

**285BNH
EVOLUTION® HEAT PUMP
WITH PURON® REFRIGERANT
2 TO 4 TONS**



Product Data



**EVOLUTION®
SYSTEM**

Bryant's heat pumps with Puron® refrigerant provide a collection of features unmatched by any other family of equipment. The 285BNH has been designed utilizing Bryant's Puron® refrigerant. The environmentally sound refrigerant allows consumers to make a responsible decision in the protection of the earth's ozone layer.

This product has been designed and manufactured to meet Energy Star® criteria for energy efficiency when matched with appropriate coil components. Refer to the combination ratings in the Product Data for system combinations that meet Energy Star® guidelines.

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.

INDUSTRY LEADING FEATURES / BENEFITS

Efficiency

- 15 SEER (nominal) / 11.0- 13.0 EER / 7.7 - 9.5 HSPF
- Microtube Technology™ refrigeration system
- Indoor air quality accessories available
- Factory installed heating TXV

Sound

- Sound level as low as 68 dBA
- Compressor sound blanket standard
- Quiet Shift II defrost

Comfort

- System supports Evolution Control or standard thermostat controls

Reliability

- Puron® refrigerant - environmentally sound, won't deplete the ozone layer and low lifetime service cost.
- Scroll compressor
- Internal pressure relief valve
- Internal thermal overload
- Filter drier
- High pressure switches
- Loss-of-charge switch
- Balanced refrigeration system for maximum reliability

Durability

DuraGuard™ protection package:

- Solid, durable sheet metal construction
- Louvered coil guard
- Baked-on, complete outer coverage, powder paint

Applications

- Long-line - up to 250 feet (76.20 m) total equivalent length, up to 200 feet (60.96 m) condenser above evaporator, or up to 80 ft. (24.38 m) evaporator above condenser (See Longline Guide for more information.)
- Low ambient (down to -20°F/-28.9°C)) with accessory kit

MODEL NUMBER NOMENCLATURE

1 N	2 N	3 N	4 A	5 A/N	6 N	7 N	8 N	9 N	10 A/N	11 A/N	12 N	14 A
2	8	5	B	N	H	0	3	6	0	0	0	A
Product Family 2=HP	Tier 8= Evolution Series	SEER 5=15 SEER	Major Series B=Puron	Voltage N= 208–230–1 or 208/230–1	Variations H = High HSPF	Cooling Capacity			Open 0=Not Defined	Open 0=Not Defined	Open 0=Not Defined	Series A = Original Series



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.



ISO 9001
QMI-SAI Global



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.**

STANDARD FEATURES

Feature	024	030	036	042	048
Puron® Refrigerant	X	X	X	X	X
Maximum SEER Rating*	15.5	15.5	15.5	15.5	15.5
Scroll Compressor	X	X	X	X	X
Louvered Coil Guard	X	X	X	X	X
Field-Installed Filter Drier	X	X	X	X	X
Compressor Sound Blanket	X	X	X	X	X
Front-Seating Service Valves	X	X	X	X	X
Internal Pressure-Relief Valve	X	X	X	X	X
Internal Thermal Overload	X	X	X	X	X
Long Line capability	X	X	X	X	X
Low-ambient capability with Kit or Evolution™ Control	X	X	X	X	X
Suction Line Accumulator	X	X	X	X	X
High-Pressure Switch	X	X	X	X	X
Loss-of-Charge Switch	X	X	X	X	X

*With approved combinations

X = Standard

PHYSICAL DATA

UNIT SIZE SERIES	024-B	030-B	036-B	042-B	048-B
Operating Weight (lb)	215 (97.5)	218 (98.9)	229.5 (104.1)	262.5 (119.1)	280.5 (127.2)
Shipping Weight (lb)	257 (116.6)	258.5 (117.3)	273 (123.8)	304.5 (138.1)	324.5 (147.2)
Compressor Type	Scroll				
REFRIGERANT	Puron® (R-410A)				
Control	TXV (Puron Hard Shutoff)				
Charge (lb)	7.6 (3.45)	8.25 (3.74)	9.0 (4.1)	10.2 (4.6)	14.8 (6.7)
COND FAN	Propeller Type, Direct Drive				
Air Discharge	Vertical				
Air Qty (CFM)	3223	3223	3810	3810	4150
Motor HP	1/12	1/12	1/5	1/5	1/4
Motor RPM	800	800	800	800	800
COND COIL					
Face Area (Sq ft)	20.1	22.6	22.6	17.6	25.1
Fins per In.	20	20	20	20	20
Rows	1	1	1	2	2
Circuits	5	6	6	7	8
VALVE CONNECT. (In. ID)					
Vapor	5/8	3/4	3/4	7/8	7/8
Liquid	3/8"				
REFRIGERANT TUBES* (In. OD)					
Rated Vapor*	5/8	3/4	3/4	7/8	7/8
Max Liquid Line	3/8"				

*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.

Note: See unit Installation Instruction for proper installation.

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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 Puron refrigerant:

Vapor Line Sizing and Cooling Capacity Losses - Puron® Refrigerant 1- Stage Heat Pump Applications

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 1–Stage HP with Puron	3/8	5/8	0	1	1	2	3	3	4	4	5
		3/4	0	0	0	0	1	1	1	1	1
30,000 1–Stage HP with Puron	3/8	5/8	1	2	3	3	4	5	6	7	8
		3/4	0	0	1	1	1	2	2	2	3
		7/8	0	0	0	0	1	1	1	1	1
36,000 1–Stage HP with Puron	3/8	5/8	1	2	4	5	6	7	9	10	11
		3/4	0	0	1	1	2	2	3	3	4
		7/8	0	0	0	0	1	1	1	1	2
42,000 1–Stage HP with Puron	3/8	3/4	0	1	2	2	3	4	4	5	6
		7/8	0	0	1	1	1	2	2	2	3
48,000 1–Stage HP with Puron	3/8	3/4	0	1	2	3	4	5	5	6	7
		7/8	0	0	1	1	2	2	2	3	3

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. See Long Line Application Guidelines

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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 Puron® 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 Puron	3/8	250*	250*	250*	250*	250*	250*	250*
030 HP with Puron	3/8	250*	250*	250*	250*	250*	250*	250*
036 HP with Puron	3/8	250*	250*	250*	250*	250*	250*	250*
042 HP with Puron	3/8	250*	250*	250*	250*	250*	250*	150
048 HP with Puron	3/8	250*	250*	250*	250*	230	160	--

* 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 PURON® 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

ACCESSORIES

KIT NUMBER	KIT NAME	UNIT SIZE – SERIES				
		024 – B	030 – B	036 – B	042 – B	048 – B
KAACH1701AAA	CRANKCASE HEATER	X	X	X		
KAACH1601AAA	CRANKCASE HEATER				X	S
KAACS0201PTC	PTC START ASSIST	X	X	X	X	X
KAFT0101AAA	FREEZE THERMOSTAT	X	X	X	X	X
KAATD0101TDR	TIME DELAY RELAY	X	X	X	X	X
KHALS0401LLS	SOLENOID VALVE	X	X	X	X	X
KHAOT0201SEC	OUTDOOR THERMOSTAT	X	X	X	X	X
KHAOT0301FST	OUTDOOR THERMOSTAT	X	X	X	X	X
KHASS0606MPK*	SNOW STAND	X	X	X	X	X
KSAS2701AAA	HARD START (CAP/RELAY)	X	X	X	X	X
KSALA0301410	LOW – AMBIENT SWITCH	X	X	X	X	X
KSASF0101AAA	SUPPORT FEET	X	X	X	X	X
KSATX0201PUR	TXV (HSO)	X	X			
KSATX0301PUR	TXV (HSO)			X		
KSATX0401PUR	TXV (HSO)				X	
KSATX0501PUR	TXV (HSO)					X

x = Accessory S = Standard

* Order through RCD – Totaline, part number KHASS0706MPK (qty 6).

ACCESSORY CONTROLS

CONTROL	DESCRIPTION
SYSTXBBUID01 – D	Evolution Control Deluxe 7 – Day Programmable (Wall – mounted system control.)
SYSTXBBUIZ01 – D	Evolution Control Deluxe Zoning 7 – Day Programmable (Wall – mounted control for a multi – zone system.)
SYSTXBB4ZC01	Evolution 4 – Zone Damper Control Module (Wall – mounted control for a four – zone system.)
SYSTXBBSMS01	Evolution Smart Sensor (Optional wall control used to monitor temperature and/or fan control in an individual zone.)
SYSTXBBRRS01	Evolution Remote Room Sensor (Monitors temperature in an individual zone.)
SYSTXBBRWF01	Evolution System Access Module (Hardware for wireless access and control via phone or internet.)
SYSTXBBNIM01	Evolution Network Interface Module (Connects Heat Recovery and Energy Recovery Ventilators on non – zoning applications.)
SYSTXBBLBPU01 – C	Decorative Back Plate for Evolution Control (Decorative wall plate.)

