280A EVOLUTION® EXTREME VARIABLE SPEED HEAT PUMP WITH PURON® REFRIGERANT (2 - 5 Ton)

Product Data

Puron

EVOLUTION EXTREME HEAT PUMP

Bryant's 280A Evolution® Extreme is a breakthrough product providing up to 13 HSPF heating efficiency and up to 20.5 SEER cooling efficiency. The variable speed capacity control results in strong heating capacity as the outdoor temperature drops resulting in less reliance on auxiliary heat. Lower speed operation, when needed in cooling, for enhanced comfort and dehumidification.

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

Energy Efficiency

- 16.8 - 20 SEER/11.4 - 16 EER/10.3 - 13.0 HSPF
- Microtube Technology™ refrigeration system
- Indoor air quality accessories available

Sound

- Sound level as low as 58 dBA in low speed .

Comfort

- Variable speed compressor with capacity range from 40-100%
- Air cooled Inverter variable speed drive
  - — System requires Evolution Control (SYSTXBBUID01-D or SYSTXBBUIZ01-D software version 23 or newer)
- Energy Tracking capability with the Evolution® Connex™ Wall Control w/software version 13 or later
  (Energy Tracking has the ability to monitor and estimate the energy consumption of your Evolution® system.)

Reliability

- Non-ozone depleting Puron® refrigerant
- Front-seating service valves
- Evolution® Extreme Intelligence actively monitors critical system parameters
- High pressure switch
- Suction pressure transducer
- Electronic expansion valve (EXV) for heating, TXV for cooling
- Filter drier (field installed)
- External Muffler (field installed)
- Internal crankcase heater standard

Flexibility and installation:

- 2 control wires to outdoor unit
- Minimum and maximum airflow adjustments
- Compressor heating RPM control
- Hybrid Heat™ Dual Fuel capable

Durability

DuraGuard™ protection package:

- Solid, Durable sheet metal construction
- Steel louver coil guard
- Baked-on, complete outer coverage, powder paint

Applications

- Long-line - up to 250 feet (76.2 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.)

MODEL NUMBER NOMENCLATURE

1	2	3	4	5	6	7	8	9	10	11	12	14
N	N	N	A	A/N	N	N	N	N	A/N	A/N	N	A
2	**8**	**0**	**A**	**N**	**V**	**0**	**3**	**6**	**0**	**0**	**0**	**A**
Product Family	Tier	SEER	Major Series	Voltage	Variations	Cooling Capacity			Open	Open	Open	Series
2=HP	8= Evolution Series	0 = 20 SEER	A=Puron	N= 208–230–1 or 208/230–1	V = Variable Speed				0=Not Defined	0=Not Defined	0=Not Defined	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

FEATURES	Unit Size – Voltage, Series			
	024–A	036–A	048–A	060–A
Puron Refrigerant	X	X	X	X
Louvered Coil Guard	X	X	X	X
Field Installed Filter Drier / External Muffler	X	X	X	X
Front Seating Service Valves	X	X	X	X
Internal Pressure and Temperature Protection	X	X	X	X
Long Line capability	X	X	X	X
Suction Pressure Transducer	X	X	X	X
High Pressure Switch	X	X	X	X
Crankcase Heater	X	X	X	X
Low ambient cooling down to 0°F capability with Evolution® Control	X	X	X	X
Utility Interface Connections	X	X	X	X
Enhanced Diagnostics with Evolution® Control	X	X	X	X
Energy Tracking Capability with the Evolution® Connex™ Wall Control (requires software version 13 or later)	X	X	X	X
Deluxe Sound Blanket	X	X	X	X
Outdoor Air Temperature Sensor	X	X	X	X

X = Standard

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 outdoor 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*
036 HP with Puron	3//8	250*	250*	250*	250*	250*	250*	250*
048 HP with Puron	3/8	250*	250*	250*	250*	230	160	– –
060 HP with Puron	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 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

COOLING CAPACITY LOSS TABLE

Nominal Size (Btuh)	Line OD (in.)	280A Cooling Capacity Loss (%) Total Equivalent Line Length (ft)										
		25	50	75	80	100	125	150	175	200	225	250
24000	5/8	0.5	1.2	1.8	1.9	2.4	3.0	3.7	4.3	4.9	5.5	6.2
	3/4	0.1	0.4	0.6	0.7	0.8	1.1	1.3	1.5	1.8	2.0	2.3
	7/8	0.0	0.1	0.3	0.3	0.4	0.5	0.6	0.7	0.8	1.0	1.1
36000	5/8	1.1	2.4	3.7	4.0	5.0	6.3	7.7	9.0	10.3	11.6	12.9
	3/4	0.3	0.8	1.3	1.4	1.8	2.3	2.8	3.2	3.7	4.2	4.7
	7/8	0.0	0.3	0.5	0.6	0.8	1.0	1.3	1.5	1.8	2.0	2.3
48000	3/4	0.7	1.6	2.4	2.6	3.2	4.1	4.9	5.7	6.5	7.4	8.2
	7/8	0.3	0.7	1.1	1.2	1.6	2.0	2.4	2.8	3.2	3.6	4.1
	1 1/8	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
60000	3/4	1.0	2.3	3.5	3.8	4.8	6.0	7.3	8.5	9.8	11.0	12.3
	7/8	0.4	1.0	1.7	1.8	2.3	2.9	3.5	4.2	4.8	5.4	6.0
	1 1/8	0.0	0.1	0.3	0.4	0.5	0.7	0.8	1.0	1.2	1.4	1.5

Rating Line Size in **Bold**

TE Length Greater than 80 ft requires Long Line Accessory Liquid Line Solenoid

EQUIPMENT SIZING GUIDELINES

If primary load is cooling, size the same as any other air conditioning system. If primary load is heating, use the chart below for maximum size for heating.

MAXIMUM RECOMMENDED EQUIPMENT SIZE - HEATING

COOLING LOAD (tons)	MAXIMUM RECOMMENDED EQUIPMENT SIZE FOR HEATING*
2	36
2.5	36
3	48
3.5	60
4	60
5	60

* Make sure duct work is capable of delivering required airflow . Make sure combination rating exists for desired combination.

MIN/MAX AIRFLOW TABLES

The indoor airflow delivered by this system varies significantly based on outdoor temperature, indoor unit combination, and system demand. The airflows on these tables are for duct design considerations. Duct systems capable of these ranges will ensure the system will deliver full capacity at all outdoor temperatures. Minimum and maximum airflows can be adjusted from these numbers in the Evolution Control Heat Pump Setup screen.

