



BROCK

HEATING & COOLING



BROPH16NA

**16 SEER 2-Stage
Split-System Heat Pump**

brockhvac.com

HEAT PUMP



BROPH16NA

16 SEER 2-Stage Split-System Heat Pump

With R-410A Refrigerant
2 To 5 Tons (024-060)

FEATURES AND BENEFITS

AVAILABLE SIZES:

Nominal sizes are available from 024 through 060 to meet the needs of residential and light commercial applications.

CERTIFICATION:

All models are listed with UL, (U.S. and Canada), AHRI, and CEC.

FAN MOTOR:

The totally enclosed fan motor provides greater reliability under adverse conditions and dependable performance for many years. The permanent split capacitor type motor was designed for optimum efficiency. The motor was then qualified under extreme conditions to help ensure a long, reliable life.

CABINET:

A weather protective cabinet of painted steel is protected underneath by a galvanized coating and treated with a layer of zinc phosphate for a finish that will last for many years. All screws on cabinet exterior are coated for a long-lasting, rust-resistant, quality appearance.

UNIT DESIGN:

The copper tube, enhanced sine wave, aluminum fin coil is designed for optimum heat transfer. Vertical air discharge

carries sound and hot condenser air up and away from adjacent patio areas and foliage. The base pan is designed for easy removal of water, dirt, and leaves.

COMPRESSOR:

Each compressor is protected with internal temperature- and current-sensitive overloads. An internal pressure relief valve provides high pressure protection to the refrigerant system. For improved serviceability, all models are equipped with a compressor terminal plug.

SERVICE VALVES:

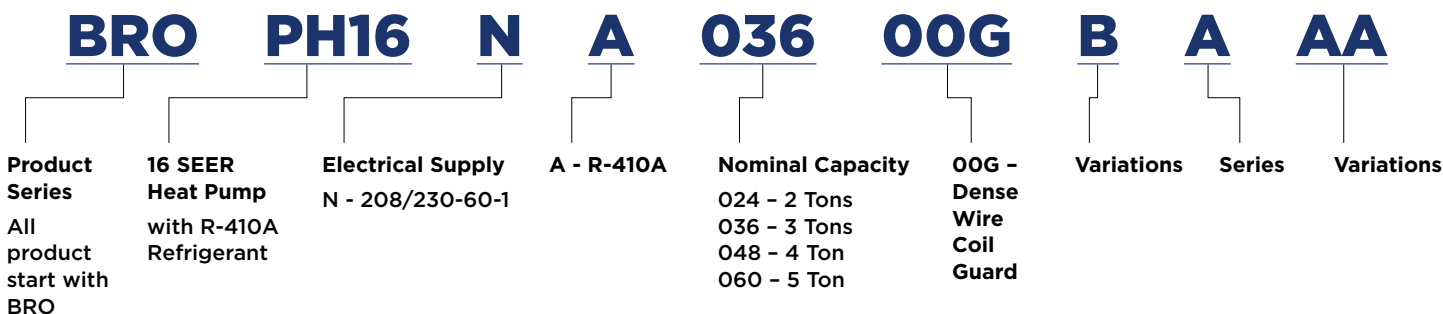
Both service valves are brass, front seating type with sweat connections. Valves are externally located so refrigerant tube connections can be made quickly and easily. Each valve has a service port for ease of checking operating refrigerant pressures.

SERVICEABILITY:

One access panel provides access to electrical controls. Removal of top gives access to fan motor, compressor, and condenser coil.

NOTE: Ratings contained in this document are subject to change at any time. Always refer to the AHRI directory (www.ahridirectory.org) for the most up-to-date ratings information.

MODEL NUMBER NOMENCLATURE



STANDARD FEATURES & VAPOR LINE SIZING AND COOLING CAPACITY LOSS

STANDARD FEATURES

Features	024-B	Unit Size - Series		
		036-B	048-B	060-B
R-410A Refrigerant	X	X	X	X
Maximum SEER Rating*	17.2	17.0	16.5	16.0
2-Stage Scroll Compressor	X	X	X	X
Low Ambient Cooling Capability with Approved Kits	X	X	X	X
Field Installed Filter Drier	X	X	X	X
Front Seating Service Valves	X	X	X	X
Internal Pressure Relief Valve	X	X	X	X
Internal Thermal Overload	X	X	X	X
Long Line capability	X	X	X	X
Low Pressure Switch	X	X	X	X
High Pressure Switch	X	X	X	X

X=Standard

* = With Approved Combinations

Vapor Line Sizing And Cooling Capacity Loss

Acceptable vapor line diameters provide adequate oil return to the compressor while avoiding excessive capacity loss. The suction line diameters shown in the chart below are acceptable for HP systems with R-410A refrigerant:

Unit Nominal Size (Btuh)	Maximum Liquid Line Diameters (In. OD)	Vapor Line Diameters (In.) OD	Cooling Capacity Loss (%)								
			Total Equivalent Line Length ft. (m)								
			Standard Application		Long Line Application Requires Accessories						
			26-50 (7.9-15.2)	51-80 (15.5-24.4)	81-100 (24.7-30.5)	101-125 (30.8-38.1)	126-150 (38.4-45.7)	151-175 (46.0-50.3)	176-200 (53.6-60.0)	201-225 (61.3-68.6)	226-250 (68.9-76.2)
24,000 2-Stage HP with R-410A	3/8	5/8 3/4	0 0	1 1	1 1	2 1	3 1	3 1	4 1	4 1	5 1
36,000 2-Stage HP with R-410A	3/8	5/8 3/4 7/8	1 0 0	2 0 0	4 1 -	5 1 -	6 2 -	7 2 -	9 3 -	10 3 -	11 4 -
48,000 2-Stage HP with R-410A	3/8	3/4 7/8 1-1/8	1 0 0	2 1 0	2 1 -	3 2 -	4 2 -	5 2 -	6 3 -	7 3 -	7 4 -
60,000 2-Stage HP with R-410A	3/8	3/4 7/8 1-1/8	1 0 0	2 1 0	4 2 -	5 2 -	6 3 -	8 4 -	9 4 -	10 5 -	11 5 -

Standard Length = 80 ft. (24.4 m) or less total equivalent length.

Applications in this area are long line. Accessories are required as shown recommended on Long Line Application Guidelines.

Applications in this area may have height restrictions that limit allowable total equivalent length, when outdoor unit is below indoor unit.

— Applications in this area are not recommended due to insufficient oil return.

REFRIGERANT PIPING LENGTH LIMITATIONS & LONG LINE APPLICATIONS

Refrigerant Piping Length Limitations

Maximum Line Lengths: The maximum allowable total equivalent length for heat pumps varies depending on the vertical separation. See the tables below for allowable lengths depending on whether the outdoor unit is on the same level, above or below the indoor unit.

Maximum Line Lengths for Heat Pump Applications

	Maximum Actual Length Ft (M)	Maximum Equivalent Length [†] Ft (M)	Maximum Vertical Separation Ft (M)
Units on equal level	200 (61)	250 (76.2)	N/A
Outdoor unit ABOVE indoor unit	200 (61)	250 (76.2)	200 (61)
Outdoor unit BELOW indoor unit	See Table 'Maximum Total Equivalent Length: Outdoor Unit BELOW Indoor Unit'		

[†] Total equivalent length accounts for losses due to elbows or fitting. See the Long Line Guideline for details.

Maximum Total Equivalent Length[†] – Outdoor Unit Below Indoor Unit

Size	Liquid Line Diameter w/ TXV	HP with R-410A Refrigerant – Maximum Total Equivalent Length [†]						
		Vertical Separation ft (m) Outdoor unit BELOW indoor unit;						
		0-20 (0-6.1)	21-30 (6.4-9.1)	31-40 (9.4-12.2)	41-50 (12.5-15.2)	51-60 (15.5-18.3)	61-70 (18.6-21.3)	71-80 (21.6-24.4)
024 HP with R-410A	3/8	250*	250*	250*	250*	250*	250*	250*
036 HP with R-410A	3/8	250*	250*	250*	250*	250*	250*	250*
048 HP with R-410A	3/8	250*	250*	250*	250*	230	160	–
060 HP with R-410A	3/8	250*	225*	190	150	110*	–	–

* Maximum actual length not to exceed 200 ft (61 m)

[†] Total equivalent length accounts for losses due to elbows or fitting. See the Long Line Guideline for details.

– = outside acceptable range

LONG LINE APPLICATIONS

An application is considered Long Line when the refrigerant level in the system requires the use of accessories to maintain acceptable refrigerant management for systems reliability. Defining a system as long line depends on the liquid line diameter, actual length of the tubing, and vertical separation between the indoor and outdoor units.

For Heat Pump systems, the chart below shows when an application is considered Long Line. Beyond these lengths, long line accessories are required:

Hp With R-410A Refrigerant Long Line Description Ft (M)

Beyond these lengths, long line accessories are required

Liquid Line Size	Units On Same Level	Outdoor Below Indoor	Outdoor Above Indoor
3/8	80 (24.4)	20 (6.1) vertical or 80 (24.4) total	80 (24.4)

Note: See Long Line Guideline for details

SPECIFICATIONS

Unit Size – Series	024-B	036-B	048-B	060-B
Electrical				
Unit Volts – Hertz – Phase	208 – 230 – 60 – 1			
Operating Voltage Range* (min - max)	197 - 253			
Compressor - RatedLoadAmps	12.5	18.5	22.8	22.8
Locked Rotor Amps	58.3	83.0	104.0	152.9
Condenser Fan Motor - Full Load Amps	0.6	0.6	1.3	1.5
Charging Subcooling (TXV Expansion Device) °F(°C)	10 (5.6)	13 (7.2)	12 (6.7)	11 (6.1)
Min Unit Ampacity for Wire Sizing	16.2	23.7	29.8	37.5
Max Branch Circuit Fuse Size†	25	40	50	60
Max Wire Length 60/75 ft(m)‡	48 / 46 (14.8 / 14.1)	52 / 50 (16.0 / 15.3)	67 / 63 (20.4 / 19.4)	82 / 78 (25.2 / 24.0)
Min Wire Size (°60 / °75 Copper) AWG**	14 / 14	12 / 12	10 / 10	8/ 8
Compressor And Refrigerant				
Compressor – Manufacturer	Copeland			
Type	Ultratech® 2-Stage Scroll			
R-410A Refrigerant - Amount lb (kg) @ 15 ft (4.6m)	13.07 (5.93)	13.70 (6.21)	13.73 (6.23)	14.78 (6.70)
Refrigerant Tubes (In. OD) Rated Vapor†† and Liquid	3/4 and 3/8	7/8 and 3/8	1-1/8 and 3/8	
OD Heating Piston	46	55	61	67
Condenser Coil And Fan				
Coil Face Area (Sq Ft)	25.15	25.15	25.15	30.18
Fan Motor - HP, Type, RPM	1/12, PSC, 800	1/12, PSC, 800	1/4, PSC, 825	1/4, PSC, 825
Condenser Airflow (CFM)	3200	3200	4350	5000
Optional Equipment				
Start Assist - Capacitor/Relay Type‡‡	KSAHS2501AAA		KSAHS2801AAA	
Compressor Sound Hood	KSASH2301COP		KSASH2401COP	
Time - Delay Relay	KAATD0101TDR			
Liquid Solenoid Valve	KHALS0401LLS			
Snow Stand	KHASS0606MPK			
Support Feet	KSASF0101AAA			
Low Ambient Pressure Switch	KSALA0301410			
Evaporator Freeze Thermostat	KAAFT0101AAA			
Isolation Relay	KHAIR0201AAA			

* Permissible limits of the voltage range at which unit will operate satisfactorily. Operation outside these limits may result in unit failure.