ACCESSORY USAGE GUIDELINE

Accessory	REQUIRED FOR LONG LINE APPLICATIONS*	REQUIRED FOR SEA COAST APPLICATIONS (Within 2 miles / 3.22 km)
Accumulator	Standard	Standard
Ball Bearing Fan Motor	Standard	Standard
Compressor Start Assist Capacitor and Relay	Yes	No
Crankcase Heater	Yes	No
Evaporator Freeze Thermostat	No	No
Hard Shutoff TXV	Yes	Yes
Isolation Relay	No	No
Liquid Line Solenoid Valve	See Long-Line Application Guideline	No
Low Ambient Switch	No	No
Support Feet	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 reciprocating compressors in the following applications:

- Long line
- Low ambient cooling
- Hard shut off expansion valve on indoor coil
- Liquid line solenoid on indoor coil

Required for single-phase scroll compressors in the following applications:

- Long line
- Low ambient cooling

Suggested for all compressors in areas with a history of low voltage problems.

2. Compressor Start Assist — PTC Type

Solid state electrical device which gives a "soft" boost to the compressor at each start-up.

Usage Guideline:

Suggested in installations with marginal power supply.

3. 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.

4. 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.

5. 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.

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.

7. Low-Ambient Pressure Switch Kit

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 or MotorMaster® Low-Ambient Controller must be used when cooling operation is used at outdoor temperatures below 55°F (12.8°C).

8. Outdoor Air Temperature Sensor

Designed for use with Bryant 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 Bryant thermostats listed in this publication.

Accessory Description and Usage (Listed Alphabetically) - CONTINUED

9. 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.

10. 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 3-stage operation.

11. 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.

Note: Snow stand does not support 26" X 26" (660 X 660 mm) small basepan size.

12. 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.

13. Time-Delay Relay

An SPST delay relay which briefly continues operation of indoor blower motor to provide additional cooling after the compressor cycles off.

Note: Most indoor unit controls include this feature. For those that do not, use the guideline below.

Usage Guideline:

Accessory required to meet AHRI rating, where indoor not equipped.

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ELECTRICAL DATA

UNIT SIZE - SERIES	V/PH	OPER VOLTS*		COMPR		FAN	MCA	MIN WIRE SIZE†	MIN WIRE SIZE†	MAX LENGTH ft (m)‡	MAX LENGTH ft (m)‡	MAX FUSE** or CKT BRK AMPS
		MAX	MIN	LRA	RLA	FLA		60° C	75° C	60° C	75° C	
024-B	208/230/1	253	197	58.3	15.5	0.5	19.9	14	14	39 (11.8)	37 (11.3)	30
030-B				73.0	14.1	0.6	18.1	14	14	41 (12.5)	39 (11.8)	30
036-B				79.0	16.7	1.0	22.1	12	12	57 (17.4)	54 (16.5)	35
042-B				109.0	19.9	1.0	26.1	10	10	77 (23.5)	73 (22.3)	40
048-B				117.0	22.7	1.2	29.6	10	10	67 (20.4)	63 (19.2)	50

* Permissible limits of the voltage range at which the unit will operate satisfactorily

† If wire is applied at ambient greater than 30°C, consult table 310-16 of the NEC (NFPA 70). The ampacity of non-metallic-sheathed cable (NM), trade name ROMEX, shall be that of 60°C conditions, per the NEC (NFPA 70) Article 336-26. If other than uncoated (no-plated), 60 or 75°C insulation, copper wire (solid wire for 10 AWG or smaller, stranded wire for larger than 10 AWG) is used, consult applicable tables of the NEC (NFPA 70).

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

** Time-Delay fuse.

FLA - Full Load Amps

LRA - Locked Rotor Amps

MCA - Minimum Circuit Amps

RLA - Rated Load Amps

NOTE: Control circuit is 24-V on all units and requires external power source. Copper wire must be used from service disconnect to unit.

All motors/compressors contain internal overload protection.

Complies with 2010 requirements of ASHRAE Standards 90.1

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A-WEIGHTED SOUND LEVEL (dBA)

UNIT SIZE - SERIES	STANDARD RATING dBA	TYPICAL OCTAVE BAND SPECTRUM (Dba, without tone adjustment)						
		125	250	500	1000	2000	4000	8000
24-B	68	49.5	58.5	61.5	62.0	61.0	58.5	51.5
30-B	69	50.5	58.5	61.5	64.0	61.5	58.5	51.5
36-B	70	54.5	57.5	63.0	66.0	64.0	61.0	54.0
42-B	72	56.5	64.5	66.5	66.5	64.5	61.0	54.5
48-B	70	55.5	60.5	63.5	64.5	60.0	56.0	48.5

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

CHARGING SUBCOOLING (TXV-TYPE EXPANSION DEVICE)

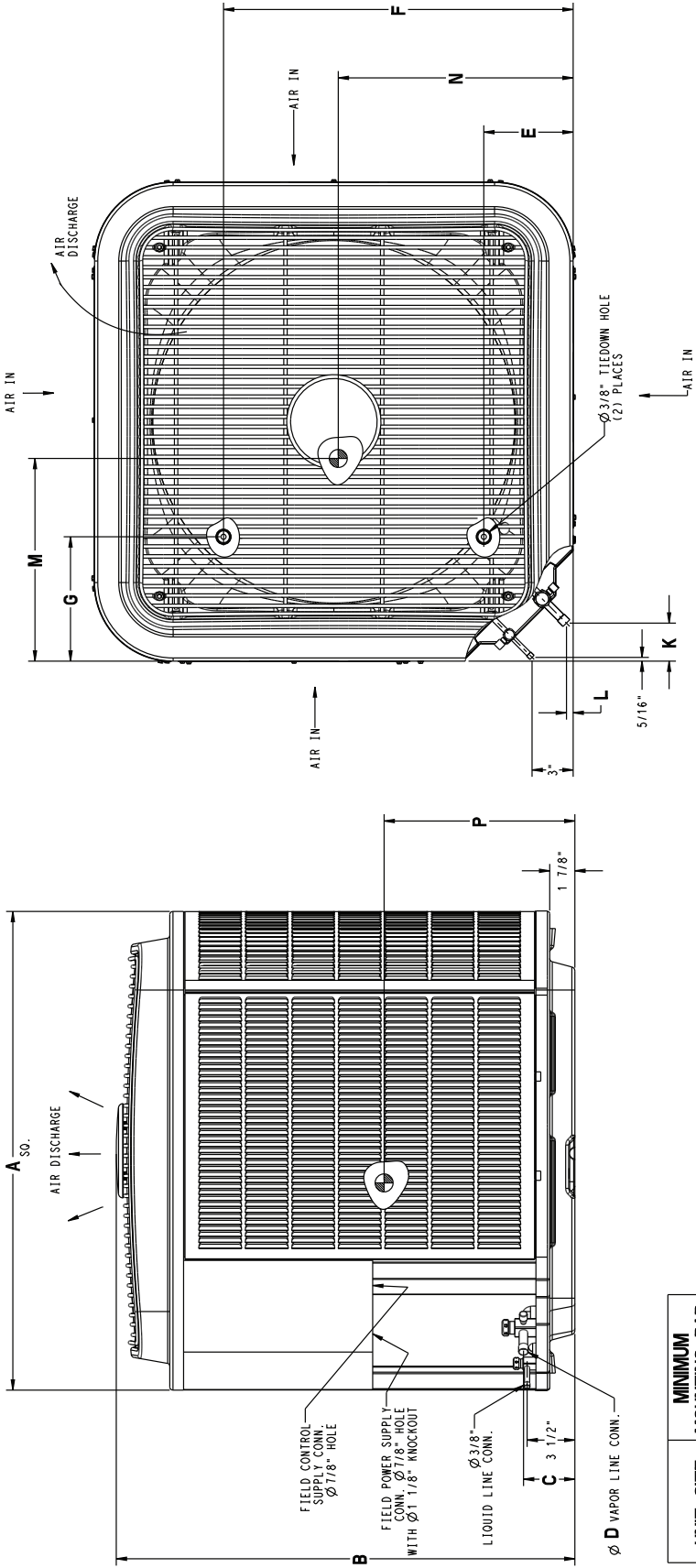
UNIT SIZE - SERIES	REQUIRED SUBCOOLING °F (°C)
024-B	10 (5.6)
030-B	11 (6.1)
036-B	10 (5.6)
042-B	11 (6.1)
048-B	9 (5.0)