Cooling – Comfort Mode			Minimum Cooling (Dehum or Zoning)
Size	Max Capacity	Min Capacity	
24	726	651	398
36	1168	651	398
48	1394	1186	693
60	1650	1186	693

Cooling – Efficiency Mode		
Size	Max Capacity	Min Capacity
24	949	830
36	1334	830
48	1593	1355
60	1885	1355

Heating – Comfort Mode		
Size	Max Capacity	Min Capacity
24	698	440
36	1140	451
48	1354	751
60	1354	751

Heating – Efficiency Mode		
Size	Max Capacity	Min Capacity
24	900	750
36	1350	750
48	1600	890
60	1750	901

PHYSICAL DATA

UNIT SIZE SERIES	024−A	036−A	048−A	060−A
Operating Weight lb (kg)	324 (147)	324 (147)	334 (152)	334 (152)
Shipping Weight lb (kg)	367 (167)	367 (167)	375 (170)	375 (170)
Compressor Type	Variable Speed Scroll			
REFRIGERANT	Puron® (R−410A)			
Control	TXV (Puron® Hard Shutoff)			
Charge lb (kg)	13.00 (5.90)	13.00 (5.90)	13.30 (6.03)	13.30 (6.03)
Outdoor Htg Exp. Device	EXV	EXV	EXV	EXV
COND FAN	Forward Swept Propeller Type, Direct Drive			
Air Discharge	Vertical			
Air Qty (CFM)	2700	4269	4350	5000
Motor HP	1/3	1/3	1/3	1/3
Motor RPM	500−900	500−900	500−900	500−900
COND COIL				
Face Area (Sq ft)	30.25	30.25	30.25	30.25
Fins per In.	20	20	20	20
Rows	2	2	2	2
Circuits	8	8	9	9
VALVE CONNECT. (In. ID)				
Vapor	7/8	7/8	7/8	7/8
Liquid	3/8			
REFRIGERANT TUBES (In. OD)				
Rated Vapor*	7/8	7/8	1−1/8	1−1/8
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.

ACCESSORIES

KIT NUMBER	KIT NAME	024−A	036−A	048−A	060−A
KHAEM0101EMI	ELECTRO−MAGNETIC INTERFERENCE KIT	X	X	X	X
KHALS0401LLS	SOLENOID VALVE	X	X	X	X
KSASF0101AAA	SUPPORT FEET	X	X	X	X
KSATX0301PUR	TXV	X	X		
KSATX0401PUR	TXV			X	
KSATX0501PUR	TXV				X
STANDARD	CRANKCASE HEATER	S	S	S	S

x = Accessory S = Standard * Available from RCD

ACCESSORY CONTROLS

CONTROL	DESCRIPTION
SYSTXBBECW01−A	Evolution® Connex™ Control with Wi−Fi® Bundle
SYSTXBBECC01−A	Evolution® Connex™ Control with Wi−Fi®
SYSTXBBECN01−A	Evolution® Connex™ Control
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® Remote Access Module, Broadband Wi−Fi® Wireless
SYSTXBBRCT01	Evolution® Remote Access Module, Broadband Cat−5 Wired
SYSTXBBNIM01	Evolution® Network Interface Module (Connects Heat Recovery and Energy Recovery Ventilators on non−zoning applications.)

ACCESSORY USAGE GUIDELINE

ACCESSORY	REQUIRED FOR LOW–AMBIENT COOLING APPLICATIONS (Below 55°F/12.8°C)	REQUIRED FOR LONG LINE APPLICATIONS* (Over 80 ft/24.38 m)	REQUIRED FOR SEA COAST APPLICATIONS (Within 2 miles/3.22 km)
Crankcase Heater	Standard	Standard	Standard
Evaporator Freeze Protection	Standard with Evolution Control	No	No
Liquid–Line Solenoid Valve	No	Yes	No
Low–Ambient Control	Standard with Evolution Control	No	No
Puron Refrigerant Balance Port Hard–ShutOff TXV	Yes†	Yes†	Yes†
Support Feet	Recommended	No	Recommended
Winter Start Control	Standard with Evolution Control	No	No

* For tubing set lengths between 80 and 200 ft. (24.38 and 60.96 m) horizontal or 20 ft. (6.10 m) vertical differential (total equivalent length), refer to the Long Line Guideline—Air Conditioners and Heat Pumps using Puron® Refrigerant.

† Required on all indoor units. Standard on all new Evolution Extreme compatible fan coils and furnace coils.

Accessory Description and Usage (Listed Alphabetically)

1. Compressor Start Assist

The inverter drive gently starts the variable speed compressor at all times. No other start device is compatible with this unit.

2. Crankcase Heater

Compressor motor winding resistance heater which is internal to compressor to keep the lubricant warm during off cycles. Improves compressor lubrication on restart and minimizes the chance of liquid slugging.

Usage:

Used in low ambient cooling applications.

Used in long line applications.

3. 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.

4. 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.

5. 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.

6. Electro-Magnetic Interference Kit

Usage Guideline:

May be required to address radio frequency interference for equipment, such as HAM radios, operating between 6 and 30 mHz.

ELECTRICAL DATA

UNIT SIZE–VOLTAGE, 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–A	208–230–1	253	197	24	16.5	2.9	23.5	12	12	52 (15.9)	50 (16.2)	30
036–A				24	16.5	2.9	23.5	12	12	52 (15.9)	50 (16.2)	40
048–A				42	27.0	2.9	36.6	8	8	84 (25.6)	80 (24.3)	50
060–A				42	27.0	2.9	36.6	8	8	84 (25.6)	80 (24.3)	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

SOUND POWER LEVEL (dBA)

Unit Size–Voltage, Series	Typical Octave Band Spectrum (without tone adjustment)	Min Speed Cooling	Max Speed Cooling	*Min Speed Heating	*Max Speed Heating
0024–A	Freq (Hz)	1800 RPM	3200 RPM	1800 RPM	5700 RPM
	125	62.0	63.0	63.0	73.5
	250	57.0	56.5	61.5	63.0
	500	54.5	57.5	58.5	66.0
	1000	52.0	58.0	54.5	63.5
	2000	47.5	54.0	51.5	64.5
	4000	44.5	48.0	48.0	59.5
	8000	52.5	54.5	54.0	61.5
	Sound Rating (dBA)	58	63	62	71
0036–A	Freq (Hz)	1800 RPM	4500 RPM	1800 RPM	6850**
	125	62.0	64.5	63.0	67.0
	250	57.0	60.5	61.5	67.5
	500	54.5	61.0	58.5	69.0
	1000	52.0	61.0	54.5	67.0
	2000	47.5	56.0	51.5	67.0
	4000	44.5	51.0	48.0	63.0
	8000	52.5	54.5	54.0	61.5
	Sound Rating (dBA)	58	65	62	75
0048–A	Freq (Hz)	1800 RPM	3450 RPM	1800 RPM	6300**
	125	62.0	70.0	66.0	73.5
	250	60.5	67.5	63.0	69.5
	500	56.0	67.0	63.0	73.5
	1000	59.0	63.0	58.0	72.0
	2000	54.0	60.0	53.5	66.5
	4000	52.5	56.0	50.0	65.5
	8000	58.5	58.5	57.0	63.0
	Sound Rating (dBA)	65	70	64	76
0060–A	Freq (Hz)	1800 RPM	4250 RPM	1800 RPM	6300**
	50	62.0	65.0	66.0	73.5
	100	60.5	67.5	63.0	69.5
	200	56.0	67.5	63.0	73.5
	400	59.0	66.5	58.0	72.0
	800	54.0	61.0	53.5	66.5
	1600	52.5	60.5	50.0	65.5
	3150	58.5	59.0	57.0	63.0
	Sound Rating (dBA)	65	72	64	76

NOTE: Tested in compliance with AHRI 270–2008 but not listed with AHRI.