† Time-delay fuse or circuit breaker.

‡ Length shown is as measured 1 way along wire path between unit and service panel for voltage drop not to exceed 2%.

** If wire is applied at ambient greater than 30° C, consult Table 310-16 of the NEC (NFPA 70). The ampacity of nonmetallic-sheathed cable (NM), trade name ROMEX, shall be that of 60° C conductors, per the NEC (NFPA 70) Article 336-26.

†† Units are rated with 25 ft (7.6 m) of lineset length. See Vapor Line Sizing and Cooling Capacity Loss table when using other sizes and lengths of lineset.

‡‡ Not backward compatible to previous series.

Complies with 2010 requirements of ASHRAE Standards 90.1

WEIGHTED SOUND POWER LEVEL

A-WEIGHTED SOUND POWER LEVEL (dBA)

		Typical Octave Band Spectrum (dBA, without tone adjustment)						
Unit Size	Standard Rating (dBA)	125	250	500	1000	2000	4000	8000
024-B	73 - High Stage	51.5	55.0	63.5	69.0	62.0	58.5	56.0
	70 - Low Stage	51.5	55.5	63.0	66.0	62.0	59.0	54.0
036-B	74 - High Stage	54.5	57.5	65.0	70.5	62.5	60.0	57.0
	71 - Low Stage	54.0	57.5	63.5	66.0	61.0	60.5	55.0
048-B	75 - High Stage	53.5	59.5	66.0	70.5	64.0	61.5	55.0
	71 - Low Stage	54.0	59.5	66.0	66.0	63.0	61.5	55.5
060-B	74 - High Stage	51.5	58.0	66.0	68.0	64.5	63.0	61.5
	73 - Low Stage	53.0	58.5	66.5	68.0	64.5	63.0	58.5

NOTE: Tested in accordance with AHRI Standard 270-2008. (Not listed with AHRI).

A-WEIGHTED SOUND POWER LEVEL (dBA) WITH SOUND SHIELD

		Typical Octave Band Spectrum (dBA, without tone adjustment)						
Unit Size	Standard Rating (dBA)	125	250	500	1000	2000	4000	8000
024-B	71 - High Stage	50.0	55.0	63.0	68.0	61.5	57.5	52.0
	70 - Low Stage	50.5	56.0	63.0	66.0	61.5	58.0	51.5
036-B	72 - High Stage	54.5	57.0	64.5	69.0	61.5	58.5	53.0
	70 - Low Stage	55.5	56.5	63.0	65.0	60.5	59.0	52.0
048-B	74 - High Stage	54.0	59.5	66.0	70.0	63.0	59.0	51.5
	70 - Low Stage	53.5	59.0	65.5	65.0	62.5	60.5	54.0
060-B	73 - High Stage	52.0	58.5	66.0	68.0	64.0	60.5	56.5
	72 - Low Stage	54.0	58.0	66.0	67.5	64.0	61.0	55.0

NOTE: Tested in accordance with AHRI Standard 270-2008. (Not listed with AHRI).

ACCESSORY USAGE GUIDELINE

Accessory	Required for Low Ambient Cooling Applications (Below 55° F / 12.8° C)	Required for Long Line Applications*	Required for Sea Coast Applications (within 2 miles/3.2 km)
Compressor Start Assist Capacitor and Relay	Yes	Yes	No
Crankcase Heater	Yes (standard)	Yes (standard)	No
Evaporator Freeze Thermostat	Yes	No	No
Hard Shutoff TXV	Yes (standard w/factory approved indoor unit)	Yes (standard w/factory approved indoor unit)	Yes (standard w/factory approved indoor unit)
Isolation Relay	Yes	No	No
Liquid Line Solenoid Valve	No	See Residential Piping and Long Line Guideline	No
Low-Ambient Pressure Switch	Yes	No	No
Support Feet	Recommended	No	Recommended

* For tubing line sets between 80 and 200 ft. (24.38 and 60.96 m) and/or 20 ft. (6.09 m) vertical differential, refer to Residential Piping and Longline Guideline.

Accessory Description and Usage (Listed Alphabetically)

1. Compressor Start Assist – Capacitor and Relay

Start capacitor and relay gives a “hard” boost to compressor motor at each start up.

Usage Guideline:

- Required for 2-stage non-communicating units in the following applications:
 - Long line
 - Low ambient cooling
- Suggested for all compressors in areas with a history of low voltage problems.

2. Crankcase Heater

An electric resistance heater which mounts to the base of the compressor to keep the lubricant warm during off cycles. Improves compressor lubrication on restart and minimizes the chance of liquid slugging.

Usage Guideline:

- Required in low ambient cooling applications. Required in long line applications. Suggested in all commercial applications.

3. Evaporator Freeze Thermostat

An SPST temperature-actuated switch that stops unit operation when evaporator reaches freeze-up conditions.

Usage Guideline:

- Required when low ambient kit has been added.

4. Isolation Relay

An SPDT relay which switches the low ambient controller out of the outdoor fan motor circuit when the heat pump switches to heating mode.

Usage Guideline:

- Required in all heat pumps where low ambient kit has been added.

5. Low-Ambient Pressure Switch

A long life pressure switch which is mounted to outdoor unit service valve. It is designed to cycle the outdoor fan motor in order to maintain head pressure within normal operating limits. The control will maintain working head pressure at low-ambient temperatures down to 0°F (-17.8°C) when properly installed.

Usage Guideline:

- A Low-Ambient Pressure Switch must be used when cooling operation is used at outdoor temperatures below 55°F (12.8°C).

6. Liquid-Line Solenoid Valve (LLS)

An electrically operated shutoff valve which stops and starts refrigerant liquid flow in response to compressor operation. It is to be installed at the outdoor unit to control refrigerant off cycle migration in the heating mode.

Usage Guideline:

- An LLS is required in all long line heat pump applications to control refrigerant off cycle migration in the heating mode. See Long Line Guideline.
- Suggested for all commercial applications.

7. Outdoor Air Temperature Sensor

Designed for use with Payne Thermostats listed in this publication. This device enables the thermostat to display the outdoor temperature. This device also is required to enable special thermostat features such as auxiliary heat lock out.

Usage Guideline:

- Suggested for all Payne thermostats listed in this publication.

8. Outdoor Thermostat

An SPDT temperature-actuated switch which turns on supplemental electric heaters when outdoor air temperature drops below a user-selected set point.

Usage Guideline:

- Electric supplemental heat applications in non-variable speed indoor units when electric heat staging is desired.

9. Secondary Outdoor Thermostat

An SPDT temperature-actuated switch which turns on third-stage of supplemental electric heaters when outdoor air temperature drops below the second-stage set point.

Usage Guideline:

- Outdoor thermostat applications where electric heater is capable of three-stage operation.

10. Snow Stand

Coated wire rack which supports unit 18 in. (457.2 mm) above mounting pad to allow for drainage from unit base.

Usage Guideline:

- Suggested in the following applications:
 - Heat pump installations in heavy snowfall areas.
 - Heat pump installations in snow drift locations.
 - Heat pump installations in areas of prolonged subfreezing temperatures.
 - All commercial installations.

11. Thermostatic Expansion Valve (TXV) Bi-Flow

A modulating flow-control valve which meters refrigerant liquid flow rate into the evaporator in response to the superheat of the refrigerant gas leaving the evaporator.

Usage Guideline:

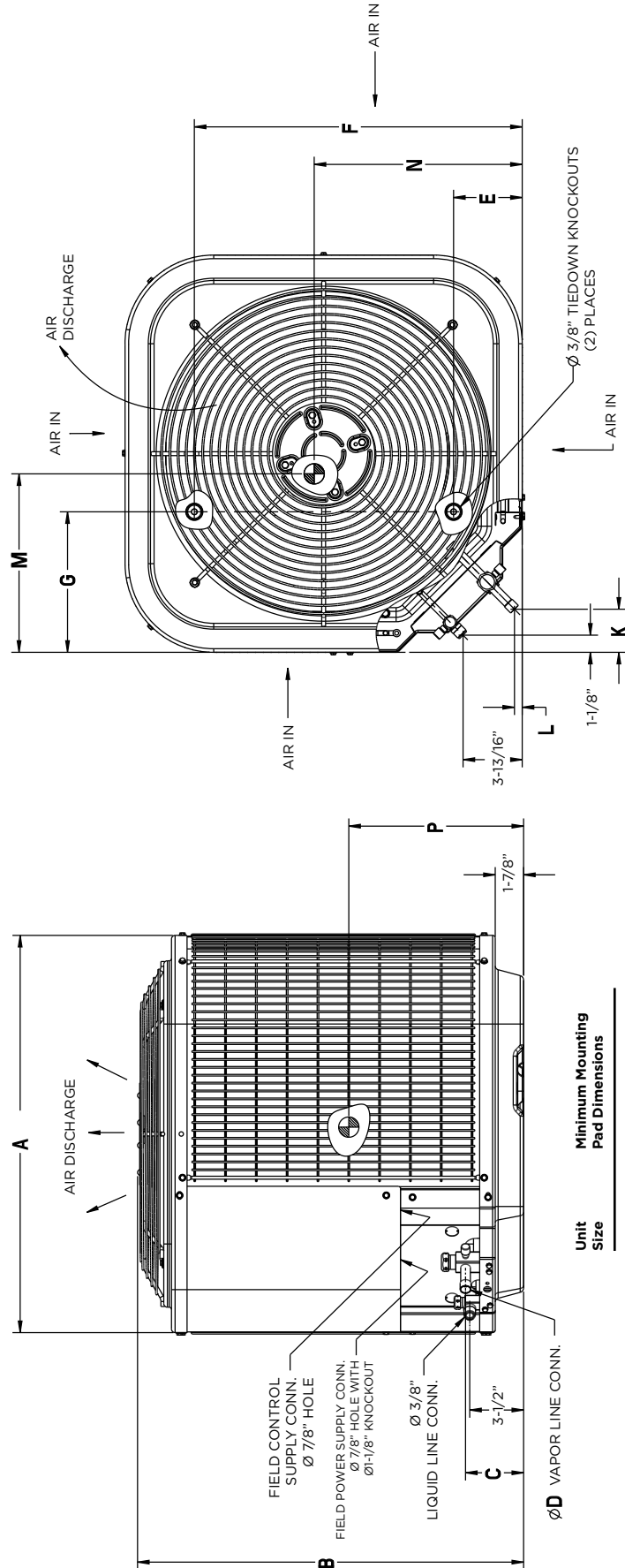
- Accessory required to meet AHRI rating and system reliability, where indoor not equipped.
- Required in all heat pump applications designed with Puron refrigerant.