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)		
285B024	B	X	0	0	35"	33 1/2"	3 3/4"	5/8"	6 9/16"	28 7/16"	9 1/8"	2 13/16"	1/2"	15 1/4"	16 1/2"	15 1/2"	215.0	237.0	37 1/8" X 37 1/8" X 39"		
285B030	B	X	0	0	35"	33 1/2"	3 3/4"	3/4"	6 9/16"	28 7/16"	9 1/8"	2 13/16"	1/2"	15 1/4"	17 1/4"	15 1/2"	218.0	258.5	37 1/8" X 37 1/8" X 40 3/4"		
285B036	B	X	0	0	35"	36 7/8"	3 3/4"	3/4"	6 9/16"	28 7/16"	9 1/8"	2 13/16"	1/2"	16 3/8"	16 1/4"	15 5/8"	229.5	273.0	37 1/8" X 37 1/8" X 40 3/4"		
285B042	B	X	0	0	35"	30 1/16"	3 7/8"	7/8"	6 9/16"	28 7/16"	9 1/8"	2 15/16"	5/8"	17 3/4"	16 1/2"	13 7/8"	262.5	304.5	37 1/8" X 37 1/8" X 35 5/8"		
285B048	B	X	0	0	35"	40 1/4"	3 7/8"	7/8"	6 9/16"	28 7/16"	9 1/8"	2 15/16"	5/8"	17 3/4"	16 1/2"	14 7/8"	280.5	324.5	37 1/8" X 37 1/8" X 44 1/4"		

208-230-160	208/230-3-60	460-3-60	575-3-60
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X = YES
O = NO



UNIT SIZE	MINIMUM MOUNTING PAD DIMENSIONS
-	26" X 26"
31 1/2" X 31 1/2"	31 1/2" X 31 1/2"
24, 30, 36, 42, 48	35" X 35"

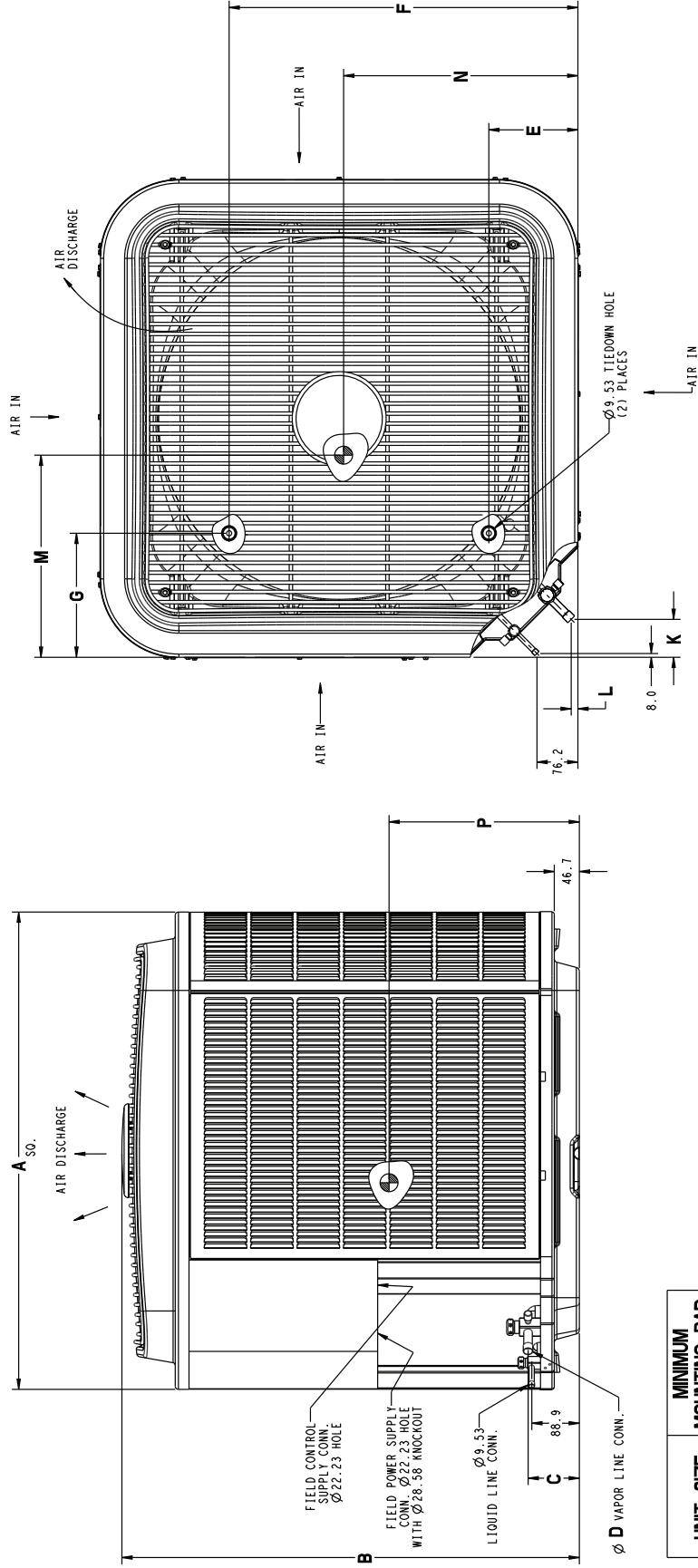
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DIMENSIONS - SI

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)	
285B024	B	X	O	O	889.0	850.2	95.6	15.9	166.1	722.8	231.3	70.9	12.8	387.35	419.10	393.70	97.52	116.57	943.1 x 943.1 x 991.5
285B030	B	X	O	O	889.0	850.2	95.6	19.1	166.1	722.8	231.3	70.9	12.8	387.35	438.15	393.70	98.88	117.25	943.1 x 943.1 x 1035.8
285B036	B	X	O	O	889.0	936.6	95.6	19.1	166.1	722.8	231.3	70.9	12.8	415.93	412.75	396.88	104.10	123.83	943.1 x 943.1 x 1035.8
285B042	B	X	O	O	889.0	763.9	97.9	22.2	166.1	722.8	231.3	74.5	16.3	450.85	419.10	352.43	119.07	138.12	943.1 x 943.1 x 905.2
285B048	B	X	O	O	889.0	1022.9	97.9	22.2	166.1	722.8	231.3	74.5	16.3	450.85	419.10	377.80	127.20	147.20	943.1 x 943.1 x 1124.8