* 024 & 036 tested at 44°F Outdoor Air Temperature. 048 & 060 tested at 40°F

**Testable RPM limited by outdoor temp. Max unit RPM is 6500 for the 4 ton and 7000 for the 3 and 5 ton.

CHARGING SUBCOOLING (TXV-TYPE EXPANSION DEVICE)

UNIT SIZE–VOLTAGE, SERIES	REQUIRED SUBCOOLING °F (°C) – See UI
024–A	Subcooling recommendation displayed on UI in Charging Mode must be followed
036–A	
048–A	
060–A	

DIMENSIONS

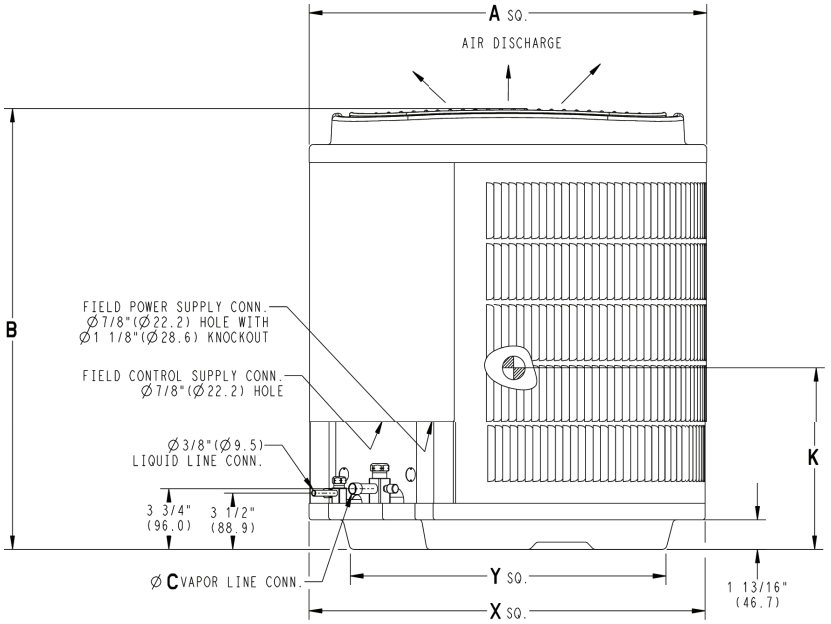
UNIT	SERIES	ELECTRICAL CHARACTERISTICS				A		B		C		D		E		F		G		H		I		J		K		OPERATING WEIGHT		SHIPPING WEIGHT		SHIPPING LENGTH / WIDTH (Sq.)		SHIPPING HEIGHT	
						INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	Lbs	Kgs	Lbs	Kgs	INCH	MM	INCH	MM
280ANV024000EAAA	A	Y	N	N	N	35	889.0	43 13/16	1112.6	7/8	22.2	6 9/16	166.1	28 7/16	722.8	9 1/8	231.3	1 1/8	28.2	3 13/16	97.4	16 1/4	412.8	16 1/4	412.8	21 1/4	539.8	324	147.0	367	166.5	37 1/8	943.1	50 3/16	1274.9
280ANV036000EAAA	A	Y	N	N	N	35	889.0	43 13/16	1112.6	7/8	22.2	6 9/16	166.1	28 7/16	722.8	9 1/8	231.3	1 1/8	28.2	3 13/16	97.4	16 1/4	412.8	16 1/4	412.8	21 1/4	539.8	324	147.0	367	166.5	37 1/8	943.1	50 3/16	1274.9
280ANV048000EAAA	A	Y	N	N	N	35	889.0	43 13/16	1112.6	7/8	22.2	6 9/16	166.1	28 7/16	722.8	9 1/8	231.3	1 1/8	28.2	3 13/16	97.4	16 1/4	412.8	16 1/4	412.8	21 1/4	539.8	334	151.5	375	170.1	37 1/8	943.1	50 3/16	1274.9
280ANV060000EAAA	A	Y	N	N	N	35	889.0	43 13/16	1112.6	7/8	22.2	6 9/16	166.1	28 7/16	722.8	9 1/8	231.3	1 1/8	28.2	3 13/16	97.4	16 1/4	412.8	16 1/4	412.8	21 1/4	539.8	334	151.5	375	170.1	37 1/8	943.1	50 3/16	1274.9

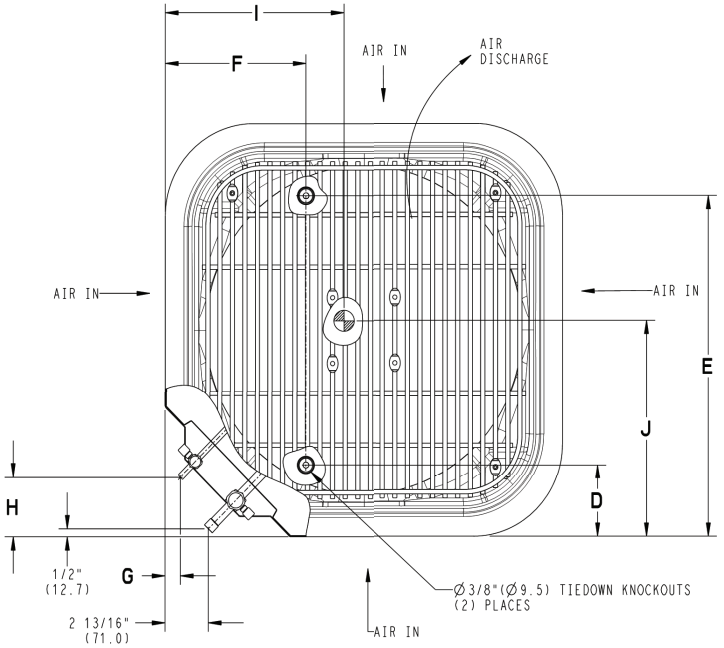
208-230-1-60	208/230-3-60	460-3-60	575-3-60

Y=YES
N=NO

NOTES:

1. CENTER OF GRAVITY ⊕ .





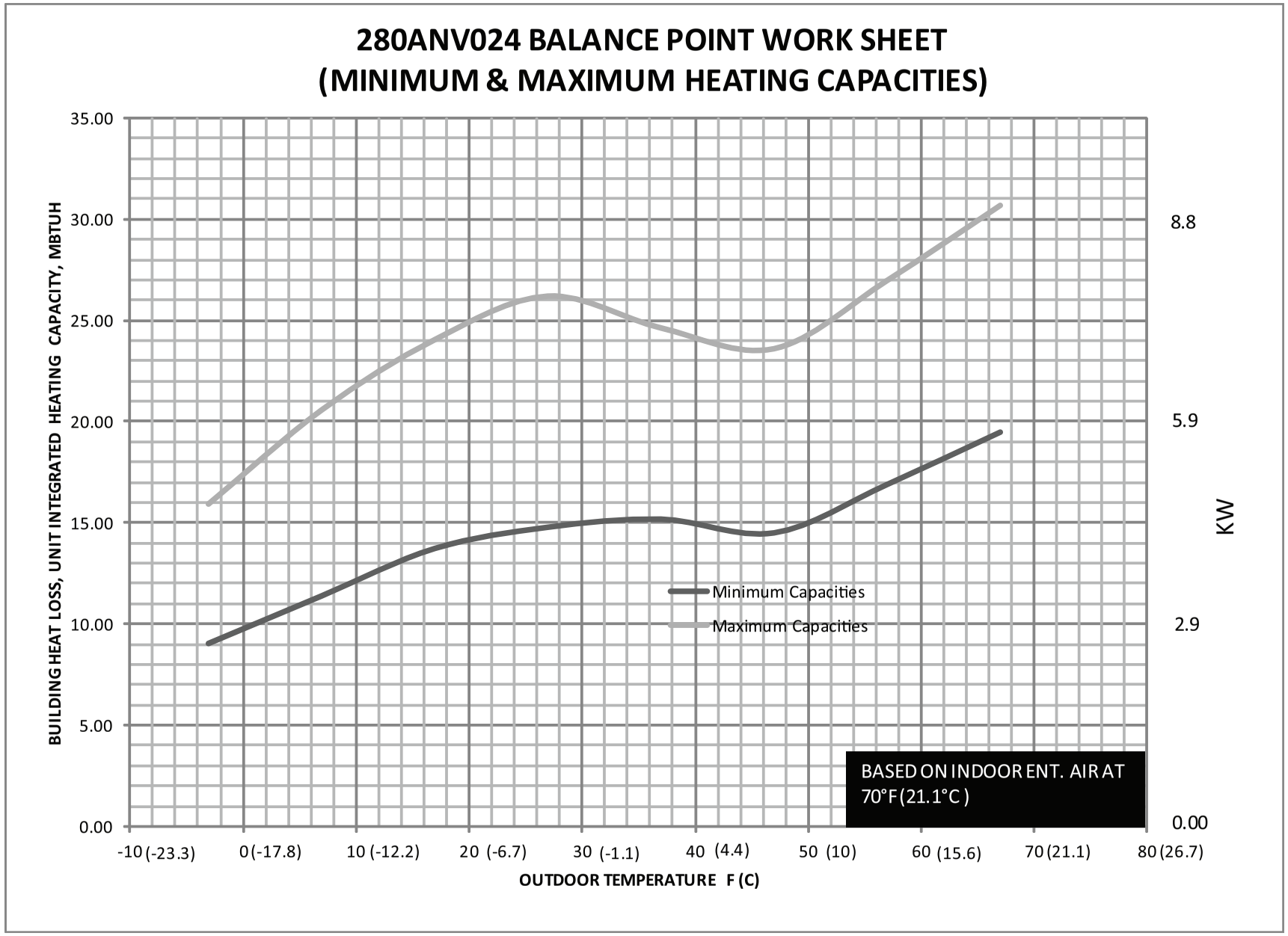
UNIT SIZE	"X" MINIMUM GROUND MOUNTING PAD APPLICATION DIMENSIONS		"Y" MINIMUM ROOF-TOP MOUNTING PAD APPLICATION DIMENSIONS	
-	23 1/8	587.3	17 7/8	454.6
-	25 3/4	654.0	20 7/16	518.5
-	31 3/16	792.5	22 15/16	583.2
24,36,48,60	35	889.0	26 3/4	679.7

NOTE: ALL DIMENSIONS IN INCH (MM)

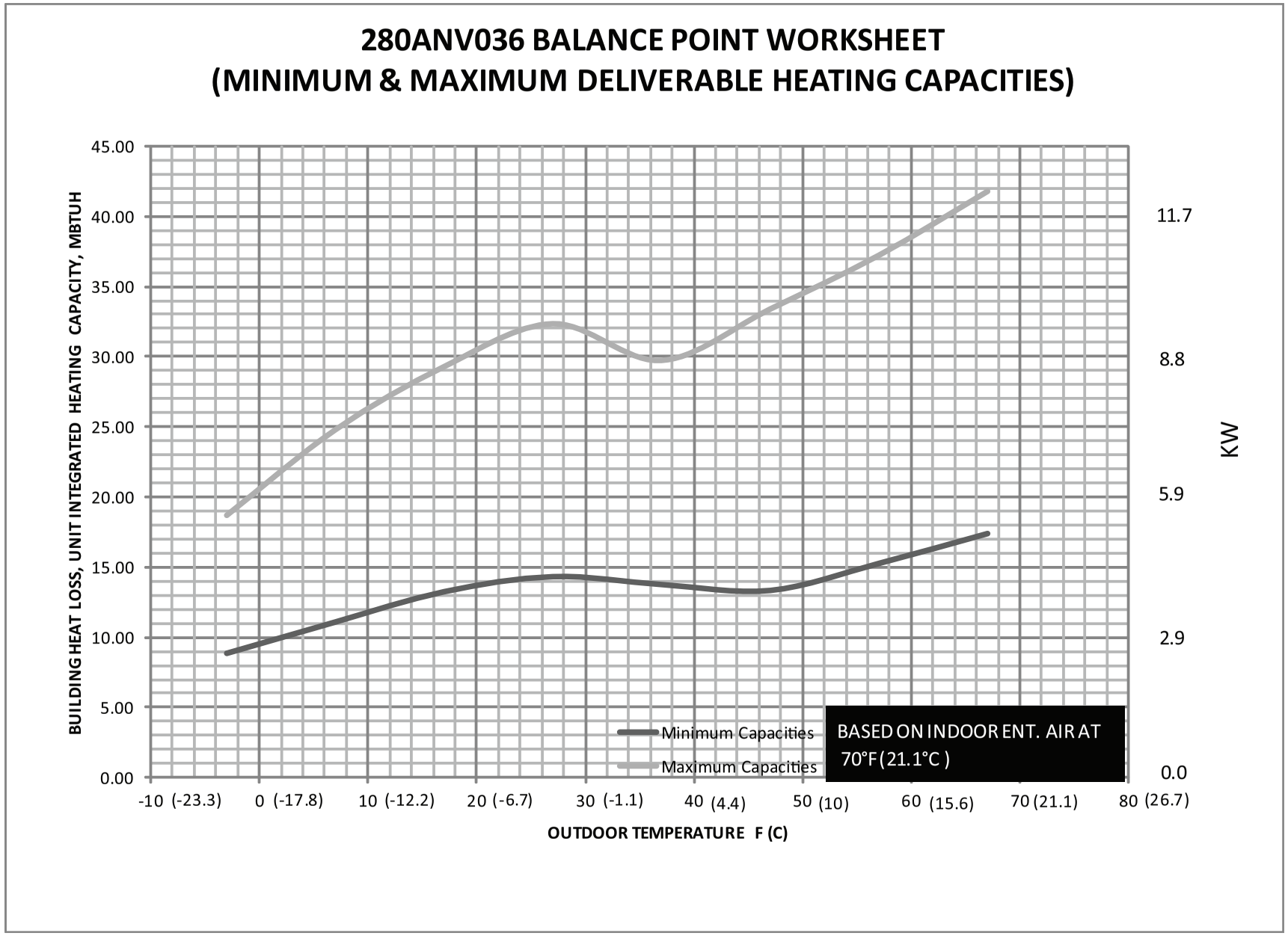
U.S. ECCN: Not Subject to Regulation (N.S.R.)