DIMENSIONS - ENGLISH

Unit	Series	Electrical Characteristics	A"	B"	C"	D"	E"	F"	G"	K"	L"	M"	N"	P"	Operating Weight (lbs)	Shipping Weight (lbs)	Shipping Dimensions (L" x W" x H")
PH16NA024	B	X O O O	35	38-5/8	3-3/4	3/4	6-9/16	28-7/16	9-1/8	2-13/16	1/2	17	16	19	233	277	36-1/8 x 39-1/4 x 42-3/4
PH16NA036	B	X O O O	35	38-5/8	3-7/8	7/8	6-9/16	28-7/16	9-1/8	2-15/16	5/8	17-1/4	16	17-1/4	245	289	36-1/8 x 39-1/4 x 42-3/4
PH16NA048	B	X O O O	35	38-5/8	3-7/8	7/8	6-9/16	28-7/16	9-1/8	2-15/16	5/8	17-1/4	16-3/4	17-1/2	271	315	36-1/8 x 39-1/4 x 42-3/4
PH16NA060	B	X O O O	35	45-7/16	3-7/8	7/8	6-9/16	28-7/16	9-1/8	2-15/16	5/8	18-3/4	18-1/4	19	294	340	36-1/8 x 39-1/4 x 49-9/16

x = Yes
O = No

575-3-60
460-3-60
208/230-3-60
208-230-1-60



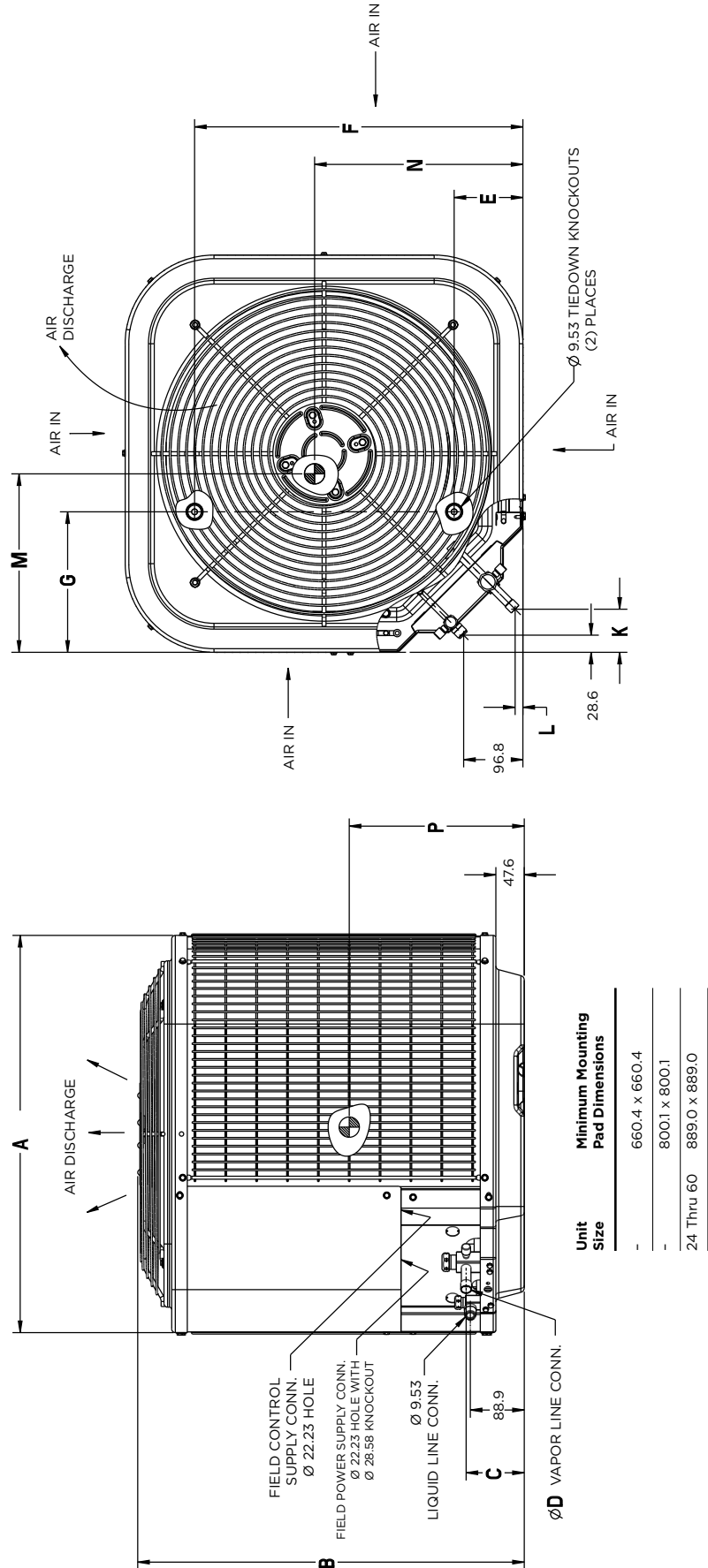
Unit Size	Minimum Mounting Pad Dimensions
-	26" x 26"
-	31-1/2" x 31-1/2"
24 Thru 60	35" x 35"

DIMENSIONS - SI

Unit	Series	Electrical Characteristics	A	B	C	D	E	F	G	K	L	M	N	P	Operating Weight (Kgs)	Shipping Weight (Kgs)	Shipping Dimensions (L x W x H)
PH16NAO24	B	X O O O	889	980.8	95.6	191	166.1	722.8	231.3	70.9	12.8	431.8	406.4	482.6	105.7	125.6	917.7 x 997.7 x 1085.9
PH16NAO36	B	X O O O	889	980.8	97.9	22.2	166.1	722.8	231.3	74.5	16.3	438.2	406.4	438.2	111.1	131.1	917.7 x 997.7 x 1085.9
PH16NAO48	B	X O O O	889	980.8	97.9	22.2	166.1	722.8	231.3	74.5	16.3	438.2	425.5	444.5	122.9	142.9	917.7 x 997.7 x 1085.9
PH16NAO60	B	X O O O	889	1153.6	97.9	22.2	166.1	722.8	231.3	74.5	16.3	476.3	463.6	482.6	133.4	154.2	917.7 x 997.7 x 1258.6

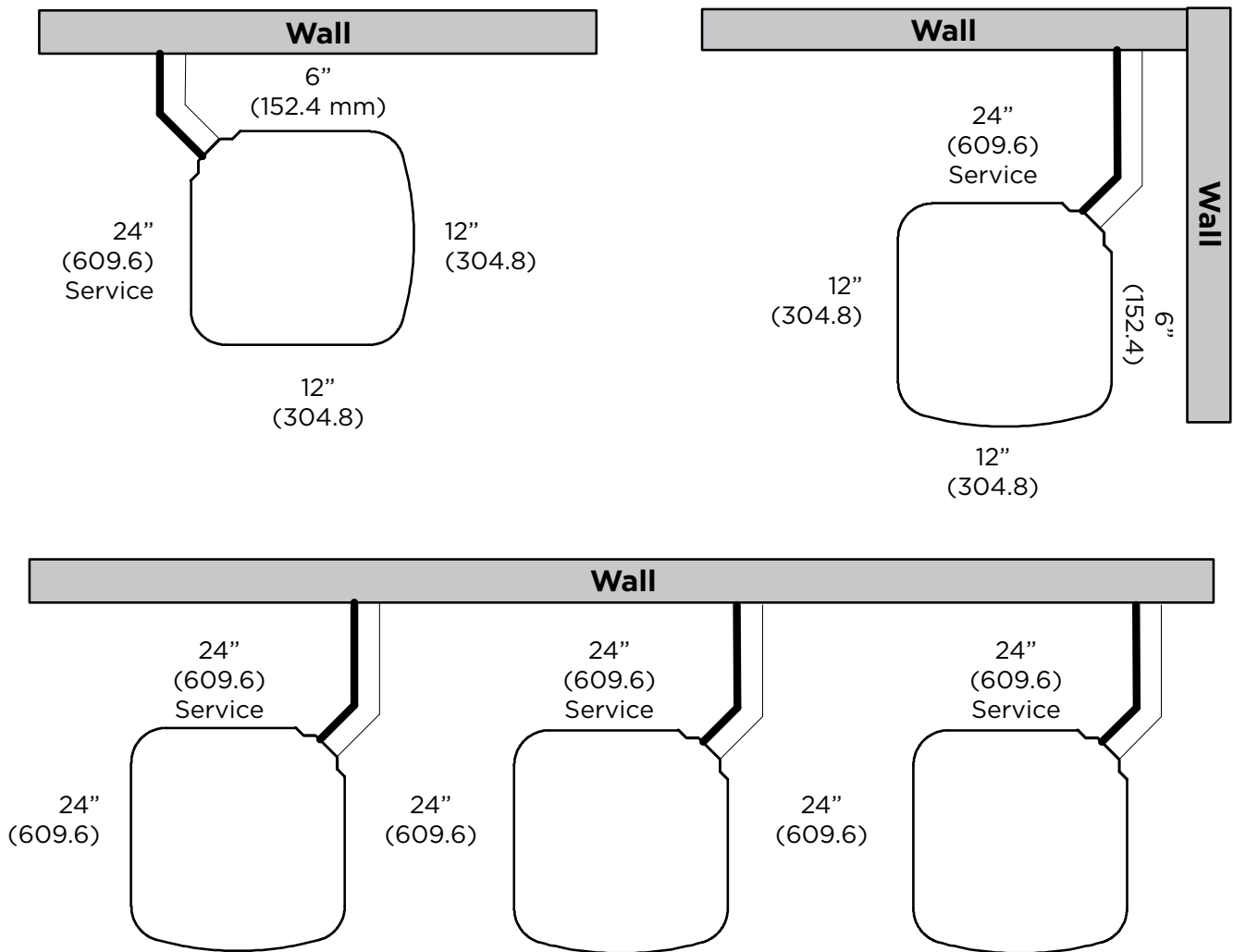
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O = No

