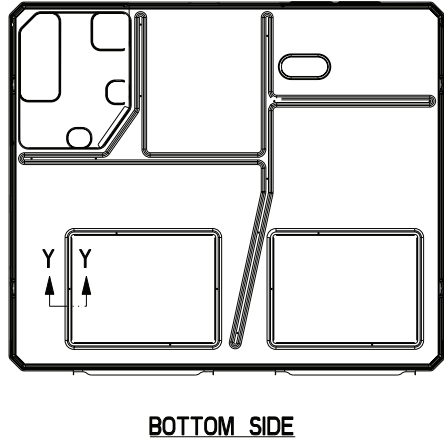
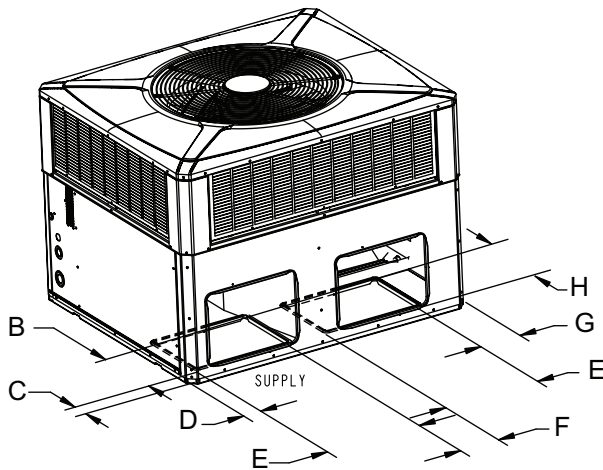
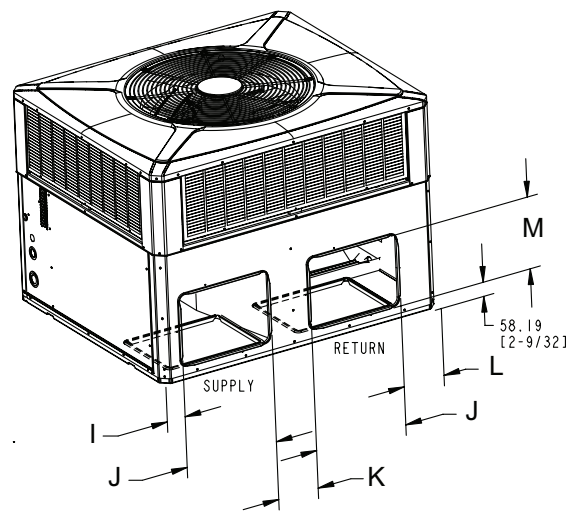