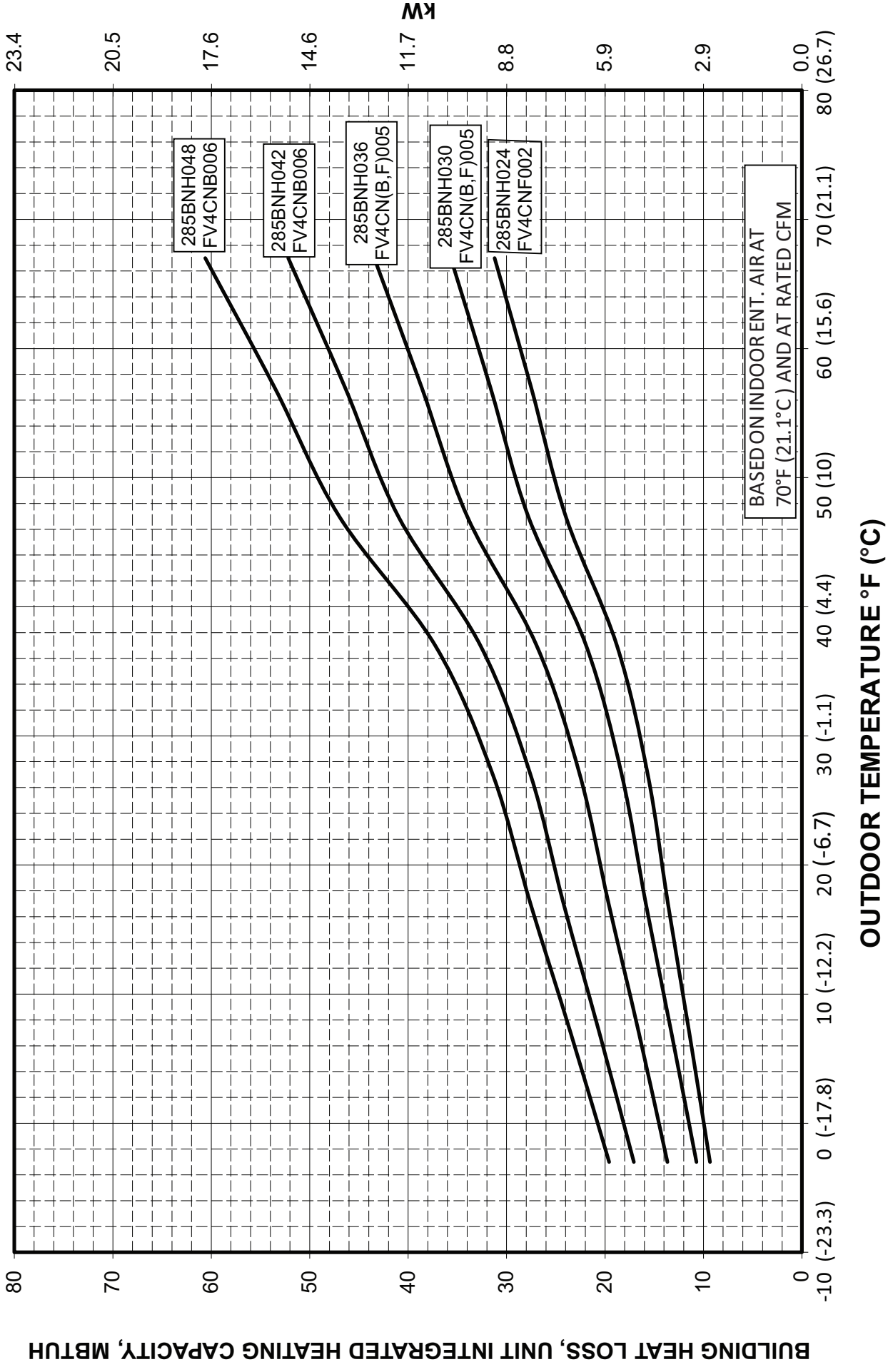
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X = YES
O = NO



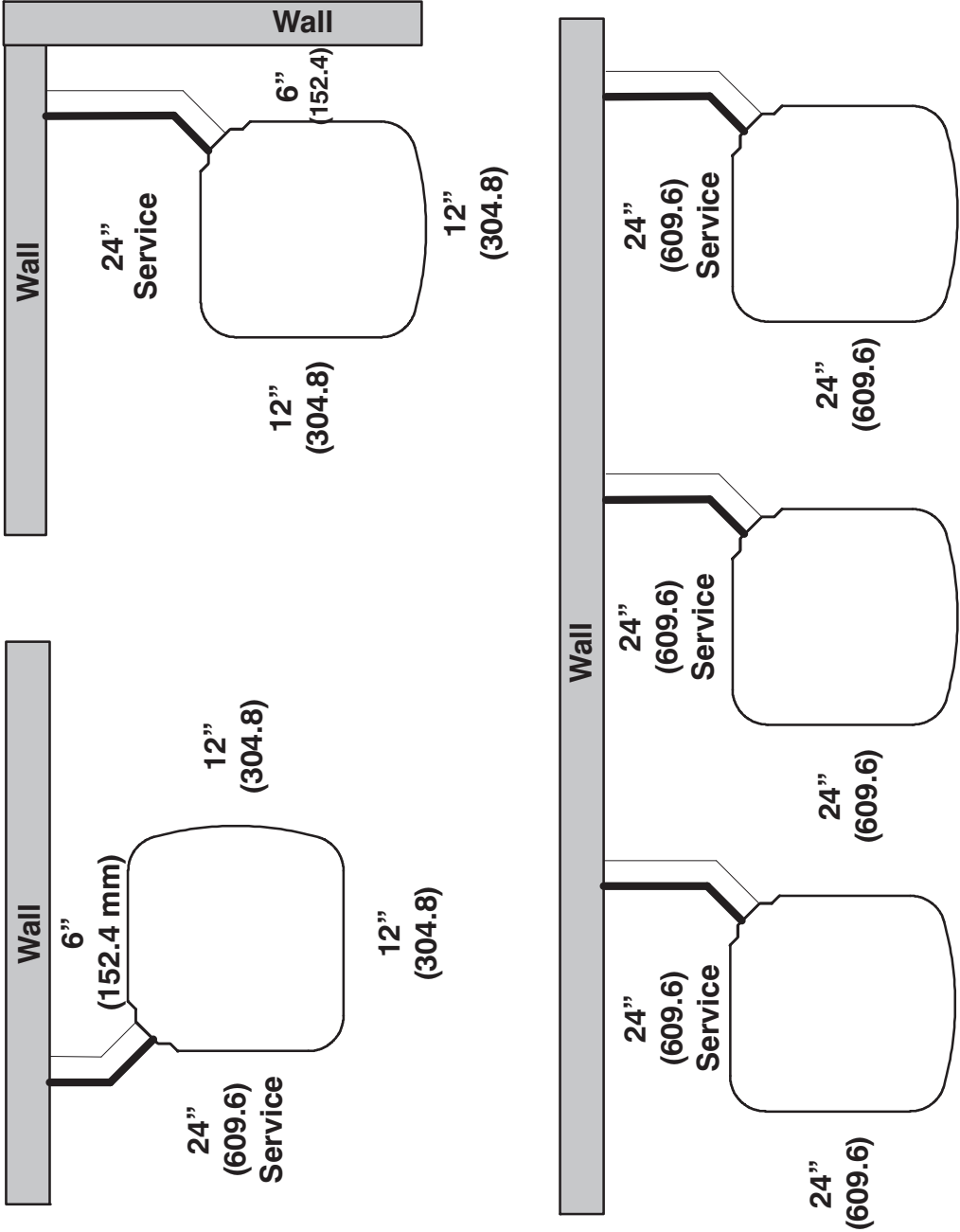
UNIT SIZE	MINIMUM MOUNTING PAD DIMENSIONS
-	660.4 X 660.4
-	800.1 X 800.1
24, 30, 36, 42, 48	889.0 X 889.0

285B BALANCE POINT WORKSHEET



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.

TESTED AHRI COMBINATION RATINGS*

NOTE: Ratings contained in this document are subject to change at any time.

For AHRI ratings certificates, please refer to the AHRI directory www.ahridirectory.org

Additional ratings and system combinations can be accessed via the Bryant database at: www.MyBryantRatings.com

For performance data at specific application &/or design conditions with various indoor unit combinations, the equipment performance calculator can be accessed at : <http://rpmob.wrightsoft.com/>

Model Number	Coil Model Number	Furnace Model Number	Cooling Capacity	EER	SEER	High Temp		HSPF	Low Temp	
						Capacity 47°F (8°C)	COP		Capacity 17°F (-8°C)	COP
285BNH024****B	FV4CNF002		23,400	12.5	15.5	24,000	3.88	9.0	14,800	2.68
285BNH030****B	FV4CN(B,F)005		28,200	12.5	15.5	27,400	4.14	9.0	17,300	2.80
285BNH036****B	FV4CN(B,F)005		34,200	12.5	15.5	33,200	3.90	9.0	21,200	2.70
285BNH042****B	FV4CNB006		42,000	12.5	15.5	40,500	3.82	9.0	25,800	2.62
285BNH048****B	FV4CNB006		47,000	12.5	15.5	46,500	3.66	9.0	29,000	2.60

* Ratings are net values reflecting the effects of circulating fan heat. Supplemental electric heat is not included. Ratings are based on:

Cooling Standard: 80°F (27°C) db 67°F (19°C) wb indoor entering air temperature and 95°F (35°C) db air entering outdoor unit.

High-Temp Heating Standard: 70°F (21°C) db indoor entering air temperature and 47°F (8°C) db 43°F (6°C) wb air entering outdoor unit.

Low-Temp Heating Standard: 70°F (21°C) db indoor entering air temperature and 17°F (-8°C) db 15°F (-9°C) wb air entering outdoor unit.

EER — Energy Efficiency Ratio

SEER — Seasonal Energy Efficiency Ratio

COP — Coefficient of Performance

HSPF — Heating Seasonal Performance Factor

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.