575-3-60
460-3-60
208/230-3-60
208-230-1-60



CLEARANCES

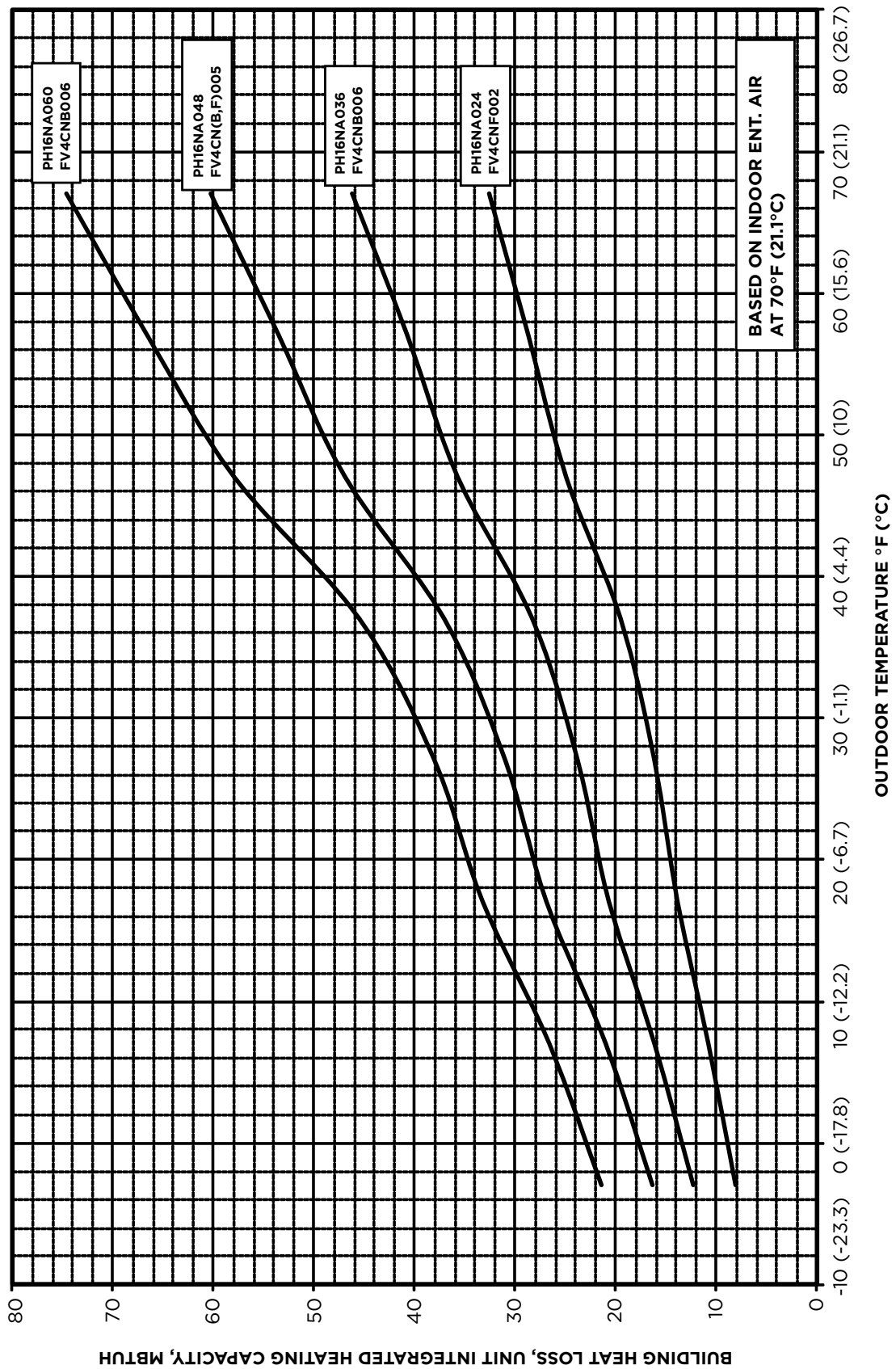
Clearances (Various Examples)



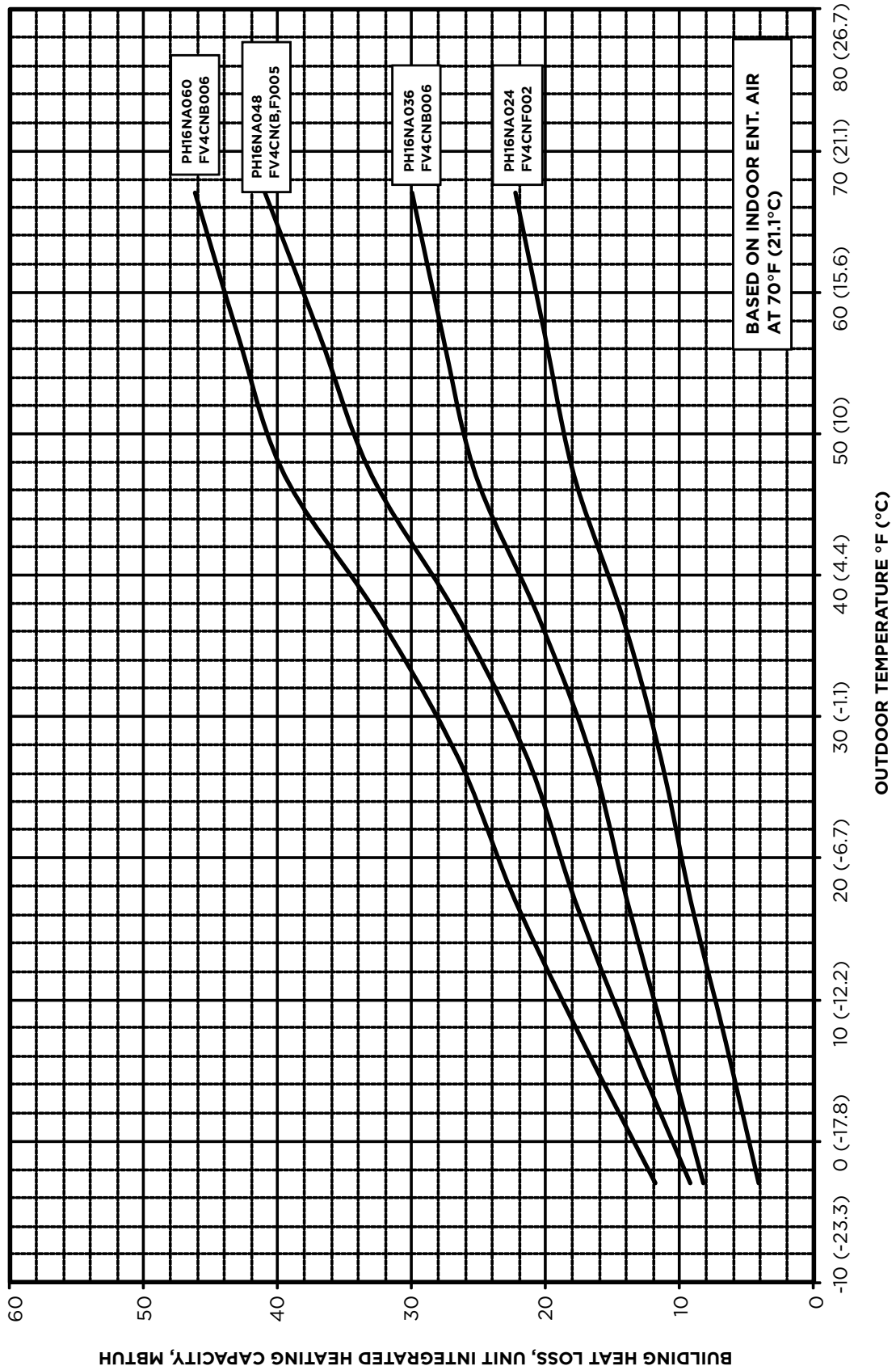
Note: Numbers in () = mm

IMPORTANT: When installing multiple units in an alcove, roof well, or partially enclosed area, ensure there is adequate ventilation to prevent re-circulation of discharge air.