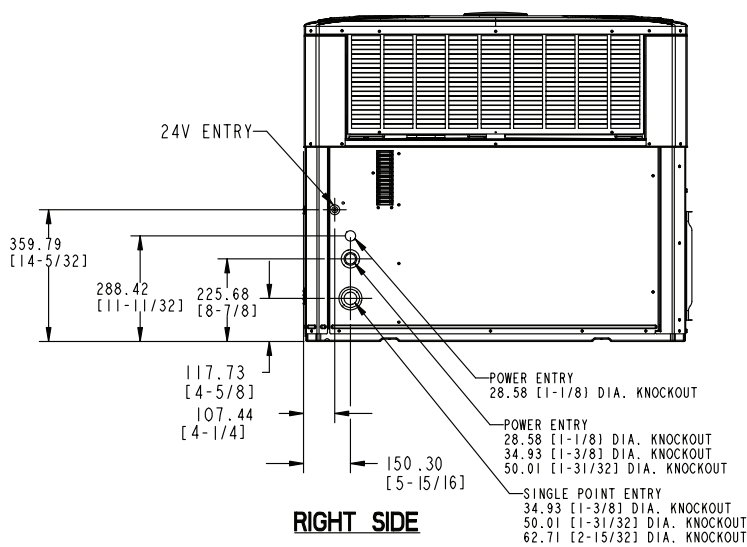
Figure 2. 2 - 5 Ton Models



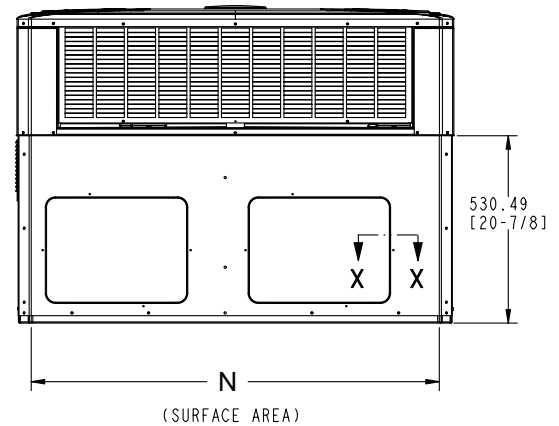
BOTTOM DUCT OPENINGS



BACK DUCT OPENINGS



RIGHT SIDE



BACK SIDE

	PHYSICAL DIMENSIONS mm (in)													
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
4WCZ5024	949.33 (37.37)	304.80 (12.0)	92.33 (3.63)	66.51 (2.62)	406.40 (16.0)	167.89 (6.61)	173.46 (6.83)	304.80 (12.0)	48.35 (1.90)	398.22 (15.67)	176.07 (6.93)	176.68 (6.95)	296.62 (11.67)	1155.45 (45.49)
4WCZ5036														
4WCZ5048	1050.93 (41.37)	457.20 (18.0)	82.16 (3.23)	82.16 (3.23)	381.00 (15.0)	244.09 (9.61)	325.49 (12.80)	381.00 (15.0)	86.25 (3.39)	449.02 (17.67)	176.07 (6.93)	329.58 (12.97)	372.82 (14.67)	1351.95 (53.22)
4WCZ5060					457.20 (18.0)									

	Corner Weights KG/LBS				SHIPPING WEIGHT KG/LBS	UNIT WEIGHT KG/LBS	Center Of Gravity mm[inch]	
	W1	W2	W3	W4			BB	CC
4WCZ5024	60.8 [134]	38.1 [84]	27.2 [60]	42.6 [94]	200.5 [442]	168.7 [372]	401.3 [15.8]	508 [20]
4WCZ5036	60.8 [134]	38.1 [84]	27.2 [60]	42.6 [94]	200.5 [442]	168.7 [372]	401.3 [15.8]	508 [20]
4WCZ5048	68.9 [152]	40.8 [90]	30.8 [68]	52.2 [115]	275.6 [607]	217.5 [479]	414.0 [16.3]	635 [25]
4WCZ5060	80.3 [177]	47.6 [105]	35.8 [79]	60.8 [134]	282.8 [623]	224.5 [495]	414.0 [16.3]	635 [25]