285BNH

DETAILED COOLING CAPACITIES#

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES ° F (° C)																	
CFM	EWB ° F (° C)	75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**
		Total	Sens†	Total	Sens†	Total	Sens†	Total	Sens†	Total	Sens†	Total	Sens†	Total	Sens†	Total	Sens†	Total	Sens†
285BNH024****B Outdoor Section With FV4CNF002 Indoor Section																			
700	72 (22.2)	28.34	14.30	27.14	13.85	1.69	25.85	13.37	1.90	24.48	12.87	2.14	22.97	12.33	2.41	21.32	11.74	2.71	
	67 (19.4)	25.70	17.44	24.58	16.98	1.66	23.40	16.50	1.87	22.12	15.98	2.11	20.72	15.43	2.38	19.18	14.82	2.69	
	63 (17.2)††	23.80	16.78	22.76	16.32	1.64	21.64	15.83	1.86	20.43	15.30	2.10	19.11	14.74	2.37	17.65	14.12	2.68	
	62 (16.7)	23.33	20.52	22.31	20.04	1.64	21.23	19.53	1.86	20.07	18.97	2.10	18.83	18.83	2.37	17.68	17.68	2.68	
	57 (13.9)	22.40	22.40	21.60	20.75	1.64	20.75	19.82	1.86	19.82	19.82	2.10	18.79	18.79	2.37	17.65	17.65	2.68	
800	72 (22.2)	28.98	15.04	27.72	14.58	1.71	26.38	14.10	1.93	24.94	13.59	2.16	23.38	13.04	2.43	21.68	12.45	2.73	
	67 (19.4)	26.29	18.61	25.12	18.14	1.68	23.89	17.65	1.89	22.56	17.12	2.13	21.10	16.55	2.40	19.52	15.94	2.71	
	63 (17.2)††	24.37	17.88	23.27	17.40	1.66	22.11	16.90	1.88	20.85	16.36	2.12	19.48	15.78	2.39	17.98	15.15	2.70	
	62 (16.7)	23.94	22.06	22.89	21.55	1.66	21.79	20.97	1.87	20.70	20.70	2.11	19.61	19.61	2.39	18.40	18.40	2.70	
	57 (13.9)	23.42	23.42	22.57	22.57	1.66	21.66	21.66	1.87	20.67	20.67	2.11	19.58	19.58	2.39	18.37	18.37	2.70	
900	72 (22.2)	29.47	15.75	28.17	15.28	1.73	26.78	14.79	1.95	25.30	14.27	2.18	23.70	13.72	2.45	21.94	13.12	2.75	
	67 (19.4)	26.75	19.73	25.54	19.25	1.70	24.27	18.75	1.91	22.89	18.21	2.15	21.41	17.63	2.42	19.79	16.99	2.72	
	63 (17.2)††	24.81	18.92	23.68	18.43	1.68	22.47	17.92	1.89	21.18	17.37	2.13	19.78	16.78	2.40	18.24	16.13	2.71	
	62 (16.7)	24.47	23.45	23.43	23.43	1.68	22.46	22.46	1.89	21.42	21.42	2.13	20.27	20.27	2.41	19.00	19.00	2.71	
	57 (13.9)	24.30	24.30	23.40	23.40	1.68	22.43	22.43	1.89	21.39	21.39	2.13	20.24	20.24	2.41	18.98	18.98	2.71	
CONDENSER ENTERING AIR TEMPERATURES ° F (° C)																			
CFM	EWB ° F (° C)	75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**	Capacity MBtuh		Total Sys. KW**
		Total	Sens†	Total	Sens†	Total	Sens†	Total	Sens†	Total	Sens†	Total	Sens†	Total	Sens†	Total	Sens†	Total	Sens†
285BNH030****B Outdoor Section With FV4CN(B,F)005 Indoor Section																			
875	72 (22.2)	34.27	18.10	32.74	17.52	2.04	31.15	16.91	2.29	29.45	16.28	2.57	27.63	15.61	2.89	25.66	14.89	3.27	
	67 (19.4)	31.06	22.20	29.66	21.61	2.02	28.20	21.00	2.27	26.64	20.36	2.56	24.96	19.67	2.88	23.14	18.93	3.26	
	63 (17.2)††	28.74	21.33	27.43	20.73	2.01	26.07	20.12	2.26	24.60	19.47	2.55	23.02	18.77	2.88	21.30	18.02	3.26	
	62 (16.7)	28.20	26.20	26.94	25.59	2.01	25.63	24.95	2.26	24.63	24.06	2.55	22.93	22.93	2.88	21.56	21.56	3.26	
	57 (13.9)	27.33	27.33	26.33	26.33	2.01	25.28	25.28	2.26	24.15	24.15	2.55	22.90	22.90	2.88	21.53	21.53	3.26	
1000	72 (22.2)	34.99	19.08	33.40	18.48	2.06	31.73	17.87	2.31	29.97	17.22	2.59	28.09	16.55	2.91	26.04	15.82	3.28	
	67 (19.4)	31.75	23.76	30.30	23.16	2.04	28.77	22.53	2.29	27.15	21.87	2.58	25.42	21.17	2.90	23.53	20.42	3.28	
	63 (17.2)††	29.41	22.78	28.05	22.17	2.03	26.62	21.54	2.28	25.10	20.88	2.57	23.46	20.17	2.90	21.69	19.39	3.28	
	62 (16.7)	28.95	28.25	27.67	27.58	2.03	26.43	26.43	2.28	25.22	25.22	2.57	23.89	23.89	2.90	22.43	22.43	3.28	
	57 (13.9)	28.59	28.59	27.52	27.52	2.03	26.39	26.39	2.28	25.18	25.18	2.57	23.85	23.85	2.90	22.40	22.40	3.28	
1125	72 (22.2)	35.55	20.01	33.90	19.41	2.08	32.18	18.79	2.33	30.36	18.13	2.61	28.42	17.45	2.93	26.34	16.72	3.30	
	67 (19.4)	32.30	25.25	30.79	24.64	2.06	29.21	24.00	2.31	27.55	23.33	2.59	25.77	22.61	2.92	23.85	21.83	3.29	
	63 (17.2)††	29.94	24.17	28.53	23.56	2.05	27.06	22.91	2.30	25.50	22.23	2.59	23.81	21.50	2.92	22.01	20.70	3.30	
	62 (16.7)	29.70	29.70	28.57	28.57	2.05	27.37	27.37	2.30	26.09	26.09	2.59	24.69	24.69	2.92	23.16	23.16	3.29	
	57 (13.9)	29.66	29.66	28.52	28.52	2.05	27.33	27.33	2.30	26.05	26.05	2.59	24.65	24.65	2.92	23.13	23.13	3.29	