BALANCE POINT WORKSHEET - HIGH STAGE



BALANCE POINT WORKSHEET - LOW STAGE



DETAILED COOLING CAPACITIES

EVAPORATOR AIR EWB CFM		75 (23.9) Capacity MBtuh† Total System		85 (29.4) Capacity MBtuh† Total System		95 (35) Capacity MBtuh† Total System		CONDENSER ENTERING AIR TEMPERATURES °F (°C)						115 (46.1) Capacity MBtuh† Total System		125 (51.7) Capacity MBtuh† Total System				
								105 (40.6) Capacity MBtuh† Total System												
								Total	Sens†	KW**	Total	Sens†	KW**					Total	Sens†	KW**
PH16NAO48***B Outdoor Section With FV4CN(B,F)005 Indoor Section - HI																				
1200	57 (13.9)	42.70	42.70	2.91	2.91	41.39	41.39	3.26	39.86	39.86	3.66	38.17	38.17	4.13	36.35	36.35	4.69	34.44	34.44	5.34
	62 (16.7)	45.46	39.41	2.92	43.68	38.56	3.27	41.63	37.58	3.67	39.40	36.53	4.14	37.07	35.41	4.69	34.69	34.21	5.35	
	63 (17.2)**	46.41	32.56	2.93	44.59	31.70	3.28	42.48	30.72	3.68	40.18	29.67	4.15	37.76	28.58	4.70	35.25	27.48	5.35	
	67 (19.4)	50.09	33.77	2.95	48.12	32.90	3.30	45.85	31.92	3.70	43.40	30.88	4.18	40.80	29.80	4.74	38.11	28.70	5.40	
	72 (22.2)	55.10	27.96	2.98	52.90	27.06	3.33	50.43	26.08	3.74	47.76	25.04	4.22	44.93	23.95	4.78	41.99	22.85	5.45	
1300	57 (13.9)	43.94	43.94	2.94	42.57	42.57	3.29	40.96	40.96	3.69	39.18	39.18	4.16	37.28	37.28	4.72	35.28	35.28	5.38	
	62 (16.7)	46.21	41.13	2.95	44.38	40.25	3.30	42.26	39.25	3.70	39.98	38.15	4.17	37.61	36.96	4.72	35.34	35.34	5.38	
	63 (17.2)**	47.15	33.75	2.96	45.26	32.87	3.31	43.09	31.87	3.71	40.71	30.81	4.18	38.22	29.71	4.73	35.64	28.59	5.38	
	67 (19.4)	50.86	35.03	2.98	48.81	34.14	3.33	46.48	33.15	3.73	43.94	32.10	4.21	41.27	31.01	4.77	38.51	29.90	5.43	
	72 (22.2)	55.89	28.74	3.00	53.62	27.84	3.36	51.07	26.84	3.77	48.32	25.79	4.25	45.41	24.70	4.81	42.39	23.58	5.48	
1400	57 (13.9)	45.06	45.06	2.97	43.63	43.63	3.32	41.94	41.94	3.72	40.09	40.09	4.19	38.12	38.12	4.75	36.04	36.04	5.42	
	62 (16.7)	46.88	42.78	2.98	44.98	41.87	3.33	42.83	40.84	3.73	40.51	39.67	4.20	38.18	38.18	4.75	36.09	36.09	5.42	
	63 (17.2)**	47.79	34.89	2.98	45.84	34.00	3.33	43.60	32.99	3.73	41.16	31.92	4.20	38.61	30.81	4.76	35.98	29.67	5.41	
	67 (19.4)	51.52	36.24	3.00	49.40	35.35	3.35	47.00	34.35	3.76	44.39	33.28	4.23	41.67	32.19	4.79	38.84	31.06	5.46	
	72 (22.2)	56.57	29.50	3.03	54.24	28.58	3.38	51.61	27.58	3.79	48.79	26.52	4.27	45.81	25.41	4.84	42.73	24.30	5.51	
1600	57 (13.9)	47.014	7.01	3.02	45.45	45.45	3.38	43.64	43.64	3.78	41.65	41.65	4.26	39.54	39.54	4.82	37.32	37.32	5.48	
	62 (16.7)	48.00	45.88	3.03	46.04	44.90	3.38	43.86	43.45	3.78	41.71	41.71	4.26	39.60	39.60	4.82	37.36	37.36	5.49	
	63 (17.2)**	48.82	37.08	3.03	46.76	36.17	3.38	44.42	35.15	3.79	41.88	34.05	4.26	39.24	32.91	4.81	36.51	31.74	5.47	
	67 (19.4)	52.57	38.58	3.05	50.34	37.67	3.41	47.82	36.66	3.81	45.12	35.57	4.29	42.28	34.45	4.85	39.37	33.30	5.51	
	72 (22.2)	57.65	30.93	3.08	55.20	30.01	3.43	52.47	28.99	3.85	49.53	27.91	4.33	46.44	26.80	4.90	43.25	25.675	.57	
PH16NAO48***B Outdoor Section With FV4CN(B,F)005 Indoor Section - LO																				
960	57 (13.9)	33.65	33.65	1.99	30.83	30.83	2.34	27.95	27.95	2.75	25.05	25.05	3.21	22.16	22.16	3.75	19.33	19.33	4.36	
	62 (16.7)	35.08	31.64	1.98	31.83	29.19	2.33	28.52	26.72	2.74	25.24	24.22	3.21	22.20	22.20	3.74	19.36	19.36	4.36	
	63 (17.2)**	35.83	25.87	1.98	32.50	23.75	2.33	29.09	21.61	2.74	25.67	19.49	3.20	22.29	17.41	3.74	18.99	15.39	4.37	
	67 (19.4)	38.99	27.02	1.95	35.42	24.85	2.30	31.77	22.66	2.71	28.12	20.50	3.18	24.49	18.37	3.72	20.96	16.30	4.34	
	72 (22.2)	43.33	22.27	1.92	39.42	20.37	2.27	35.44	18.46	2.68	31.46	16.57	3.15	27.50	14.72	3.69	23.63	12.93	4.31	
1040	57 (13.9)	34.67	34.67	2.00	31.75	31.75	2.35	28.77	28.77	2.75	25.77	25.77	3.21	22.79	22.79	3.75	19.87	19.87	4.37	
	62 (16.7)	35.69	33.12	1.99	32.38	30.56	2.34	29.03	27.96	2.75	25.82	25.82	3.21	22.83	22.83	3.75	19.90	19.90	4.37	
	63 (17.2)**	36.41	26.91	1.98	33.00	24.72	2.34	29.53	22.52	2.74	26.04	20.33	3.21	22.60	18.19	3.75	19.24	16.10	4.38	
	67 (19.4)	39.61	28.13	1.96	35.95	25.88	2.31	32.23	23.63	2.72	28.49	21.39	3.19	24.81	19.20	3.73	21.21	17.07	4.35	
	72 (22.2)	44.00	22.98	1.93	40.00	21.03	2.28	35.94	19.08	2.69	31.87	17.14	3.16	27.85	15.25	3.70	23.90	13.41	4.32	
1120	57 (13.9)	35.59	35.59	2.00	32.58	32.58	2.35	29.51	29.51	2.75	26.43	26.43	3.22	23.36	23.36	3.76	20.35	20.35	4.38	
	62 (16.7)	36.25	34.53	2.00	32.90	31.86	2.35	29.57	29.57	2.75	26.47	26.47	3.22	23.40	23.40	3.76	20.38	20.38	4.37	
	63 (17.2)**	36.91	27.91	1.99	33.44	25.66	2.35	29.91	23.39	2.75	26.37	21.15	3.22	22.86	18.93	3.76	19.46	16.78	4.39	
	67 (19.4)	40.13	29.21	1.97	36.41	26.89	2.32	32.62	24.57	2.73	28.82	22.27	3.20	25.08	20.01	3.74	21.43	17.81	4.36	
	72 (22.2)	44.57	23.67	1.93	40.50	21.67	2.29	36.36	19.67	2.70	32.23	17.70	3.17	28.14	15.76	3.71	24.13	13.88	4.33	
1280	57 (13.9)	37.21	37.21	2.01	34.04	34.04	2.36	30.81	30.81	2.77	27.57	27.57	3.23	24.35	24.35	3.77	21.18	21.18	4.39	
	62 (16.7)	37.28	37.28	2.01	34.09	34.09	2.36	30.86	30.86	2.77	27.62	27.62	3.23	24.38	24.38	3.77	21.21	21.21	4.39	
	63 (17.2)**	37.42	9.85	2.01	34.16	27.47	2.36	30.54	25.09	2.77	26.89	22.71	3.24	23.31	20.37	3.78	19.84	18.07	4.41	
	67 (19.4)	40.98	31.28	1.98	37.14	28.84	2.34	33.25	26.39	2.75	29.36	23.96	3.22	25.52	21.56	3.76	21.80	19.22	4.38	
	72 (22.2)	45.50	24.98	1.95	41.30	22.90	2.31	37.06	20.82	2.72	32.80	18.76	3.19	28.59	16.75	3.732	4.49	14.79	4.35	

EVAPORATOR AIR		75 (23.9)				85 (29.4)				95 (35)				105 (40.6)				115 (46.1)				125 (51.7)			
CFM	EWB °F (°C)	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**	Capacity MBtuh†		Total System KW**			
		Total	Sens†		Total	Sens†		Total	Sens†		Total	Sens†		Total	Sens†		Total	Sens†		Total	Sens†		Total	Sens†	
PH16NA060****B Outdoor Section With FV4CNB006 Indoor Section - HI																									
1500	57 (13.9)	51.61	51.61	3.56	49.90	49.90	3.94	48.10	48.10	4.37	46.09	46.09	4.87	43.74	43.74	5.44	40.97	40.97	6.09	38.54	38.54				
62 (16.7)	54.77	49.03	3.59	52.50	47.37	3.96	50.12	45.69	4.39	47.51	43.92	4.88	44.55	42.00	5.45	41.19	39.81	6.09	37.72	37.72					
63 (17.2)**	55.96	40.39	3.60	53.60	38.83	3.97	51.15	37.26	4.40	48.45	35.61	4.89	45.37	33.84	5.46	41.83	31.92	6.10	36.84	36.84					
67 (19.4)	60.55	41.97	3.65	57.92	40.35	4.015	51.8	38.71	4.44	52.18	37.01	4.93	48.79	35.19	5.50	44.94	33.24	6.14	35.24	35.24					
72 (22.2)	66.85	34.72	3.71	63.83	33.13	4.07	60.69	31.53	4.49	57.28	29.87	4.99	53.46	28.12	5.55	49.17	26.24	6.19	34.17	34.17					
1625	57 (13.9)	53.11	53.11	3.61	51.30	51.30	3.984	49.40	4.41	47.27	47.27	4.91	44.79	44.79	5.49	41.89	41.89	6.14	40.97	40.97					
62 (16.7)	55.69	51.18	3.64	53.31	49.45	4.00	50.86	47.70	4.43	48.17	45.86	4.92	45.16	43.80	5.49	41.95	41.95	6.14	40.97	40.97					
63 (17.2)**	56.85	41.87	3.65	54.40	40.27	4.01	51.85	38.66	4.44	49.04	36.96	4.93	45.87	35.16	5.50	42.23	33.19	6.14	39.81	39.81					
67 (19.4)	61.48	43.55	3.69	58.74	41.88	4.05	55.90	40.20	4.48	52.79	38.46	4.97	49.30	36.60	5.54	45.33	34.61	6.18	38.54	38.54					
72 (22.2)	67.83	35.71	3.75	64.70	34.08	4.11	61.44	32.45	4.54	57.91	30.76	5.03	53.98	28.97	5.59	49.57	27.06	6.23	31.92	31.92					
1750	57 (13.9)	54.46	54.46	3.66	52.57	52.57	4.03	50.56	50.56	4.46	48.32	48.32	4.96	45.73	45.73	5.53	42.70	42.70	6.18	40.97	40.97				
62 (16.7)	56.48	53.25	3.68	54.04	51.4	54.04	51.52	49.63	4.47	48.77	47.65	4.96	45.80	45.80	5.53	42.76	42.76	6.19	40.97	40.97					
63 (17.2)**	57.62	43.31	3.69	55.08	41.6	74.05	52.43	40.01	4.48	49.55	38.28	4.97	46.29	36.43	5.54	42.57	34.43	6.18	39.81	39.81					
67 (19.4)	62.27	45.08	3.73	59.45	43.37	4.10	56.50	41.65	4.52	53.30	39.87	5.014	9.72	37.98	5.58	45.66	35.94	6.22	38.54	38.54					
72 (22.2)	68.68	36.66	3.80	65.44	35.01	4.16	62.06	33.34	4.58	58.44	31.62	5.07	54.40	29.80	5.63	49.90	27.87	6.27	31.92	31.92					
2000	57 (13.9)	56.83	56.83	3.75	54.75	54.75	4.12	52.55	52.55	4.55	50.11	50.11	5.05	47.32	47.32	5.62	44.06	44.06	6.27	40.97	40.97				
62 (16.7)	57.84	57.13	3.76	55.305	51.4	4.12	52.69	52.60	4.55	50.18	50.18	5.05	47.37	47.3	75.62	44.11	44.11	6.27	50.18	50.18					
63 (17.2)**	58.85	46.05	3.77	56.15	44.33	4.13	53.37	42.61	4.56	50.34	40.81	5.05	46.95	38.88	5.62	43.11	36.80	6.26	40.81	40.81					
67 (19.4)	63.55	48.03	3.81	60.55	46.24	4.18	57.45	44.45	4.60	54.09	42.59	5.09	50.35	40.62	5.66	46.16	38.50	6.30	42.59	42.59					
72 (22.2)	70.02	38.47	3.88	66.60	36.76	4.24	63.063	5.04	4.66	59.25	33.26	5.15	55.05	31.39	5.71	50.39	29.42	6.35	33.26	33.26					
PH16NA060****B Outdoor Section With FV4CNB006 Indoor Section - LO																									
1200	57 (13.9)	41.27	41.27	2.45	36.79	36.79	2.83	32.29	32.29	3.27	27.87	27.87	3.78	23.62	23.62	4.35	19.59	19.59	5.01	23.62	23.62				
62 (16.7)	42.97	39.35	2.43	37.92	36.10	2.82	32.87	32.82	3.27	28.01	27.79	3.78	23.66	23.66	4.35	19.62	19.62	5.01	27.79	27.79					
63 (17.2)**	43.88	32.14	2.43	38.70	29.32	2.82	33.522	6.49	3.26	28.48	23.70	3.77	23.68	21.00	4.35	19.20	18.40	5.02	23.70	23.70					
67 (19.4)	47.49	33.46	2.40	41.89	30.56	2.79	36.33	27.67	3.24	30.92	24.82	3.75	25.76	22.04	4.33	20.94	19.38	4.99	24.82	24.82					
72 (22.2)	52.45	27.41	2.36	46.29	24.87	2.75	40.20	22.34	3.20	34.27	19.86	3.712	8.63	17.46	4.29	23.33	15.17	4.95	19.86	19.86					
1300	57 (13.9)	42.46	42.46	2.45	37.83	37.83	2.84	33.17	33.17	3.28	28.61	28.61	3.79	24.22	24.22	4.36	20.06	20.06	5.02	28.61	28.61				
62 (16.7)	43.67	41.17	2.45	38.51	37.77	2.84	33.41	34.32	3.282	8.66	28.66	3.79	24.26	24.26	4.36	20.09	20.09	5.02	34.32	34.32					
63 (17.2)**	44.54	33.40	2.44	39.25	30.50	2.83	33.97	27.58	3.28	28.84	24.71	3.79	23.96	21.92	4.37	19.40	19.23	5.03	27.58	27.58					
67 (19.4)	48.17	34.81	2.41	42.46	31.82	2.80	36.79	28.84	3.25	31.28	25.89	3.76	26.042	3.03	4.34	21.15	20.28	5.00	25.89	25.89					
72 (22.2)	53.17	28.25	2.37	46.90	25.66	2.76	40.68	23.07	3.21	34.65	20.53	3.72	28.91	18.07	4.30	23.53	15.72	4.97	20.53	20.53					
1400	57 (13.9)	43.54	43.54	2.46	38.76	38.76	2.85	33.97	33.97	3.29	29.28	29.28	3.80	24.76	24.76	4.38	20.49	20.49	5.03	33.97	33.97				
62 (16.7)	44.29	42.90	2.46	39.07	39.35	2.85	34.02	34.02	3.29	29.32	29.32	3.80	24.80	24.80	4.38	20.52	20.52	5.03	29.32	29.32					
63 (17.2)**	45.11	34.63	2.45	39.72	31.64	2.84	34.35	28.64	3.29	29.15	25.69	3.80	24.19	22.80	4.38	19.59	20.03	5.05	25.69	25.69					
67 (19.4)	48.75	36.12	2.42	42.95	33.05	2.813	718	29.97	3.26	31.59	26.94	3.77	26.28	24.00	4.36	21.33	21.15	5.02	29.97	29.97					
72 (22.2)	53.79	29.08	2.38	47.41	26.42	2.77	41.08	23.77	3.22	34.97	21.18	3.74	29.15	18.67	4.32	23.71	16.27	4.98	21.18	21.18					
1600	57 (13.9)	45.41	45.41	2.48	40.37	40.37	2.87	35.34	35.34	3.31	30.42	30.42	3.82	25.69	25.69	4.40	21.22	21.22	5.06	30.42	30.42				
62 (16.7)	45.49	45.49	2.48	40.43	40.43	2.87	35.39	35.39	3.31	30.46	30.46	3.82	25.722	5.72	4.40	21.24	21.24	5.06	30.46	30.46					
63 (17.2)**	46.03	37.00	2.48	40.483	3.85	2.87	34.98	30.69	3.32	29.64	27.56	3.83	24.58	24.51	4.42	19.90	21.53	5.08	27.56	27.56					
67 (19.4)	49.70	38.66	2.45	43.72	35.42	2.84	37.82	32.17	3.29	32.09	28.97	3.80	26.67	25.85	4.39	21.63	22.81	5.05	32.09	32.09					
72 (22.2)	54.77	30.65	2.41	48.21	27.89	2.80	41.73	25.13	3.25	35.47	22.44	3.76	29.52	19.83	4.35	23.96	17.33	5.01	22.44	22.44					