SD5082-4 REV. C

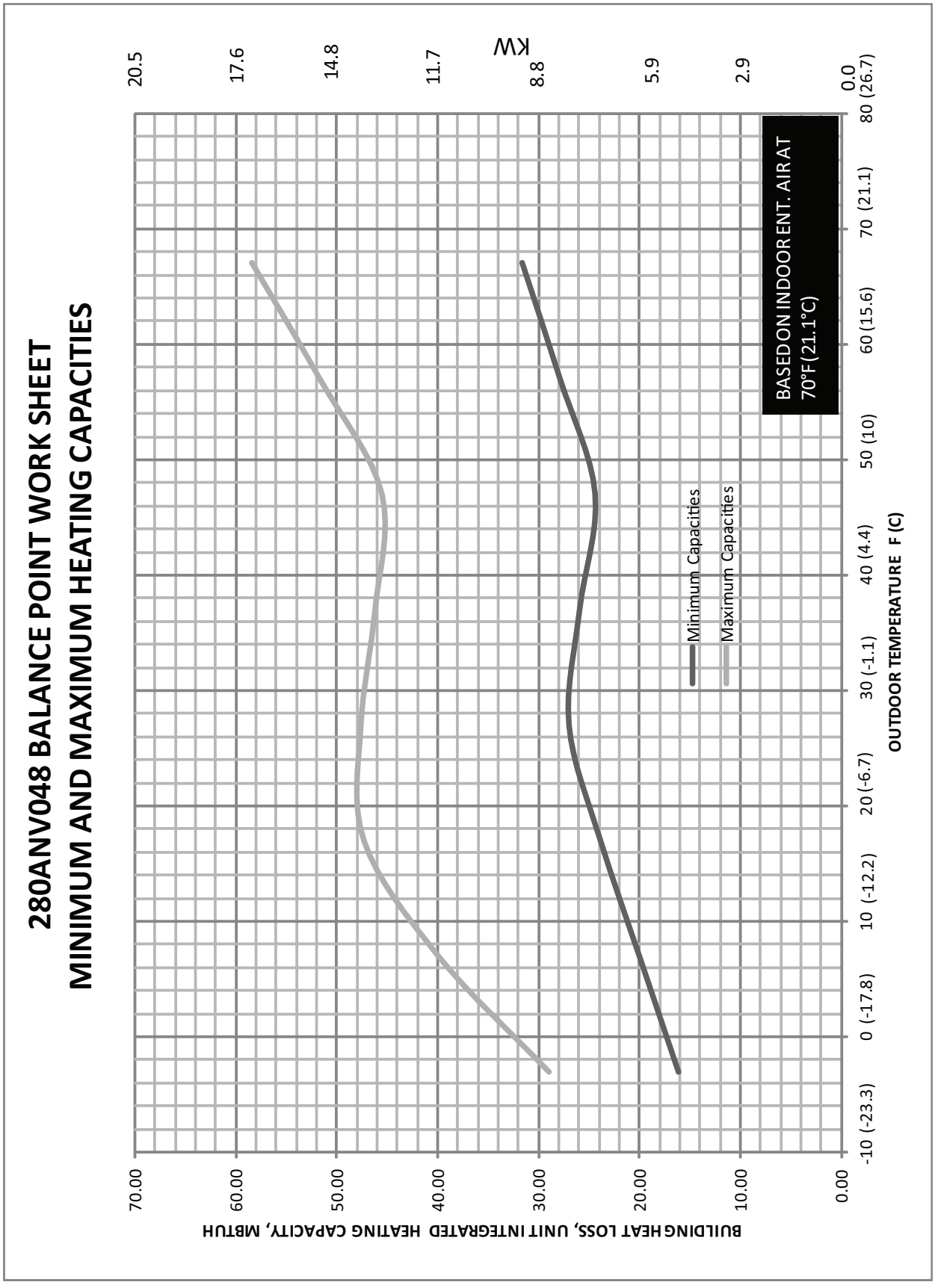
280A BALANCE POINT WORKSHEET



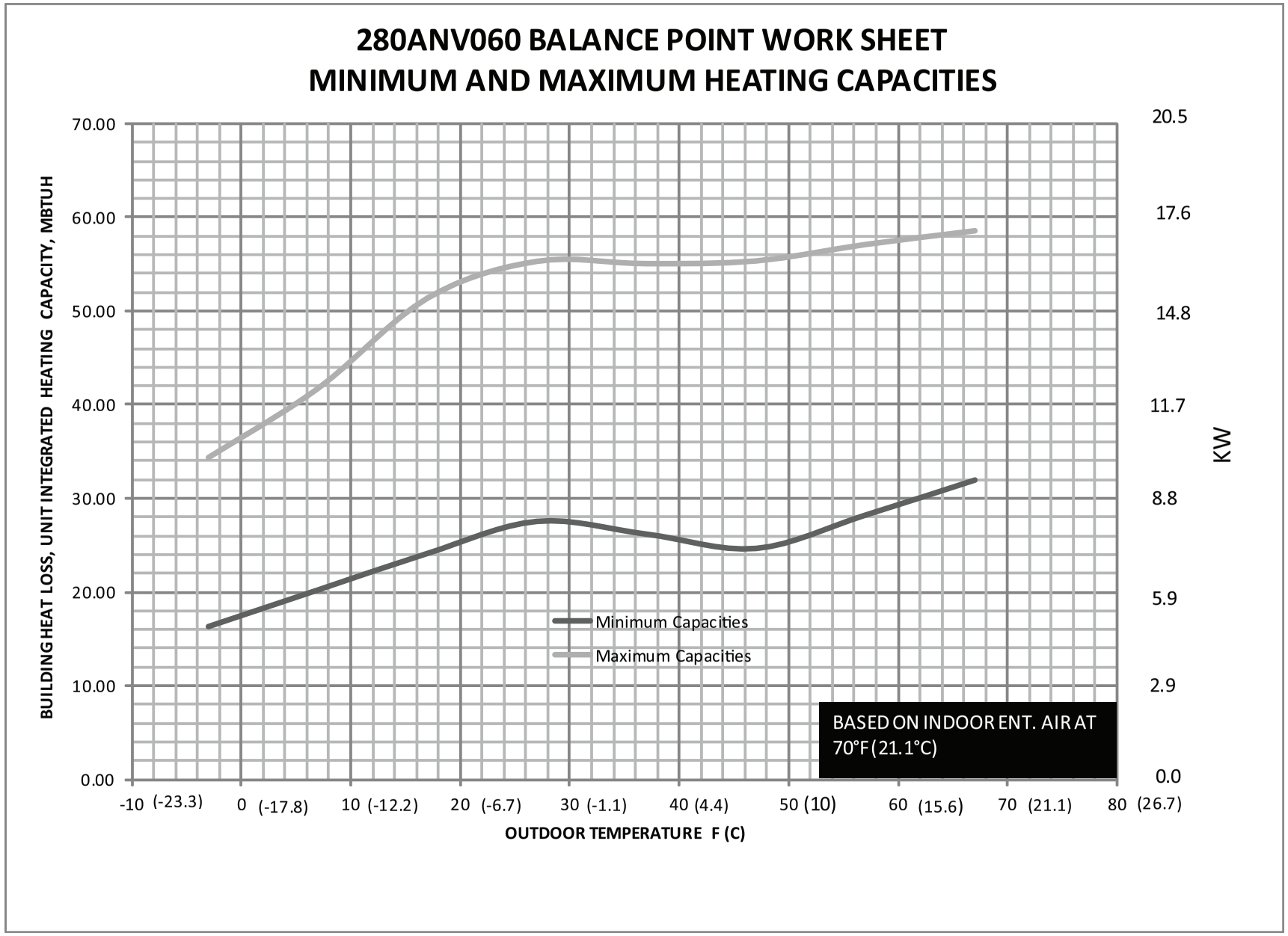
280A BALANCE POINT WORKSHEET CONT.