See Notes on page 16

DETAILED COOLING CAPACITIES# CONTINUED

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																
CFM	EWB ° F (° C)	75 (23.9)		85 (29.4)		95 (35)		105 (40.6)		115 (46.1)		125 (51.7)						
		Capacity MBtuh Total	Sens†	Capacity MBtuh Total	Sens†	Capacity MBtuh Total	Sens†	Capacity MBtuh Total	Sens†	Capacity MBtuh Total	Sens†	Capacity MBtuh Total	Sens†					
285BNH036***B Outdoor Section With FV4CN(B,F)005 Indoor Section																		
1050	72 (22.2)	41.31	21.83	39.52	21.14	2.47	37.61	20.40	2.76	35.56	19.63	3.09	33.34	18.80	3.46	30.96	17.93	3.89
	67 (19.4)	37.64	26.82	35.98	26.11	2.45	34.20	25.35	2.74	32.29	24.56	3.06	30.23	23.71	3.43	28.01	22.80	3.86
	63 (17.2)††	34.94	25.82	33.38	25.11	2.43	31.72	24.35	2.72	29.92	23.54	3.05	27.98	22.68	3.42	25.89	21.76	3.86
	62 (16.7)	34.27	31.65	32.76	30.92	2.43	31.15	30.13	2.72	29.44	29.26	3.04	27.71	27.71	3.42	26.04	26.04	3.86
	57 (13.9)	33.05	33.05	31.87	31.87	2.43	30.58	30.58	2.71	29.18	29.18	3.04	27.66	27.66	3.42	26.00	26.00	3.86
1200	72 (22.2)	42.14	22.96	40.29	22.26	2.50	38.30	21.51	2.79	36.16	20.72	3.12	33.88	19.89	3.49	31.40	19.00	3.92
	67 (19.4)	38.43	28.62	36.70	27.90	2.48	34.86	27.13	2.76	32.87	26.32	3.09	30.74	25.45	3.46	28.46	24.52	3.89
	63 (17.2)††	35.73	27.52	34.12	26.80	2.46	32.38	26.01	2.75	30.50	25.19	3.07	28.49	24.31	3.45	26.33	23.36	3.88
	62 (16.7)	35.14	34.06	33.58	33.26	2.46	31.96	31.96	2.74	30.44	30.44	3.07	28.82	28.82	3.45	27.04	27.04	3.88
	57 (13.9)	34.54	34.54	33.27	33.27	2.45	31.90	31.90	2.74	30.40	30.40	3.07	28.78	28.78	3.45	27.01	27.01	3.88
1350	72 (22.2)	42.78	24.03	40.86	23.32	2.53	38.82	22.57	2.82	36.62	21.78	3.14	34.27	20.93	3.51	31.74	20.03	3.94
	67 (19.4)	39.04	30.36	37.26	29.62	2.50	35.35	28.83	2.79	33.31	28.01	3.11	31.14	27.12	3.48	28.80	26.16	3.91
	63 (17.2)††	36.35	29.14	34.67	28.40	2.48	32.87	27.59	2.77	30.95	26.76	3.10	28.89	25.85	3.47	26.68	24.86	3.90
	62 (16.7)	36.11	35.68	34.49	34.49	2.48	33.03	33.03	2.77	31.44	31.44	3.10	29.73	29.73	3.47	27.87	27.87	3.91
	57 (13.9)	35.79	35.79	34.44	34.44	2.48	32.98	32.98	2.77	31.40	31.40	3.10	29.70	29.70	3.47	27.83	27.83	3.91
285BNH042***B Outdoor Section With FV4CNB006 Indoor Section																		
EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																
CFM	EWB ° F (° C)	75 (23.9)		85 (29.4)		95 (35)		105 (40.6)		115 (46.1)		125 (51.7)						
		Capacity MBtuh Total	Sens†	Capacity MBtuh Total	Sens†	Capacity MBtuh Total	Sens†	Capacity MBtuh Total	Sens†	Capacity MBtuh Total	Sens†	Capacity MBtuh Total	Sens†					
1225	72 (22.2)	51.35	26.21	48.91	25.27	2.85	46.40	24.32	3.28	43.78	23.35	3.73	41.04	22.34	4.21	38.16	21.30	4.72
	67 (19.4)	46.47	31.87	44.28	30.95	2.96	42.00	30.00	3.36	39.64	29.03	3.78	37.14	28.02	4.24	34.51	26.96	4.73
	63 (17.2)††	42.99	30.65	40.97	29.74	3.02	38.86	28.79	3.40	36.67	27.83	3.81	34.36	26.82	4.25	31.91	25.76	4.73
	62 (16.7)	42.11	37.43	40.15	36.50	3.03	38.11	35.54	3.41	36.00	34.53	3.81	33.84	33.71	4.25	31.85	31.85	4.73
	57 (13.9)	40.30	40.30	38.80	38.80	3.05	37.21	37.21	3.42	35.53	35.53	3.81	33.73	33.73	4.25	31.80	31.80	4.73
1400	72 (22.2)	52.54	27.58	50.00	26.63	2.84	47.35	25.66	3.28	44.61	24.65	3.74	41.76	23.64	4.23	38.75	22.58	4.74
	67 (19.4)	47.61	34.05	45.28	33.09	2.96	42.90	32.12	3.37	40.42	31.12	3.80	37.82	30.09	4.26	35.09	29.01	4.76
	63 (17.2)††	44.06	32.68	41.93	31.73	3.03	39.72	30.77	3.42	37.42	29.77	3.83	35.01	28.74	4.27	32.47	27.65	4.76
	62 (16.7)	43.24	40.33	41.19	39.33	3.04	39.10	38.26	3.42	37.11	37.11	3.83	35.18	35.18	4.27	33.11	33.11	4.76
	57 (13.9)	42.21	42.21	40.59	40.59	3.05	38.87	38.87	3.43	37.06	37.06	3.83	35.13	35.13	4.27	33.06	33.06	4.76
1575	72 (22.2)	53.49	28.89	50.82	27.92	2.84	48.08	26.93	3.29	45.25	25.92	3.76	42.29	24.88	4.29	39.20	23.80	4.77
	67 (19.4)	48.49	36.13	46.07	35.15	2.96	43.58	34.16	3.38	41.02	33.14	3.82	38.34	32.07	4.28	35.53	30.96	4.79
	63 (17.2)††	44.91	34.62	42.68	33.65	3.04	40.38	32.66	3.44	38.01	31.64	3.85	35.52	30.57	4.30	32.91	29.45	4.79
	62 (16.7)	44.22	42.98	42.18	42.18	3.05	40.33	40.33	3.43	38.41	38.41	3.84	36.36	36.36	4.29	34.16	34.16	4.79
	57 (13.9)	43.85	43.85	42.11	42.11	3.05	40.27	40.27	3.43	38.35	38.35	3.84	36.31	36.31	4.29	34.12	34.12	4.79

See Notes on page 16

DETAILED COOLING CAPACITIES# CONTINUED

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES ° F (° C)																		
CFM	EWB ° F (° C)	75 (23.9)		85 (29.4)		95 (35)		105 (40.6)		115 (46.1)		125 (51.7)		Total Sys KW**						
		Capacity MBtuh		Capacity MBtuh		Capacity MBtuh		Capacity MBtuh		Capacity MBtuh		Capacity MBtuh								
		Total	Sens†	Total	Sens†	Total	Sens†	Total	Sens†	Total	Sens†	Total	Sens†							
285BNH048***B Outdoor Section With FV4CNB006 Indoor Section																				
1400	72 (22.2)	57.59	29.46	2.87	3.33	54.69	28.35	3.33	51.79	27.26	3.77	48.72	26.12	4.22	45.75	25.03	4.71	42.52	23.87	5.24
	67 (19.4)	52.21	35.99	2.91	3.34	49.62	33.80	3.34	47.00	33.80	3.76	44.31	32.71	4.20	41.52	31.58	4.67	38.55	30.39	5.21
	63 (17.2)††	48.33	34.61	2.94	3.34	45.96	33.54	3.34	43.54	32.45	3.75	41.06	31.36	4.17	38.47	30.23	4.65	35.71	29.04	5.18
	62 (16.7)	47.37	42.37	2.94	3.34	45.07	41.27	3.34	42.75	40.16	3.74	40.36	38.98	4.17	37.97	37.97	4.64	35.75	35.75	5.18
	57 (13.9)	45.46	45.46	2.95	3.34	43.69	43.69	3.34	41.85	41.85	3.74	39.93	39.93	4.17	37.90	37.90	4.64	35.70	35.70	5.18
1600	72 (22.2)	58.85	30.97	2.90	3.36	52.77	28.72	3.81	49.67	27.59	4.27	46.47	26.45	4.76	43.12	25.26	5.29	39.14	32.64	5.25
	67 (19.4)	53.40	38.39	2.94	3.37	47.91	36.15	3.80	45.11	35.02	4.24	42.19	33.86	4.72	39.14	25.26	5.29	39.14	32.64	5.25
	63 (17.2)††	49.47	36.85	2.97	3.38	46.95	35.74	3.38	44.43	34.64	3.79	41.82	33.50	4.22	39.13	32.35	4.69	36.28	31.13	5.22
	62 (16.7)	48.58	45.57	2.97	3.38	46.18	44.38	3.38	43.81	43.49	3.79	41.61	41.61	4.22	39.43	39.43	4.70	37.09	37.09	5.23
	57 (13.9)	47.53	47.53	2.98	3.38	45.61	45.61	3.38	43.62	43.62	3.79	41.55	41.55	4.22	39.38	39.38	4.69	37.04	37.04	5.23
1800	72 (22.2)	59.83	32.40	2.93	3.39	56.66	31.24	3.39	53.49	30.10	3.85	50.30	28.96	4.31	47.00	27.80	4.80	43.52	26.57	5.33
	67 (19.4)	54.31	40.69	2.97	3.41	51.46	39.54	3.41	48.60	38.39	3.84	45.70	37.24	4.29	42.71	36.04	4.76	39.57	34.79	5.30
	63 (17.2)††	50.34	38.99	3.00	3.41	47.73	37.85	3.41	45.09	36.71	3.83	42.42	35.56	4.26	39.64	34.37	4.74	36.72	33.10	5.27
	62 (16.7)	49.63	48.45	3.00	3.41	47.29	47.29	3.41	45.16	45.16	3.83	42.97	42.97	4.27	40.66	40.66	4.75	38.17	38.17	5.28
	57 (13.9)	49.28	49.28	3.00	3.41	47.22	47.22	3.41	45.10	45.10	3.83	42.92	42.92	4.27	40.61	40.61	4.75	38.13	38.13	5.28

† Total and sensible capacities are net capacities. Blower motor heat has been subtracted.