Indoor Fan Performance

Table 1. Airflow Tables

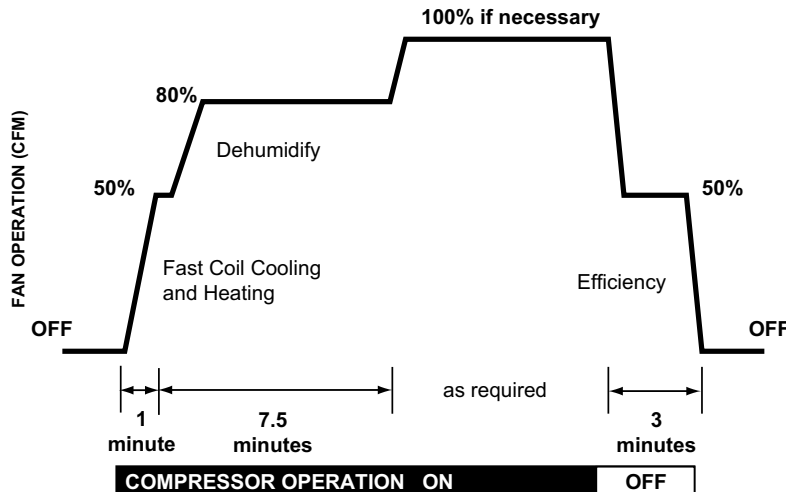
4WCZ5024		EXTERNAL STATIC PRESSURE (IN.WG) Horizontal Airflow [Cooling Down Airflow]										
Motor Speed		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
350 CFM / Ton Setting	Low	-	590 [601]	583 [588]	575 [571]	571 [562]	566 [563]	546 [549]	525 [525]	507 [517]	488 [504]	-
	High	-	721 [734]	724 [731]	727 [722]	717 [706]	706 [702]	701 [706]	695 [695]	678 [692]	660 [681]	-
400 CFM / Ton Setting	Low	-	627 [638]	624 [622]	621 [619]	615 [617]	608 [613]	593 [600]	578 [588]	559 [575]	540 [554]	-
	High	-	801 [815]	806 [803]	811 [808]	806 [808]	800 [807]	789 [798]	777 [791]	745 [766]	712 [731]	-
450 CFM / Ton Setting	Low	-	672 [676]	673 [676]	673 [678]	664 [668]	654 [656]	648 [646]	641 [642]	620 [641]	599 [632]	-
	High	-	880 [885]	888 [892]	895 [902]	894 [900]	893 [896]	883 [881]	872 [874]	817 [844]	761 [803]	-

Airflow with Auxiliary Heat (CFM)			
SWITCH SETTINGS		SELECTION	NOMINAL AIRFLOW
			4WCZ5024
7 - OFF	8 - OFF	LOW	700 CFM
7 - ON	8 - OFF	HIGH	800 CFM
7 - OFF	8 - ON	HIGH	800 CFM
7 - ON	8 - ON	HIGH	800 CFM

Cooling Off - Delay Options			
SWITCH SETTINGS		SELECTION	NOMINAL AIRFLOW
5 - OFF	6 - OFF	NONE	SAME
5 - ON	6 - OFF	45 SECONDS	100% ^(a)
5 - OFF	6 - ON	1.5 MINUTES	50%
5 - ON	6 - ON	^(b)	50 - 100%

^(a) This setting is equivalent to the BAY24X045 relay benefit.

^(b) This ENHANCED MODE selection provides a ramping up and ramping down of the blower speed to provide improved comfort, quietness, and potential energy savings. The graph below show the ramping process.



Supplementary Electric Heaters

Table 2. BAYHTRV105, 108, 110

Unit Model	Electric Heater Model	Rated Voltage	Phase	Amps	Heater Capacity		No. of Stages	KW/Stages		MCA	Max. Fuse or HACR CKT BKR Size (4)	Canada Only Max. CKT BKR Size (5)
					KW	BTUH		1	2			
^WCZ5024-060#1	BAYHTRV105	208/240	1	18/21	3.76/5.0	12800/17100	1	3.76/5.0	-	23/26	25/30	25/30
^WCZ5024-060#1	BAYHTRV108	208/240	1	29/33	6.0/8.0	20500/27300	1	6.0/8.0	-	36/41	40/45	40/45
^WCZ5024-060#1	BAYHTRV110	208/240	1	36/42	7.5/10.0	25600/34100	1	7.5/10.0	-	45/52	45/60	45/60