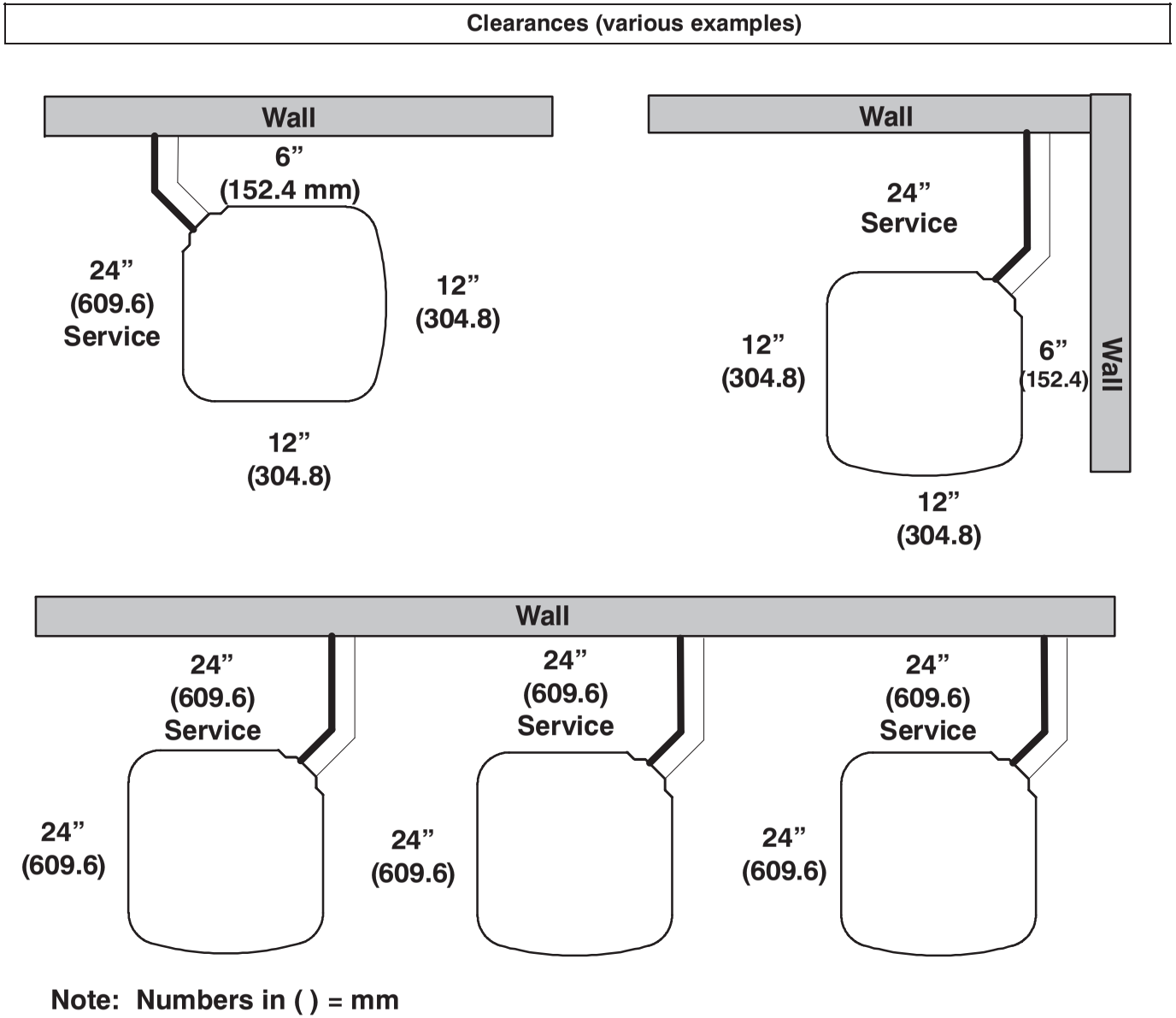
280A BALANCE POINT WORKSHEET CONT.



280A BALANCE POINT WORKSHEET CONT.



CLEARANCES



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.

A07833

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: http://cactaxcredits.info/bryant-ratings/hp_ratings_srch.php

Equipment performance calculator can be accessed at: http://rpmobbry.wrightsoft.com/

Model Number	Coil Model Number	Furnace Model Number	Cooling Capacity	Cooling				Heating				
				EER	SEER	ID CFM		High Temp		HSPF	Low Temp	
						High	Low	Capacity 47˚F (8˚C)	COP		Capacity 17˚F (–8˚C)	COP
280ANV024****A	FE4ANB006+UI		25,200	16.0	20.5	900	650	23,600	4.70	13.0	24,800	2.5
280ANV036****A	FE4ANB006+UI		35,000	14.5	20.5	1200	875	33,400	4.40	13.0	31,600	2.5
280ANV048****A	FE4ANB006+UI		47,500	13.5	18.3	1500	1100	45,500	4.12	12.5	47,500	2.2
280ANV060****A	FE4ANB006+UI		56,000	12.7	18.0	1500	1100	55,500	3.86	12.0	52,500	2.2