‡ Sensible capacities shown are based on 80°F (27°C) entering air at the indoor coil. For sensible capacities at other than 80°F (27°C), deduct 835 Btuh (245 kW) per 1000 CFM (480 L/S) of indoor coil air for each degree below 80°F (27°C), or add 835 Btuh (245 kW) per 1000 CFM (480 L/S) of indoor coil air per degree above 80°F (27°C).

Detailed cooling capacities are based on indoor and outdoor unit at the same elevation per AHRI standard 210/240 – 2008. If additional tubing length and/or indoor unit is located above outdoor unit, a slight variation in capacity may occur.

** System kw is total of indoor and outdoor unit kilowatts.

†† At TVA rating indoor condition (75°F edb/63°F ewb). All other indoor air temperatures are at 80°F edb.

NOTE: When the required data falls between the published data, interpolation may be performed. Extrapolation is not an acceptable practice.

EWB — Entering Wet Bulb

HEAT PUMP HEATING PERFORMANCE

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES * 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 Sys. KwT	In- teg*	Capacity MBtuh		Total Sys. KwT	In- teg*	Capacity MBtuh		Total Sys. KwT	In- teg*	Capacity MBtuh		Total Sys. KwT	In- teg*	Capacity MBtuh		Total Sys. KwT	In- teg*	Capacity MBtuh		Total Sys. KwT	In- teg*	Capacity MBtuh		Total Sys. KwT	In- teg*																									
EDB	CFM	Total	In- teg*	Total		In- teg*	Total	In- teg*		Total	In- teg*	Total		In- teg*	Total	In- teg*		Total	In- teg*	Total		In- teg*	Total	In- teg*		Total	In- teg*	Total		In- teg*	Total	In- teg*	Total	In- teg*																				
65 (18.3)	700	10.27	9.45	1.42	12.59	11.57	1.50	15.10	13.77	1.56	17.84	15.85	1.60	20.89	19.01	1.65	24.27	24.27	1.71	27.84	27.84	1.80	31.59	31.59	1.91	65 (18.3)	800	10.30	9.48	1.41	12.61	11.59	1.49	15.11	13.78	1.53	17.86	15.86	1.56	20.91	19.03	1.60	24.30	24.30	1.65	27.91	27.91	1.73	31.73	31.73	1.83			
		900	10.33	9.51	1.41	12.63	11.61	1.47	15.14	13.80	1.51	17.87	15.88	1.54	20.93	19.05	1.56	24.33	24.33	1.61	27.98	27.98	1.67	31.83	31.83			1.76	70 (21.1)	900	10.15	9.34	1.50	12.45	11.44	1.59	14.92	13.61	1.65	17.64	15.66	1.69	20.66	18.80	1.74	24.00	24.00	1.81	27.52	27.52	1.90	31.23	31.23	2.01
		800	10.18	9.36	1.49	12.47	11.46	1.57	14.94	13.62	1.62	17.65	15.68	1.65	20.67	18.81	1.69	24.03	24.03	1.75	27.59	27.59	1.82	31.36	31.36			1.92			75 (23.9)	1000	10.21	9.39	1.49	12.49	11.48	1.56	14.96	13.64	1.60	17.67	15.69	1.63	20.69	18.83	1.66	24.06	24.06	1.70	27.65	27.65	1.76	31.47
700	10.01	9.21	1.59	12.29	11.30	1.68	14.75	13.45	1.74	17.43	15.48	1.79	20.42	18.58	1.84	23.72	23.72	1.91	27.19	27.19	2.00	30.86	30.86	2.11	75 (23.9)	800	10.04	9.24					1.58	12.32	11.32	1.66	14.77	13.46	1.71	17.45	15.49	1.75	20.43	18.59	1.79	23.75	23.75	1.85	27.26	27.26	1.92	30.98	30.98	2.02
900	10.08	9.27	1.57	12.35	11.35	1.64	14.79	13.48	1.69	17.46	15.51	1.72	20.45	18.61	1.75	23.78	23.78	1.80	27.32	27.32	1.86	31.09	31.09	1.95			INDOOR AIR	CFM																										
285BNH024***B Outdoor Section With FV4CNF002 Indoor Section																																																						
285BNH030***B Outdoor Section With FV4CN(B,F)005 Indoor Section																																																						
65 (18.3)	875	11.71	10.77	1.59	14.44	13.27	1.64	17.38	15.85	1.69	20.60	18.30	1.74	24.11	21.94	1.79	27.76	27.76	1.86	31.60	31.60	1.93	35.59	35.59	2.02	65 (18.3)	1000	11.77	10.83	1.59	14.50	13.32	1.63	17.44	15.90	1.66	20.67	18.36	1.71	24.21	22.03	1.75	27.91	27.91	1.81	31.82	31.82	1.87	35.91	35.91	1.95			
		1125	11.83	10.88	1.58	14.55	13.37	1.62	17.49	15.94	1.65	20.73	18.41	1.69	24.29	22.11	1.73	28.03	28.03	1.77	32.00	32.00	1.83	36.19	36.19			1.90	70 (21.1)	1000	11.56	10.63	1.68	14.28	13.12	1.73	17.19	15.68	1.78	20.37	18.09	1.83	23.82	21.67	1.89	27.40	27.40	1.96	31.16	31.16	2.03	35.06	35.06	2.12
		1125	11.62	10.69	1.67	14.34	13.17	1.71	17.25	15.73	1.76	20.43	18.15	1.80	23.91	21.76	1.85	27.54	27.54	1.90	31.38	31.38	1.97	35.37	35.37			2.05			75 (23.9)	1125	11.68	10.74	1.67	14.39	13.22	1.71	17.30	15.77	1.74	20.49	18.20	1.78	23.99	21.83	1.82	27.66	27.66	1.87	31.56	31.56	1.92	35.64
875	11.41	10.49	1.77	14.11	12.96	1.83	17.01	15.51	1.88	20.14	17.89	1.93	23.52	21.40	1.99	27.04	27.04	2.06	30.74	30.74	2.14	34.55	34.55	2.23	75 (23.9)	1000	11.45	10.54					1.76	14.17	13.02	1.81	17.06	15.56	1.85	20.20	17.94	1.90	23.61	21.48	1.95	27.17	27.17	2.01	30.94	30.94	2.07	34.84	34.84	2.15
1125	11.51	10.59	1.76	14.22	13.07	1.80	17.12	15.61	1.84	20.25	17.99	1.88	23.69	21.55	1.92	27.29	27.29	1.97	31.11	31.11	2.03	35.09	35.09	2.10			INDOOR AIR	CFM																										
285BNH036***B Outdoor Section With FV4CN(B,F)005 Indoor Section																																																						
65 (18.3)	1050	15.03	13.83	2.06	18.23	16.75	2.12	21.79	19.87	2.19	25.72	22.84	2.26	30.00	27.30	2.34	34.46	34.46	2.43	39.12	39.12	2.54	44.09	44.09	2.66	65 (18.3)			1200	15.10	13.90	2.05	18.31	16.83	2.10	21.86	19.93	2.16	25.82	22.92	2.22	30.13	27.42	2.29	34.87	34.87	2.37	39.40	39.40	2.46	44.49	44.49	2.57	
		1350	15.18	13.96	2.04	18.38	16.89	2.09	21.94	20.00	2.15	25.92	23.04	2.22	30.27	27.54	2.26	34.85	34.85	2.33	39.64	39.64	2.41	44.84	44.84		2.50	70 (21.1)		1350	14.85	13.66	2.18	18.02	16.56	2.24	21.53	19.63	2.31	25.40	22.56	2.38	29.62	26.95	2.46	34.00	34.00	2.55	38.63	38.63	2.66	43.44	43.44	2.78
		1200	14.93	13.73	2.17	18.10	16.63	2.22	21.62	19.71	2.28	25.50	22.65	2.34	29.76	27.08	2.41	34.21	34.21	2.49	38.86	38.86	2.58	43.84	43.84		2.69				75 (23.9)	1050	14.64	13.47	2.30	17.80	16.35	2.37	21.29	19.41	2.43	25.08	22.27	2.51	29.23	26.60	2.59	33.55	33.55	2.68	38.13	38.13	2.79	42.81
1350	15.00	13.80	2.16	18.17	16.70	2.21	21.69	19.78	2.26	25.60	22.74	2.32	29.88	27.19	2.38	34.39	34.39	2.45	39.09	39.09	2.53	44.18	44.18	2.62	75 (23.9)	1200	14.72		13.55				2.29	17.87	16.43	2.35	21.37	19.48	2.40	25.18	22.36	2.47	29.37	26.72	2.54	33.74	33.74	2.62	38.40	38.40	2.71	43.19	43.19	2.82
1350	14.80	13.62	2.29	17.95	16.49	2.34	21.43	19.54	2.39	25.27	22.45	2.44	29.49	26.84	2.50	33.92	33.92	2.57	38.61	38.61	2.65	43.52	43.52	2.75			INDOOR AIR	CFM																										
285BNH036***B Outdoor Section With FV4CN(B,F)005 Indoor Section																																																						