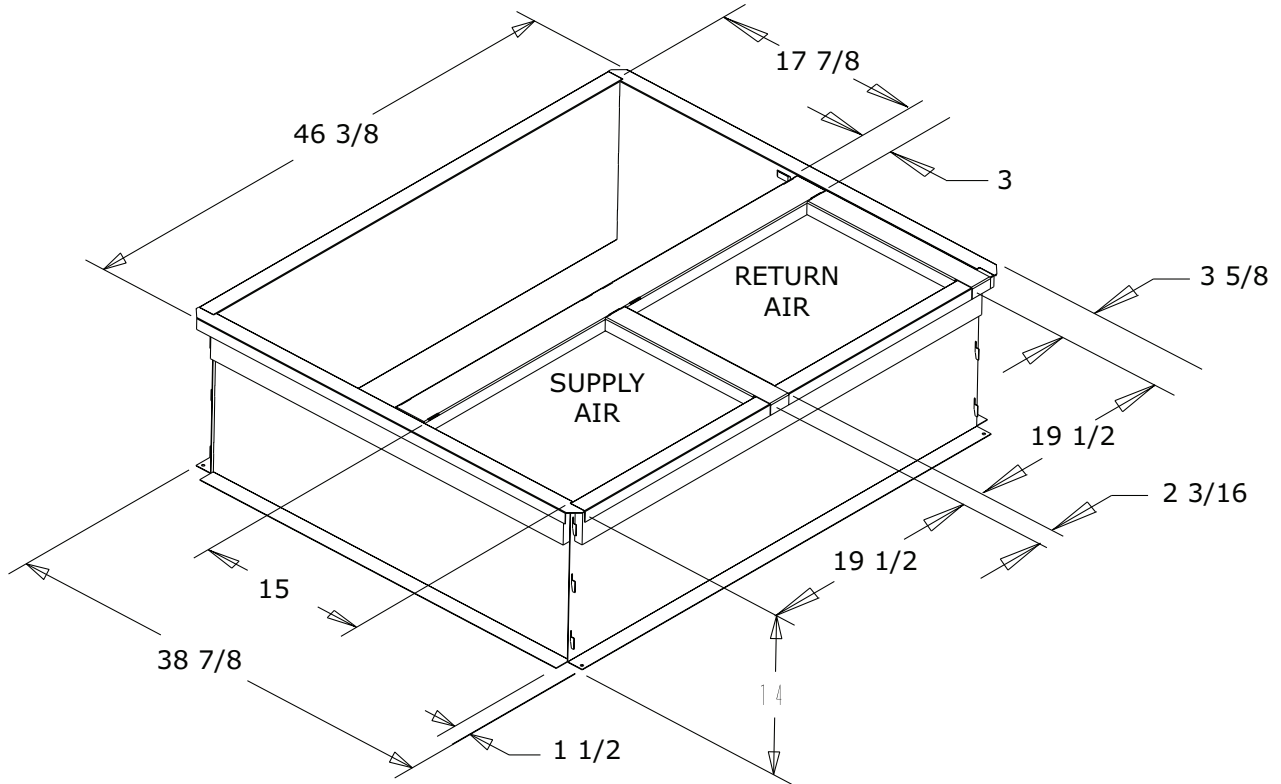
Table 3. Single Power Entry Kit BAYSPEK60, 62

Single Power Entry Kit	Heater Model	Unit Model	Min CKT. AMP.	Max. Over Current Protect Device
BAYSPEK060	BAYHTRV105	4WCZ5024E1	46	50
BAYSPEK062	BAYHTRV108	4WCZ5024E1	61	70
	BAYHTRV110	4WCZ5024E1	72	80