HEAT PUMP HEATING PERFORMANCE

INDOOR AIR			OUTDOOR COIL ENTERING AIR TEMPERATURES °F(°C)										OUTDOOR COIL ENTERING AIR TEMPERATURES °F(°C)										OUTDOOR COIL ENTERING AIR TEMPERATURES °F(°C)									
EDB	CFM	°F (°C)	-3 (-19.4)			7 (-13.9)			17 (-8.3)			27 (2.8)			37 (2.8)			47 (8.3)			57 (13.9)			67 (19.4)								
			Capacity MBtuh	Total System KW'	Integ'	Capacity MBtuh	Total System KW'	Integ'	Capacity MBtuh	Total System KW'	Integ'	Capacity MBtuh	Total System KW'	Integ'	Capacity MBtuh	Total System KW'	Integ'	Capacity MBtuh	Total System KW'	Integ'	Capacity MBtuh	Total System KW'	Integ'	Capacity MBtuh	Total System KW'	Integ'						
PH16NA024****B Outdoor Section With FV4CNF002 Indoor Section - HI																																
65 (18.3)	600	913	840	136	1206	1108	147	538	1402	160	1836	1630	173	2155	1961	188	2498	2498	206	2866	2866	227	3246	3246	337	4253						
650	921	847	136	1217	1118	146	146	1550	1413	158	1852	1645	171	2178	1982	186	2525	2525	203	2899	2899	223	3287	3287	337	4247						
700	929	854	135	1228	1129	145	1561	1423	157	1867	1658	169	2197	1999	183	2550	2550	200	2929	2929	219	3322	3322	337	4243							
800	942	867	135	1247	1146	144	1579	1440	155	18921	1680	167	2230	2029	180	2592	2592	195	2978	2978	214	3375	3375	337	4236							
70 (211)	600	873	803	143	1161	1067	154	1505	1372	167	1797	1596	181	2111	1921	196	2449	2449	215	2812	2812	237	3191	3191	337	4264						
650	881	810	143	1173	1078	153	1518	1384	166	1814	1611	179	2133	1941	194	2476	2476	211	2844	2844	232	3228	3228	337	4257							
700	889	818	142	1185	1089	152	1529	1394	164	1829	1624	177	2153	1959	191	2500	2500	208	2874	2874	228	3262	3262	337	4253							
800	904	832	142	12041	106	151	548	1411	162	1854	1646	174	2185	1988	188	2540	2540	204	2921	2921	222	3315	3315	337	4246							
75 (23.9)	600	826	760	150	1114	1023	161	1466	1337	175	1759	1562	189	2068	1881	205	24012	401	224	2759	2759	246	3135	3135	337	4275						
650	834	767	149	1125	1034	160	1481	1350	173	1775	1576	186	2089	1901	202	2427	2427	220	2790	2790	241	3171	3171	337	4268							
700	843	776	149	1137	1045	159	1493	1361	172	1790	1589	185	2107	1918	199	2450	2450	217	2819	2819	237	3203	3203	337	4263							
800	859	790	149	1157	1063	158	1514	1380	170	1814	1611	182	2139	1947	196	2489	2489	212	2866	2866	231	3255	3255	337	4256							
PH16NA024****B Outdoor Section With FV4CNF002 Indoor Section - LO																																
65 (18.3)	480	429	394	103	746	685	114	1033	942	123	13011	156	131	1575	1433	139	1790	1790	147	20022	002	155	2213	2213	337	4166						
520	433	398	103	754	693	1131	048	955	122	1324	1176	129	1595	1452	137	1814	1814	144	2030	2030	151	2246	2246	337	4161							
560	438	403	103	766	704	113	1061	967	121	1347	1196	128	1613	1468	1351	836	1836	141	2057	2057	148	2277	2277	337	4157							
640	448	412	104	782	718	113	1081	986	120	1403	1246	127	1642	1494	132	1873	1873	138	2102	2102	144	2329	2329	337	4151							
70 (211)	480	436	401	111	696	640	120	980	894	129	1246	1107	137	1534	1396	146	17451	745	154	1956	1956	163	2166	2166	337	4174						
520	441	406	111	707	650	120	996	908	128	1266	1125	136	1553	1413	144	1769	1769	151	1984	1984	159	2198	2198	337	4169							
560	447	412	111	717	659	119	1010	921	127	1284	1141	135	1569	1428	142	1790	1790	148	2009	2009	156	2227	2227	337	4165							
640	459	422	112	735	675	119	1034	943	1271	316	1169	133	1600	1456	140	1827	1827	145	2052	2052	151	2277	2277	337	4159							
75 (23.9)	480	410	377	118	639	587	126	923	841	135	1189	1056	144	1487	1353	153	17021	702	161	1910	1910	171	2120	2120	337	4183						
520	417	384	118	649	596	126	939	856	135	1209	1073	142	1508	1372	1511	724	1724	158	1937	1937	167	2150	2150	337	4178							
560	424	390	118	659	606	126	953	869	134	1226	1089	141	1527	1389	149	1744	1744	156	1961	1961	164	2178	2178	337	4174							
640	437	402	119	678	623	126	976	890	133	1260	1119	140	1556	1416	147	1780	1780	152	2003	2003	159	22262	2262	337	4168							
PH16NA036****B Outdoor Section With FV4CNB006 Indoor Section - HI																																
65 (18.3)	900	1375	1265	190	1791	1646	201	2288	2087	215	2693	2392	228	3123	2842	242	3579	3579	260	4074	4074	2814	622	4622	337	4303						
975	1388	1277	190	1806	1660	200	2303	2100	213	2711	2408	225	3146	2863	238	3610	3610	255	4116	4116	275	4668	4668	337	4294							
1050	1399	1287	190	1820	1672	199	2316	2112	211	2727	2422	222	3166	2881	235	3637	3637	251	4152	4152	271	4697	4697	337	4288							
1200	1418	1305	189	1844	1694	198	2336	2130	209	2754	2446	219	3202	2914	231	3681	3681	246	4209	4209	261	4710	4710	337	4279							
70 (211)	900	1321	1215	200	1738	1597	211	2198	2004	225	2655	2358	239	3075	2799	254	3523	3523	272	4004	4004	293	4539	4539	337	4318						
975	1333	1226	199	1752	1610	210	2262	2063	224	2672	2373	236	3098	2819	250	35543	554	267	4045	4045	287	4596	4596	337	4308							
1050	1344	1236	199	1766	1623	209	2276	2075	222	2687	2386	234	3118	2838	247	3580	3580	263	4080	4080	283	4628	4628	337	4301							
1200	1363	1254	199	1789	1644	208	2299	2096	220	2713	2409	230	3152	2869	242	3623	3623	257	4138	4138	273	4654	4654	337	4292							
75 (23.9)	900	1266	1165	210	1683	1547	222	2126	1938	235	2616	2324	252	3029	2756	267	3468	3468	285	3935	3935	307	4458	4458	337	4333						
975	1277	1175	209	1698	1560	221	2145	1956	233	2631	2337	248	3051	2776	263	3498	3498	280	3975	3975	301	4514	4514	337	4322							
1050	1288	1185	209	1711	1572	220	2163	1972	232	2646	2350	246	3070	2794	259	3524	3524	276	4009	4009	296	4555	4555	337	4315							
1200	1305	1201	209	1731	1591	219	2192	1998	230	2672	2373	242	3104	2824	255	3566	3566	270	4065	4065	288	4591	4591	337	4305							
PH16NA036****B Outdoor Section With FV4CNB006 Indoor Section - LO																																
65 (18.3)	720	956	880	168	1250	1149	168	1565	1427	169	1888	1677	170	2267	2063	175	2524	2524	179	2766	2766	183	2986	2986	337	4190						
780	969	891	168	1265	1162	167	1582	1442	167	1908	1695	169	2285	2080	173	2545	2545	175	2793	2793	179	3018	3018	337	4184							
840	980	901	168	1278	1174	167	1597	1456	166	1926	1711	167	2302	2095	170	2564	2564	172	2816	2816	175	3046	3046	337	4180							
960	997	917	168	1300	1194	166	1623	1480	165	1957	1738	165	2328	2119	167	2595	2595	167	2855	2855	169	3092	3092	337	4172							
70 (211)	720	875	805	175	1178	1083	174	1499	1367	176	1826	1622	179	2173	1977	183	2482	2482	188	2720	2720	194	2937	2937	337	4200						
780	886	815	175	1192	1096	174	1516	1382	175	1847	1641	177	2239	2038	182	2502	2502	185	2746	2746	189	2968	2968	337	4195							
840	896	825	175	12051	107	174	1530	1395	174	1865	1656	175	2256	2053	179	2520	2520	181	2769	2769	185	2995	2995	337	4190							
960	914	841	175	1226	1127	173	1556	1418	173	1893	1681	176	2284	2079	176	2552	2551	177	28072	807	179	3041	3041	337	4182							
75 (23.9)	720	789	726	182	1103	1014	183	1431	1305	184	1764	1567	187	2094	1906	192	2442	2442	199	2674	2674	204	2885	2885	337	4211						
780	799	735	182	1117	1026	1821	4471	320	183	1784	1584	186	2119	1929	189	2462	2462	195	2699	2699	199	29172	917	337	4205							
840	809	744	182	1129	1037	182	1462	1333	182	1801	1600	184	2144	1951	187	2479	2479	192	2722	2722	195	2944	2944	337	4200							
960	825	759	182	1144	1051	181	1482	1351	181	1825	1621	182	2176	1980	183	2507	2507	186	2759	2759	189	2989	2989	337	4193							