* 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.
COP — Coefficient of Performance
EER — Energy Efficiency Ratio
HSPF — Heating Seasonal Performance Factor
SEER — Seasonal Energy Efficiency Ratio
UI — User Interface

DETAILED COOLING CAPACITIES*

EVAP. AIR	CONDENSER ENTERING AIR TEMPERATURES °F (°C)																					
	75 (23.9)				85 (29.4)				95 (35)				105 (40.6)				115 (46.1)				125 (51.7)			
EWB °F (°C)	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**
		Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡	
280ANV024 Outdoor Section With FE4ANB006 Indoor Section — Maximum																								
57 (13.9)	887	25.34	25.34	1.12	875	24.27	24.27	1.35	900	23.45	23.45	1.61	751	21.13	21.13	1.83	825	21.12	21.12	2.16	710	19.31	19.31	2.57
62 (16.7)		25.38	25.38	1.12		24.32	24.32	1.35		23.49	23.49	1.61		21.17	21.17	1.83		21.15	21.15	2.16		19.35	19.35	2.57
63 (17.2)††		25.61	20.12	1.12		24.34	19.46	1.35		23.14	19.20	1.61		21.25	16.90	1.83		20.71	17.42	2.17		19.24	15.63	2.58
67 (19.4)		27.83	21.10	1.08		26.48	20.43	1.31		25.20	20.20	1.57		23.17	17.75	1.79		22.61	18.36	2.13		21.06	16.46	2.52
72 (22.2)		31.03	16.89	1.03		29.55	16.29	1.26		28.16	15.95	1.53		25.94	14.21	1.74		25.36	14.49	2.06		23.67	13.14	2.46

EVAP. AIR	CONDENSER ENTERING AIR TEMPERATURES °F (°C)																					
	75 (23.9)				85 (29.4)				95 (35)				105 (40.6)				115 (46.1)				125 (51.7)			
EWB °F (°C)	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**
		Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡	
280ANV024 Outdoor Section With FE4ANB006 Indoor Section — Minimum																								
57 (13.9)	500	15.41	15.41	0.58	500	14.77	14.77	0.70	500	14.10	14.10	0.84	500	16.29	16.29	1.32	500	17.84	17.84	1.91	500	17.53	17.53	2.35
62 (16.7)		15.43	15.43	0.58		14.80	14.80	0.70		14.12	14.12	0.84		16.39	14.79	1.31		18.40	15.64	1.90		17.99	15.47	2.34
63 (17.2)††		15.55	11.42	0.57		14.74	11.10	0.70		13.88	10.76	0.85		16.71	11.88	1.31		18.82	12.73	1.89		18.41	12.56	2.33
67 (19.4)		16.90	11.97	0.55		16.04	11.65	0.68		15.13	11.32	0.82		18.23	12.45	1.27		20.54	13.33	1.85		20.14	13.17	2.29
72 (22.2)		18.84	9.56	0.51		17.90	9.25	0.64		16.92	8.93	0.79		20.39	10.09	1.23		23.02	10.99	1.80		22.63	10.86	2.23

See notes on page 18

DETAILED COOLING CAPACITIES* CONTINUED

EVAP. AIR	CONDENSER ENTERING AIR TEMPERATURES °F (°C)																					
	75 (23.9)				85 (29.4)				95 (35)				105 (40.6)				115 (46.1)				125 (51.7)			
EWB °F (°C)	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**
		Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡	
280ANV036 Outdoor Section With FE4ANB006 Indoor Section – Maximum																								
57 (13.9)	1325	35.99	35.99	1.83	1240	34.03	34.03	2.12	1200	32.35	32.35	2.46	1120	30.32	30.32	2.83	1035	28.15	28.15	3.25	900	25.40	25.40	3.71
62 (16.7)		36.04	36.04	1.83		34.09	34.09	2.12		32.40	32.40	2.46		30.37	30.37	2.83		28.19	28.19	3.25		25.44	25.44	3.70
63 (17.2)††		36.10	29.46	1.83		34.19	27.82	2.12		32.33	26.63	2.46		30.31	24.97	2.83		28.14	23.19	3.25		25.62	20.72	3.70
67 (19.4)		39.00	30.83	1.79		36.98	29.12	2.07		35.00	27.90	2.41		32.86	26.18	2.79		30.58	24.34	3.20		27.90	21.76	3.65
72 (22.2)		43.06	24.31	1.74		40.86	23.02	2.02		38.71	22.00	2.36		36.41	20.68	2.72		33.96	19.27	3.13		31.07	17.37	3.58

EVAP. AIR	CONDENSER ENTERING AIR TEMPERATURES °F (°C)																					
	75 (23.9)				85 (29.4)				95 (35)				105 (40.6)				115 (46.1)				125 (51.7)			
EWB °F (°C)	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**
		Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡	
280ANV036 Outdoor Section With FE4ANB006 Indoor Section – Minimum																								
57 (13.9)	500	14.31	14.31	0.60	500	13.73	13.73	0.74	500	13.07	13.07	0.89	500	15.18	15.18	1.45	500	16.65	16.65	2.20	500	16.69	16.69	2.78
62 (16.7)		14.31	14.31	0.60		13.75	13.75	0.74		13.11	13.11	0.89		15.27	15.14	1.45		17.16	16.03	2.18		17.22	16.05	2.77
63 (17.2)††		14.40	11.66	0.60		13.68	11.34	0.74		12.89	11.01	0.90		15.56	12.16	1.44		17.55	13.04	2.17		17.62	13.07	2.76
67 (19.4)		15.61	12.20	0.57		14.82	11.88	0.71		13.97	11.56	0.87		16.92	12.73	1.41		19.12	13.64	2.13		19.24	13.69	2.72
72 (22.2)		17.18	9.66	0.53		16.40	9.38	0.67		15.48	9.05	0.83		18.82	10.26	1.35		21.36	11.22	2.07		21.55	11.30	2.65

See notes on page 18

DETAILED COOLING CAPACITIES* CONTINUED

EVAP. AIR	CONDENSER ENTERING AIR TEMPERATURES °F (°C)																					
	75 (23.9)				85 (29.4)				95 (35)				105 (40.6)				115 (46.1)				125 (51.7)			
EWB °F (°C)	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**
		Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡	
280ANV048 Outdoor Section With FE4ANB006 Indoor Section — Maximum																								
57 (13.9)	1550	46.58	46.58	2.78	1540	44.92	44.92	3.12	1510	43.03	43.03	3.49	1425	40.70	40.70	3.79	1340	38.16	38.16	4.20	1250	35.46	35.46	4.67
62 (16.7)		47.31	45.37	2.79		45.36	44.23	3.12		43.25	42.88	3.49		40.95	40.26	3.79		38.24	38.24	4.20		35.51	35.51	4.67
63 (17.2)††		48.14	36.56	2.79		46.09	35.57	3.13		43.86	34.32	3.49		41.45	32.51	3.79		38.80	30.58	4.20		35.97	28.50	4.67
67 (19.4)		52.09	38.16	2.82		49.89	37.16	3.15		47.50	35.90	3.52		44.95	34.03	3.80		42.11	32.02	4.21		39.07	29.87	4.68
72 (22.2)		57.68	30.69	2.86		55.26	29.75	3.20		52.62	28.62	3.56		49.89	27.18	3.82		46.78	25.58	4.23		43.45	23.86	4.69