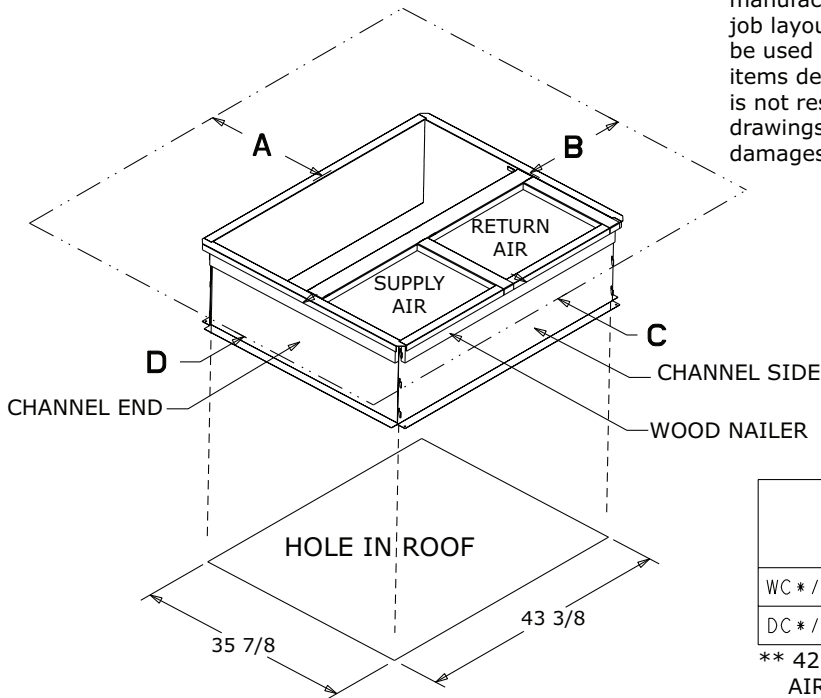
Full Perimeter Roof Mounting Curb

Figure 3. 2.0 – 3.0 Ton Models

BAYCURB050A Full Perimeter Roof Mounting Curb



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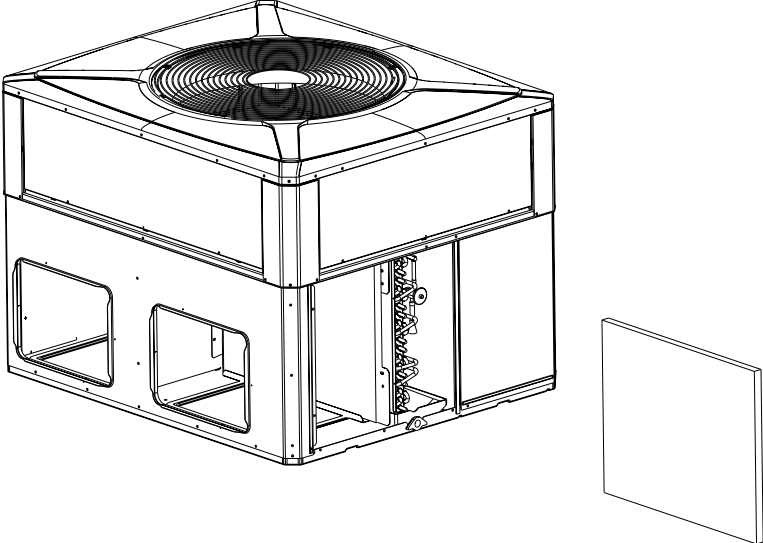


	SERVICE CLEARANCE DIMENSIONS			
	A	B	C	D
WC*/TC*	42.00	36.00	12.00**	24.00
DC*/YC*	42.00	36.00	12.00**	36.00

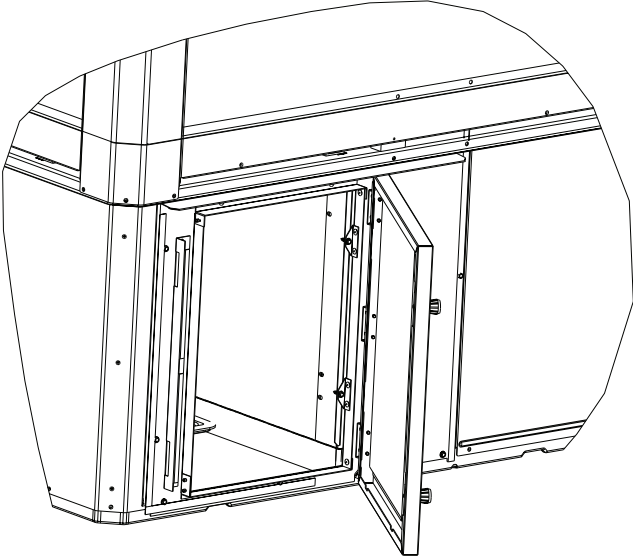
** 42.00 WITH ECONOMIZER WITH 25% FRESH AIR ACCESSORY

Optional Equipment – Filter Rack

**Figure 4. BAYFLTR101 Filter Rack (2.0 – 3.0 Ton Models)
BAYFLTR201 (3.5 – 5.0 Ton Models)
(Mounts in Filter/Coil Section)**