INDOOR AIR EDB CFM °F (°C)	-3 (-19.4)				7 (-13.9)				17 (-8.3)				27 (2.8)				37 (2.8)				47 (8.3)				57 (13.9)				67 (19.4)					
	Capacity Total	MBtuh Total	Integ'	Integ'	Capacity Total	MBtuh Total	Integ'	Integ'	Capacity Total	MBtuh Total	Integ'	Integ'	Capacity Total	MBtuh Total	Integ'	Integ'	Capacity Total	MBtuh Total	Integ'	Integ'	Capacity Total	MBtuh Total	Integ'	Integ'	Capacity Total	MBtuh Total	Integ'	Integ'	Capacity Total	MBtuh Total	Integ'	Integ'		
PH16NA048****B Outdoor Section With FV4CNB,FJ005 Indoor Section -HI																																		
65 (18.3)	1200	17.97	16.53	2.66	23.15	21.27	2.84	29.65	27.03	3.08	35.05	31.13	3.29	40.86	37.19	3.54	47.00	47.00	3.82	53.46	53.46	4.15	60.50	60.50	4.46	68.02	68.02	4.77	75.53	75.53	5.08	83.05	83.05	5.39
1300	18.06	16.61	2.65	23.28	21.39	2.83	29.83	27.19	3.063	3.52	31.35	3.27	41.213	7.50	3.50	47.42	47.42	3.77	54.04	54.04	4.01	61.21	61.21	4.31	68.77	68.77	4.62	76.30	76.30	4.93	83.87	83.87	5.24	
1400	18.16	16.70	2.65	23.41	21.51	2.83	29.97	27.33	3.04	35.51	31.53	3.25	41.51	37.77	3.45	48.45	48.45	3.74	54.58	54.58	4.01	61.21	61.21	4.31	68.77	68.77	4.62	76.30	76.30	4.93	83.87	83.87	5.24	
1600	18.34	16.88	2.66	23.67	21.75	2.83	30.22	27.56	3.03	35.87	31.86	3.22	42.01	38.23	3.45	48.45	48.45	3.69	55.23	55.23	4.32	59.63	59.63	4.63	67.17	67.17	4.94	74.74	74.74	5.25	81.91	81.91	5.56	
70 (21.1)	1200	17.65	16.24	2.82	22.65	20.81	3.00	29.20	26.63	3.23	34.52	30.66	3.45	40.17	36.56	3.69	46.20	46.20	3.98	52.55	52.55	4.32	59.63	59.63	4.63	67.17	67.17	4.94	74.74	74.74	5.25	81.91	81.91	5.56
1300	17.75	16.33	2.82	22.80	20.95	2.99	29.412	6.81	3.21	34.77	30.88	3.42	40.52	36.87	3.66	46.62	46.62	3.93	53.06	53.06	4.25	60.01	60.01	4.56	67.46	67.46	4.87	74.86	74.86	5.18	82.06	82.06	5.49	
1400	17.87	16.44	2.82	22.97	21.10	2.99	29.59	26.98	3.20	34.99	31.08	3.40	40.82	37.15	3.63	47.00	47.00	3.90	53.59	53.59	4.18	60.34	60.34	4.49	67.94	67.94	4.80	75.04	75.04	5.11	82.14	82.14	5.42	
1600	18.11	16.66	2.83	23.27	21.38	2.99	29.912	7.27	3.19	35.38	31.42	3.38	41.34	37.62	3.60	47.64	47.64	3.85	54.36	54.36	4.09	60.66	60.66	4.39	68.18	68.18	4.70	75.28	75.28	5.01	82.38	82.38	5.32	
75 (23.9)	1200	17.131	5.76	2.99	22.03	20.25	3.16	27.68	25.23	3.36	33.94	30.15	3.61	39.48	35.93	3.86	45.41	45.41	4.16	51.70	51.70	4.51	58.75	58.75	4.85	66.88	66.88	4.99	73.83	73.83	5.27	81.83	81.83	5.55
1300	17.26	15.88	2.99	22.20	20.40	3.15	27.91	25.45	3.34	34.20	30.37	3.58	39.82	36.23	3.82	45.82	45.82	4.11	52.16	52.16	4.44	59.15	59.15	4.75	66.88	66.88	4.99	73.83	73.83	5.27	81.83	81.83	5.55	
1400	17.40	16.01	2.99	22.38	20.57	3.14	28.16	25.67	3.33	34.43	30.58	3.56	40.12	36.51	3.79	46.19	46.19	4.07	52.61	52.61	4.37	59.46	59.46	4.68	67.06	67.06	4.98	74.01	74.01	5.28	82.01	82.01	5.59	
600	17.67	16.25	3.00	22.71	20.87	3.15	28.66	26.13	3.33	34.84	30.94	3.54	40.64	36.98	3.76	46.82	46.82	4.01	53.46	53.46	4.27	59.84	59.84	4.58	67.46	67.46	4.89	74.46	74.46	5.20	82.46	82.46	5.51	

PH6NA048****B Outdoor Section WithFV4CNB,FJ005 Indoor Section - LO																																					
65 (18.3)	960	10.75	9.89	2.21	15.52	14.27	2.28	20.06	18.29	2.35	24.42	21.69	2.42	29.36	26.71	2.53	33.07	33.07	2.61	36.89	36.89	2.72	40.84	40.84	2.87	44.86	44.86	2.99	48.88	48.88	3.11	52.90	52.90	3.23	56.92	56.92	3.35
1040	10.91	10.03	2.22	15.72	14.45	2.28	20.301	8.50	2.34	24.72	21.96	2.40	29.61	26.94	2.49	33.39	33.39	2.57	37.30	37.30	2.674	41.32	41.32	2.80	45.34	45.34	2.92	49.36	49.36	3.04	53.38	53.38	3.16	57.42	57.42	3.28	
1120	11.03	10.15	2.22	15.89	14.60	2.28	20.50	18.69	2.33	24.98	22.18	2.39	29.85	27.16	2.47	33.67	33.67	2.53	37.64	37.64	2.62	41.76	41.76	2.73	45.78	45.78	2.85	49.80	49.80	3.00	53.82	53.82	3.12	57.86	57.86	3.24	
1280	11.26	10.36	2.23	16.19	14.88	2.28	20.85	19.01	2.32	25.432	22.58	2.36	30.22	27.50	2.43	34.15	34.15	2.48	38.21	38.21	2.55	42.41	42.41	2.62	46.43	46.43	2.74	50.45	50.45	2.87	54.49	54.49	2.99	58.55	58.55	3.11	
70 (21.1)	960	9.82	9.03	2.31	14.61	13.43	2.39	19.16	17.47	2.46	23.53	20.89	2.54	28.66	26.08	2.66	32.39	32.39	2.75	36.17	36.17	2.87	40.06	40.06	3.02	43.88	43.88	3.13	47.69	47.69	3.25	51.50	51.50	3.37	55.32	55.32	3.49
1040	9.96	9.16	2.31	14.79	13.59	2.38	19.39	17.68	2.45	23.82	21.16	2.52	28.96	26.35	2.62	32.72	32.72	2.71	36.57	36.57	2.81	40.53	40.53	2.95	44.35	44.35	3.06	48.17	48.17	3.17	51.81	51.81	3.29	55.65	55.65	3.41	
1120	10.08	9.28	2.32	14.97	13.75	2.38	19.61	17.88	2.44	24.08	21.39	2.50	29.21	26.58	2.60	33.00	33.00	2.67	36.91	36.91	2.76	40.95	40.95	2.89	44.77	44.77	3.00	48.41	48.41	3.12	51.87	51.87	3.24	55.73	55.73	3.36	
75 (23.9)	960	9.86	9.07	2.43	13.59	12.49	2.49	18.18	16.58	2.57	22.58	20.06	2.66	27.03	24.60	2.76	31.72	31.72	2.89	35.43	35.43	3.01	39.28	39.28	3.17	43.09	43.09	3.28	46.80	46.80	3.39	50.56	50.56	3.50	54.03	54.03	3.61
1040	9.99	9.19	2.44	13.77	12.66	2.49	18.41	16.78	2.56	22.88	20.32	2.64	27.47	25.00	2.73	32.04	32.04	2.85	35.82	35.82	2.96	39.74	39.74	3.10	43.10	43.10	3.21	50.84	50.84	3.32	54.10	54.10	3.43	57.10	57.10	3.54	
1120	9.77	8.99	2.44	13.94	12.81	2.49	18.63	16.99	2.56	23.13	20.55	2.62	27.91	25.40	2.71	32.32	32.32	2.81	36.17	36.17	2.91	40.16	40.16	3.04	43.20	43.20	3.11	50.90	50.90	3.23	54.20	54.20	3.35	57.20	57.20	3.47	
1280	9.98	9.18	2.45	14.24	13.08	2.50	18.99	17.32	2.55	23.58	20.94	2.60	28.92	26.32	2.69	32.79	32.79	2.76	36.74	36.74	2.84	40.87	40.87	2.94	44.00	44.00	3.05	51.14	51.14	3.17	55.24	55.24	3.29	58.34	58.34	3.41	