See Notes on page 18

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HEAT PUMP HEATING PERFORMANCE CONTINUED

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C)																							
EDB	CFM	-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 Sys. KW†	In- teg*	Capacity MBtuh	Total Sys. KW†	In- teg*	Capacity MBtuh	Total Sys. KW†	In- teg*	Capacity MBtuh	Total Sys. KW†	In- teg*	Capacity MBtuh	Total Sys. KW†	In- teg*	Capacity MBtuh	Total Sys. KW†	In- teg*	Capacity MBtuh	Total Sys. KW†	In- teg*	Capacity MBtuh	Total Sys. KW†	In- teg*
285BNH042***B Outdoor Section With FV4CN9006 Indoor Section																									
65 (18.3)	1225	18.69	17.19	2.35	22.59	20.76	2.48	26.83	24.46	2.63	31.40	27.89	2.78	36.32	33.05	2.91	41.49	41.49	3.02	47.03	47.03	3.10	52.88	52.88	3.12
	1400	18.74	17.24	2.33	22.63	20.80	2.45	26.88	24.51	2.60	31.48	27.96	2.74	36.44	33.16	2.86	41.67	41.67	2.94	47.29	47.29	2.99	53.30	53.30	2.99
	1575	18.79	17.29	2.32	22.68	20.84	2.44	26.94	24.56	2.58	31.55	28.02	2.71	36.55	33.26	2.82	41.81	41.81	2.89	47.52	47.52	2.92	53.64	53.64	2.88
70 (21.1)	1225	18.55	17.07	2.52	22.39	20.57	2.63	26.55	24.21	2.76	31.04	27.57	2.91	35.89	32.66	3.04	41.00	41.00	3.16	46.42	46.42	3.25	52.18	52.18	3.29
	1400	18.60	17.11	2.49	22.43	20.61	2.60	26.60	24.25	2.73	31.12	27.64	2.86	36.00	32.76	2.99	41.17	41.17	3.08	46.68	46.68	3.15	52.57	52.57	3.16
	1575	18.66	17.16	2.48	22.48	20.66	2.58	26.66	24.31	2.71	31.19	27.70	2.84	36.11	32.86	2.95	41.31	41.31	3.03	46.90	46.90	3.07	52.90	52.90	3.05
75 (23.9)	1225	18.41	16.94	2.70	22.18	20.39	2.79	26.27	23.95	2.91	30.68	27.25	3.04	35.45	32.26	3.18	0.00	0.00	0.00	45.84	45.84	3.41	51.45	51.45	3.46
	1400	18.46	16.98	2.67	22.23	20.43	2.75	26.32	24.00	2.87	30.76	27.32	3.00	35.56	32.36	3.12	40.66	40.66	3.23	46.07	46.07	3.30	51.82	51.82	3.33
	1575	18.51	17.03	2.66	22.28	20.47	2.74	26.38	24.05	2.85	30.83	27.38	2.97	35.67	32.46	3.08	40.81	40.81	3.17	46.27	46.27	3.23	52.14	52.14	3.23
285BNH048***B Outdoor Section With FV4CN9006 Indoor Section																									
OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C)																									
EDB	CFM	-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 Sys. KW†	In- teg*	Capacity MBtuh	Total Sys. KW†	In- teg*	Capacity MBtuh	Total Sys. KW†	In- teg*	Capacity MBtuh	Total Sys. KW†	In- teg*	Capacity MBtuh	Total Sys. KW†	In- teg*	Capacity MBtuh	Total Sys. KW†	In- teg*	Capacity MBtuh	Total Sys. KW†	In- teg*	Capacity MBtuh	Total Sys. KW†	In- teg*
65 (18.3)	1400	21.37	19.66	2.87	25.74	23.65	2.97	30.50	27.81	3.08	35.71	31.72	3.19	41.38	37.66	3.32	47.50	47.50	3.46	54.25	54.25	3.60	61.39	61.39	3.74
	1600	21.42	19.71	2.87	25.77	23.68	2.96	30.54	27.85	3.05	35.77	31.77	3.15	41.48	37.75	3.26	47.63	47.63	3.37	54.50	54.50	3.49	61.78	61.78	3.60
	1800	21.48	19.76	2.88	25.82	23.73	2.96	30.60	27.90	3.04	35.84	31.83	3.13	41.57	37.83	3.23	47.76	47.76	3.32	54.71	54.71	3.41	62.12	62.12	3.49
70 (21.1)	1400	21.28	19.58	3.02	25.57	23.49	3.11	30.23	27.57	3.22	35.36	31.40	3.35	40.93	37.25	3.48	47.00	47.00	3.62	53.58	53.58	3.78	60.61	60.61	3.93
	1600	21.33	19.62	3.01	25.60	23.53	3.10	30.28	27.60	3.19	35.41	31.45	3.30	41.02	37.33	3.42	47.12	47.12	3.54	53.81	53.81	3.67	60.98	60.98	3.78
	1800	21.39	19.68	3.02	25.66	23.58	3.09	30.33	27.66	3.18	35.48	31.51	3.28	41.11	37.41	3.38	47.24	47.24	3.48	54.02	54.02	3.59	61.30	61.30	3.68
75 (23.9)	1400	21.17	19.47	3.19	25.38	23.32	3.27	29.96	27.32	3.38	35.00	31.09	3.51	40.50	36.85	3.65	46.50	46.50	3.80	52.91	52.91	3.96	59.81	59.81	4.12
	1600	21.22	19.52	3.18	25.42	23.36	3.25	30.00	27.35	3.35	35.05	31.13	3.46	40.57	36.92	3.58	46.60	46.60	3.71	53.11	53.11	3.85	60.14	60.14	3.97
	1800	21.29	19.59	3.18	25.47	23.41	3.25	30.06	27.41	3.33	35.11	31.19	3.43	40.65	36.99	3.54	46.70	46.70	3.65	53.31	53.31	3.77	60.45	60.45	3.87

† The kW values include the compressor, outdoor fan motor, and indoor blower motor. The kW from supplement heaters should be added to these values to obtain total system kilowatts.

‡ The Btuh heating capacity values shown are net integrated values from which the defrost effect has been subtracted. The Btuh heating from supplement heaters should be added to those values to obtain total system capacity.

NOTE: When the required data falls between the published data, interpolation may be performed. Extrapolation is not an acceptable practice.

EDB — Entering Dry Bulb

GUIDE SPECIFICATIONS

GENERAL

System Description

Outdoor-mounted, air-cooled, split-system heat pump 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 240.
- 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 are pressure tested and the outdoor units are leak 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 heat pump unit. Contained within the unit enclosure is all factory wiring, piping, controls, compressor, refrigerant charge Puron® (R-410A), and special features required prior to field start-up.

Unit Cabinet

- Unit cabinet 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.

AIR-COOLED, SPLIT-SYSTEM HEAT PUMP

285BNH

2 TO 4 NOMINAL TONS

- 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 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 Puron® (R-410A) refrigerant, POE compressor oil, accumulator, and reversing valve.

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. Minimum cooling mode outdoor operating air temperature without low-ambient operation accessory is 55°F (12.8°C).
3. Maximum outdoor operating air temperature for cooling mode is 125°F (51.7°C).
4. Minimum outdoor operating air temperature for heating mode is -30°F (-34.4°C).
5. Maximum outdoor operating air temperature for heating mode is 66°F (18.9°C).
6. For reliable operation, unit should be level in all horizontal planes.
7. For interconnecting refrigerant tube lengths greater than 80 ft (23.4 m) and/or elevation differences between indoor and outdoor units greater than 20 ft (6.1 m), consult Residential Piping and Longline Guideline and Service Manual available from equipment distributor.
8. 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).
9. Use only copper wire for electric connection at unit. Aluminum and clad aluminum are not acceptable for the type of connector provided.
10. Do not apply capillary tube indoor coils to these units.
11. Factory-supplied filter drier must be installed.