**Figure 5. BAYACCDOR1A Hinged Filter Access Door (2.0 – 3.0 Ton Models)
BAYACCDOR2A (3.5 – 5.0 Ton Models)
Replaces Filter/Coil Access Panel**



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Optional Equipment – Economizer

Table 4. BAYECON103, 104A Down Discharge Economizer and Rain Hood (Mounts Over Horizontal Return Air Opening)

	Economizer	Unit Application Models
	BAYECON103A	2.0 – 3.0 Ton Models
	BAYECON104A	3.5 – 5.0 Ton Models

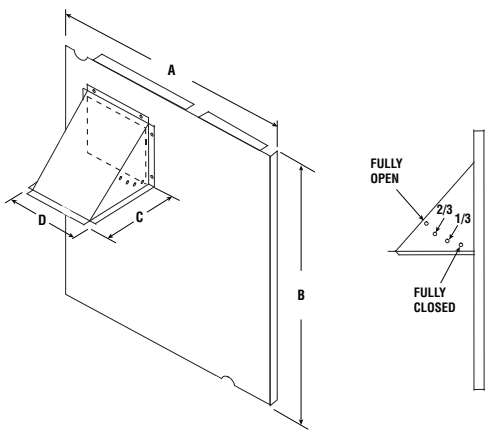
Table 5. BAYCON203, 204A Horizontal Economizer and Rain Hood

Economizer	Models	A	B	C	D	E	F
BAYECON203A	2.0 – 3.0 Ton	22"	20"	16-7/8"	15-11/16"	11-11/16"	15"
BAYECON204A	3.5 – 5.0 Ton	26"	22-21/32"	19"	17-11/16"	14-11/16"	21-3/8"

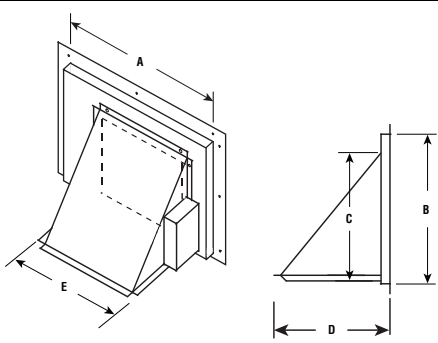
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Optional Equipment – Outside Air Damper

**Table 6. BAYOSAH001 and 002A Outside Air Damper
(Replaces Filter/Coil Access Panel)**

	Manual Fresh Air Model	Unit Application Models	A	B	C	D
	BAYOSAH001A	2.0 – 3.0 Ton	22-7/16"	20-11/16"	12-3/8"	9-3/16"
BAYOSAH002A	3.5 – 5.0 Ton	25-3/16"	20-11/16"	12-3/8"	9-3/16"	

**Table 7. BAYDMPR101 and 102A, 25% Motorized Outside Air Damper
(Mounts Over Horizontal Return Air Opening)**

	Manual Fresh Air Model	Unit Application Models	A	B	C	D	E
	BAYDM-PR101A	2.0 – 3.0 Ton	15-13/16"	11-13/16"	10-1/4"	11-1/2"	12-1/4"
BAYDM-PR102A	3.5 – 5.0 Ton	18-3/16"	15-1/8"	10-1/4"	11-1/2"	12-1/4"	

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Mechanical Specifications

General

The units shall be horizontal airflow as shipped and convertible to downflow. All units shall be factory assembled, piped, internally wired and fully charged with refrigerant. Units shall be certified to UL Standard 1995. All units shall be factory run tested to check cooling operation, fan and blower rotation and control or TXV sequence. Units shall be designed to operate at ambient temperatures between 115°F and 55°F in cooling as manufactured. Cooling performance shall be rated in accordance with A.H.R.I. standards.

Unit Casing

All components shall be mounted in a weather-resistant steel cabinet with an enamel finish. Access panels shall be provided for unit controls and indoor coil and fans. Indoor air section compartment shall be completely insulated with fireproof, permanent, odorless glass fiber material. Knockouts shall be provided for utility and control connections. Drain connections shall be provided to accommodate indoor water runoff.