INDOOR AIR		-3 (-19.4)			7 (-13.9)			OUTDOOR COIL ENTERING AIR TEMPERATURES °F(°C)						37 (2.8)			47 (8.3)			57 (13.9)			67 (19.4)			
DB	CFM	Capacity MBtu/h	Total System	Integ'	Capacity MBtu/h	Total System	Integ'	Capacity MBtu/h	Total System	Integ'	Capacity MBtu/h	Total System	Integ'	Capacity MBtu/h	Total System	Integ'	Capacity MBtu/h	Total System	Integ'	Capacity MBtu/h	Total System	Integ'	Capacity MBtu/h	Total System	Integ'	
°F (°C)		Total	KW'		Total	KW'		Total	KW'		Total	KW'		Total	KW'		Total	KW'		Total	KW'		Total	KW'		
PH16NA060-***BO Indoor Section WithFV4CNB006 Indoor Section- HI																										
65 (18.3)	1500	23.79	21.88	3.26	29.29	26.92	3.46	36.45	33.23	3.72	42.81	38.02	3.97	50.014	5.51	4.27	57.93	57.93	4.63	66.85	66.85	4.98	75.37	75.37	5.43	
		1625	24.02	22.09	3.27	29.54	27.14	3.46	36.69	33.45	3.71	43.07	38.25	3.95	50.33	45.80	4.24	58.31	58.31	4.58	67.16	67.16	4.91	75.53	75.53	5.33
		1750	24.26	22.32	3.28	29.79	27.38	3.47	36.89	33.63	3.70	43.31	38.47	3.94	50.62	46.07	4.22	58.70	58.70	4.53	67.40	67.40	4.86	75.47	75.47	5.25
		2000	24.72	22.74	3.32	30.26	27.80	3.49	37.26	33.97	3.71	43.75	38.86	3.93	51.14	46.53	4.20	59.34	59.34	4.47	67.57	67.57	4.79	72.61	72.61	5.06
70 (21.1)	1500	22.84	21.01	3.40	28.50	26.19	3.61	36.04	32.86	3.88	42.34	37.61	4.15	49.45	45.00	4.46	57.25	57.25	4.83	66.02	66.02	5.19	74.43	74.43	5.65	
	1625	23.07	21.22	3.41	28.74	26.41	3.61	36.27	33.07	3.87	42.61	37.84	4.13	49.77	45.29	4.43	57.63	57.63	4.78	66.38	66.38	5.11	74.67	74.67	5.55	
	1750	23.30	21.44	3.42	28.99	26.64	3.62	36.48	33.26	3.87	42.85	38.06	4.11	50.06	45.55	4.40	58.00	58.00	4.74	66.64	66.64	5.06	74.68	74.68	5.47	
	2000	23.75	21.85	3.46	29.44	27.06	3.64	36.85	33.60	3.88	43.28	38.44	4.11	50.57	46.02	4.38	58.68	58.68	4.67	66.90	66.90	4.99	72.84	72.84	5.30	
75 (23.9)	1500	21.87	20.12	3.54	27.71	25.46	3.76	34.56	31.51	4.03	1.89	37.21	4.34	48.89	44.49	4.66	56.55	56.55	5.03	65.16	65.16	5.40	73.45	73.45	5.88	
	1625	22.08	20.32	3.55	27.94	25.67	3.77	34.84	31.79	4.02	42.15	37.43	4.31	49.21	44.78	4.62	56.94	56.94	4.98	65.56	65.56	5.33	73.74	73.74	5.78	
	1750	22.32	20.53	3.57	28.18	25.90	3.77	35.20	32.09	4.02	42.39	37.65	4.30	49.50	45.05	4.60	57.30	57.30	4.94	65.85	65.85	5.27	73.83	73.83	5.70	
	2000	22.75	20.93	3.60	28.63	26.31	3.80	36.40	33.19	4.05	42.82	38.03	4.28	50.01	45.51	4.57	57.99	57.99	4.87	66.19	66.19	5.20	72.85	72.85	5.55	

GUIDE SPECIFICATIONS

General System Description

Outdoor-mounted, air-cooled, split-system air conditioner unit suitable for ground or rooftop installation. Unit consists of a hermetic compressor, an air-cooled coil, propeller-type condenser fan, and a control box. Unit will discharge supply air upward as shown on contract drawings. Unit will be used in a refrigeration circuit to match up to a packaged fan coil or coil unit.

Quality Assurance

- Unit will be rated in accordance with the latest edition of AHRI Standard 210.
- Unit will be certified for capacity and efficiency, and listed in the latest AHRI directory.
- Unit construction will comply with latest edition of ANSI/ASHRAE and with NEC.

- Unit will be constructed in accordance with UL standards and will carry the UL label of approval. Unit will have c-UL approval.
- Unit cabinet will be capable of withstanding Federal Test Method Standard No. 141 (Method 6061) 500-hr salt spray test.
- Air-cooled condenser coils will be leak tested and pressure tested.
- Unit constructed in ISO9001 approved facility.

Delivery, Storage, and Handling

- Unit will be shipped as single package only and is stored and handled per unit manufacturer's recommendations.

Warranty (for inclusion by specifying engineer)

- U.S. and Canada only.

PRODUCTS

Equipment

- Factory assembled, single piece, air-cooled air conditioner unit. Contained within the unit enclosure is all factory wiring, piping, controls, compressor, refrigerant charge R-410A, and special features required prior to field start-up.

Unit Cabinet

- Unit cabinet, including louvered coil guard, will be constructed of galvanized steel, bonderized, and coated with a powder coat paint.

Fans

- Condenser fan will be direct--drive propeller type, discharging air upward.
- Condenser fan motors will be totally enclosed, 1-phase type with class B insulation and permanently lubricated bearings. Shafts will be corrosion resistant.
- Fan blades will be statically and dynamically balanced.
- Condenser fan openings will be equipped with coated steel wire safety guards.

Compressor

- Compressor will be hermetically sealed.
- Compressor will be mounted on rubber vibration isolators.

Condenser Coil

- Condenser coil will be air cooled.
- Coil will be constructed of aluminum fins mechanically bonded to copper tubes which are then cleaned, dehydrated, and sealed.

Refrigeration Components

- Refrigeration circuit components will include liquid-line shutoff valve with sweat connections, vapor-line shutoff valve with sweat connections, system charge of R-410A refrigerant, and compressor oil.
- Unit will be equipped with high-pressure switch, low pressure switch and filter drier for R-410A refrigerant.

Operating Characteristics

- The capacity of the unit will meet or exceed ____ Btuh at a suction temperature of ____ °F/°C. The power consumption at full load will not exceed ____ kW.
- Combination of the unit and the evaporator or fan coil unit will have a total net cooling capacity of ____ Btuh or greater at conditions of ____ CFM entering air temperature at the evaporator at ____ °F/_C wet bulb and ____ °F/°C dry bulb, and air entering the unit at ____ °F/°C.
- The system will have a SEER of ____ Btuh/watt or greater at DOE conditions.

Electrical Requirements

- Nominal unit electrical characteristics will be ____ v, single phase, 60 hz. The unit will be capable of satisfactory operation within voltage limits of ____ v to ____ v.
- Unit electrical power will be single point connection.
- Control circuit will be 24v.

Special Features

- Refer to section of this literature identifying accessories and descriptions for specific features and available enhancements.

SYSTEM DESIGN SUMMARY

1. Intended for outdoor installation with free air inlet and outlet. Outdoor fan external static pressure available is less than 0.01-in. wc.
2. This product is not qualified for low ambient cooling operation (below 55°F/12.8°C) and no low ambient kit is available.
3. The maximum outdoor operating ambient in cooling mode is 125°F (51.67°C) when operating voltage is 230v. For 208v applications, the maximum outdoor ambient is 120°F (48.9°C).
4. For reliable operation, unit should be level in all horizontal planes.
5. For interconnecting refrigerant tube lengths greater than 80 ft (23.4 m) and/or 35 ft (10.7 m) vertical differential, consult Residential Piping and Longline Guideline and Service Manual available from equipment distributor.
6. If any refrigerant tubing is buried, provide a 6 in. (152.4 mm) vertical rise to the valve connections at the unit. Refrigerant tubing lengths up to 36 in. (914.4 mm) may be buried without further consideration. Do not bury refrigerant lines longer than 36 in. (914.4 mm).
7. Use only copper wire for electric connection at unit. Aluminum and clad aluminum are not acceptable for the type of connector provided.
8. Do not apply capillary tube indoor coils to these units.
9. Factory-supplied filter drier must be installed.



BROCK
PROUDLY CANADIAN
FOR OVER 75 YEARS



Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program. For verification of certification for individual products, go to www.ahridirectory.org.

This product has been designed and manufactured to meet Energy Star ® criteria for energy efficiency when matched with appropriate coil components. However, proper refrigerant charge and proper air flow are critical to achieve rated capacity and efficiency. Installation of this product should follow all manufacturing refrigerant charging and air flow instructions. Failure to confirm proper charge and air flow may reduce energy efficiency and shorten equipment life.



Originally founded in 1946, Brock Engineering & Manufacturing Inc. has been a leader in HVAC/R innovations and continues to develop affordable home comfort solutions today. Since 2001, Brock has been owned by Wolseley Canada, a leading distributor of HVAC/R, plumbing and industrial products. Presently, Brock remains a proudly Canadian-operated company and North American manufacturer.

With over 75 years of experience, Brock continues to build reliable products, parts and accessories for the heating, ventilation, and air conditioning industry. Brock remains dedicated to providing quality manufactured products at competitive prices and innovative home comfort solutions to homes across North America.

All Brock manufactured products are backed with UL, AHRI, ISO 9001 Quality and CEC Certifications.

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