Compressor

The compressor shall be hermetically sealed, high efficiency Climatuff® two-stage compressors. Internal overcurrent and over temperature protection, internal pressure relief shall be standard.

Refrigeration System

All units shall have TXV in cooling and TXV in heating. Service pressure tap ports, and a refrigerant line filter dryer shall be standard.

Evaporator Coil (2-4 Ton Models)

All aluminum micro channel, extruded tubes, mechanically bonded to aluminum fins and factory pressure and leak tested at 480-650 psig. All units have TXV to control refrigerant flow.

Evaporator Coil (5 Ton Models)

Internally enhanced 3/8" OD seamless copper tubing mechanically bonded to aluminum fins, factory pressure and leak tested at 480 - 650 psig. All units have TXV to control refrigerant flow.

Condenser Coil

The Spine Fin™ condenser coil shall be continuously wrapped, corrosion resistant all aluminum with minimum brazed joints. This coil is 3/8 inch O.D. seamless aluminum tubing glued to a continuous aluminum fin. Coils are lab tested to withstand 2,000 pounds of pressure per square inch. The outdoor coil provides low airflow resistance and efficient heat

transfer. The coil is protected on all four sides by louvered panels.

Indoor Air Fan

Direct-drive, forward-curved, centrifugal wheel in a Composite Vortica® Blower housing. Motor shall have thermal overload protection. Permanently lubricated motor bearings. Motor/blower assembly isolated from unit with rubber mounts.

Condenser Fan

Direct-drive, draw thru propeller type. Weather-proofed permanent split capacitor fan motor shall have built-in thermal overload and permanently lubricated motor bearings.

System Controls

System controls include condenser fan, evaporator fan and compressor contactors.

Accessories

Roof Curb

The roof curb shall be designed to mate with the unit and provide support and complete weathertight installation when properly installed. Adhesive back polyurethane sealing strips shall be provided to ensure an airtight seal between supply and return openings of the curb and unit. The roof curb design allows field fabricated ductwork to be connected directly to the curb. Curb ships knocked down for field assembly, and includes factory-installed wood nailer strips.

Electric Heaters

Each heater assembly shall include power supply fusing if over 48 amps, automatic resetting limit switches and heat limiters for thermal protection. Heaters shall be provided with polarized plugs for quick connection to unit low voltage wiring. Electric heat modules shall be UL listed.

Single Source Power Entry

This accessory when used with electric heat accessory shall allow single source power connection to unit and heater combination. Single source power entry kits shall have specific matching heater(s). Kit shall include high voltage terminal blocks, fuse blocks and fuses, cut-to-length interconnecting wiring, and junction box (if required) to provide power sources with fuse protection as required for both the unit and accessory heater. Kit components shall install within the unit cabinet in the heater access section. Single source branch power circuit shall be protected and wired in accordance with local codes.

Fully Modulating Economizer

This accessory shall be field installed and be composed of the following items: 0-100% fresh air damper, damper drive motor, fixed dry bulb enthalpy control, and low voltage wiring plug for electrical connections. Solid state enthalpy or differential enthalpy control is optional. Economizer operations shall be controlled by the preset position of the enthalpy control. A barometric relief damper shall be standard with the economizer and provide a pressure operated damper that shall be gravity closing and prohibit entrance of outside air on equipment "off" cycle. Economizer requires BAYRLAY004A relay kit to interface the economizer to the heat pump.

Manual Outside Air Dampers

Rain hood and screen shall be field installed. Suitable for up to 25% outside air.

Start Kit

Extra compressor starting capacity for single phase equipment.

Control Options

Standard Indoor Thermostats

Two stage heating/cooling or one stage heating/cooling thermostats shall be available in either manual or automatic changeover.

Programmable Electronic Night Setback Thermostat

Programmable electronic thermostat shall provide heating setback and cooling setup with 7-day, programming capability. 1H/1C or 2H/2C models available.

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