EVAP. AIR	CONDENSER ENTERING AIR TEMPERATURES °F (°C)																					
	75 (23.9)				85 (29.4)				95 (35)				105 (40.6)				115 (46.1)				125 (51.7)			
EWB °F (°C)	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**
		Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡	
280ANV048 Outdoor Section With FE4ANB006 Indoor Section — Minimum																								
57 (13.9)	640	22.76	22.76	1.20	620	21.71	21.71	1.39	590	20.50	20.50	1.60	750	25.97	25.97	2.53	800	29.26	29.26	3.54	850	30.18	30.18	4.36
62 (16.7)		23.80	21.20	1.20		22.63	20.35	1.39		21.34	19.28	1.60		27.05	24.42	2.53		30.95	27.02	3.54		31.70	28.13	4.36
63 (17.2)††		24.30	17.40	1.20		23.10	16.67	1.39		21.80	15.77	1.60		27.64	19.99	2.53		31.66	22.31	3.54		32.43	23.13	4.36
67 (19.4)		26.35	18.13	1.20		25.07	17.37	1.39		23.67	16.45	1.60		30.07	20.87	2.53		34.37	23.23	3.54		35.25	24.12	4.37
72 (22.2)		29.31	15.02	1.20		27.91	14.37	1.39		26.38	13.60	1.60		33.47	17.25	2.52		38.24	19.38	3.54		39.23	20.04	4.38

See notes on page 18

DETAILED COOLING CAPACITIES* CONTINUED

EVAP. AIR	CONDENSER ENTERING AIR TEMPERATURES °F (°C)																					
	75 (23.9)				85 (29.4)				95 (35)				105 (40.6)				115 (46.1)				125 (51.7)			
EWB °F (°C)	ID SCFM	Capacity MBtuh††		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**
		Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡	
280ANV060 Outdoor Section With FE4ANB006 Indoor Section — Maximum																								
57 (13.9)	1850	54.32	54.32	3.56	1850	52.52	52.52	3.95	1850	50.59	50.59	4.37	1750	47.88	47.88	4.77	1600	44.66	44.66	5.20	1500	41.63	41.63	5.73
62 (16.7)		55.49	49.53	3.57		53.25	48.45	3.96		50.94	47.26	4.37		48.14	47.67	4.78		44.96	41.74	5.21		41.82	41.54	5.73
63 (17.2)††		56.50	39.96	3.58		54.14	38.97	3.96		51.70	37.95	4.38		48.85	36.01	4.78		45.69	33.53	5.21		42.46	31.39	5.73
67 (19.4)		61.17	41.70	3.62		58.63	40.71	4.00		56.00	39.70	4.41		52.94	37.68	4.81		49.54	35.08	5.24		46.09	32.87	5.76
72 (22.2)		67.72	33.60	3.67		64.95	32.63	4.06		62.11	31.63	4.46		58.73	30.03	4.86		54.99	28.07	5.28		51.20	26.28	5.80

EVAP. AIR	CONDENSER ENTERING AIR TEMPERATURES °F (°C)																					
	75 (23.9)				85 (29.4)				95 (35)				105 (40.6)				115 (46.1)				125 (51.7)			
EWB °F (°C)	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**	ID SCFM	Capacity MBtuh†		Total Sys. KW**
		Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡			Total	Sens‡	
280ANV060 Outdoor Section With FE4ANB006 Indoor Section — Minimum																								
57 (13.9)	650	22.86	22.86	1.25	625	21.75	21.75	1.45	590	20.48	20.48	1.67	710	25.38	25.38	2.61	800	29.23	29.23	3.68	875	30.48	30.48	4.55
62 (16.7)		23.85	21.59	1.25		22.64	20.63	1.45		21.32	19.45	1.67		26.66	23.85	2.61		30.91	27.26	3.68		31.87	28.86	4.55
63 (17.2)††		24.34	17.70	1.25		23.11	16.89	1.45		21.77	15.92	1.67		27.26	19.62	2.61		31.62	22.51	3.68		32.60	23.67	4.55
67 (19.4)		26.40	18.43	1.25		25.08	17.60	1.45		23.64	16.60	1.67		29.65	20.47	2.61		34.33	23.44	3.68		35.43	24.69	4.55
72 (22.2)		29.37	15.25	1.26		27.93	14.54	1.45		26.34	13.73	1.67		33.01	17.02	2.61		38.19	19.56	3.69		39.42	20.45	4.56

* 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.

† 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).

** 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)		
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ*			Total	Integ*			Total	Integ*			Total	Integ*	
280ANV024 Outdoor Section With FE4ANB006 Indoor Section — Maximum																
65 (18.3)	900	17.60	16.19	2.39	900	22.65	20.82	2.68	900	26.64	24.29	2.80	900	29.76	26.43	2.74
70 (21.1)		17.28	15.90	2.51		22.37	20.56	2.83		26.37	24.05	2.96		29.51	26.21	2.91
75 (23.9)		16.92	15.57	2.62		22.05	20.26	2.97		26.09	23.79	3.12		29.24	25.97	3.08

INDOOR AIR	OUTDOOR COIL ENTERING AIR TEMPERATURES °F (°C)														
	37 (2.8)				47 (8.3)				57 (13.9)				67 (19.4)		
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ*			Total	Integ*			Total	Integ*			Total	Integ*	
280ANV024 Outdoor Section With FE4ANB006 Indoor Section — Maximum																
65 (18.3)	900	27.30	24.84	2.02	900	23.84	23.84	1.36	900	27.25	27.25	1.34	900	31.00	31.00	1.33
70 (21.1)		27.07	24.63	2.16		23.60	23.60	1.47		26.98	26.98	1.45		30.70	30.70	1.44
75 (23.9)		26.83	24.41	2.32		23.36	23.36	1.59		26.71	26.71	1.57		30.39	30.39	1.56

INDOOR AIR	OUTDOOR COIL ENTERING AIR TEMPERATURES °F (°C)														
	−3 (−19.4)				7 (−13.9)				17 (−8.3)				27 (−2.8)		
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ*			Total	Integ*			Total	Integ*			Total	Integ*	
280ANV024 Outdoor Section With FE4ANB006 Indoor Section — Minimum																
65 (18.3)	500	10.11	9.30	1.34	500	12.64	11.62	1.40	500	15.28	13.94	1.45	500	16.85	14.97	1.37
70 (21.1)		9.83	9.05	1.41		12.41	11.40	1.48		15.07	13.74	1.54		16.65	14.79	1.46
75 (23.9)		9.53	8.76	1.47		12.15	11.17	1.56		14.84	13.53	1.63		16.44	14.60	1.56

INDOOR AIR	OUTDOOR COIL ENTERING AIR TEMPERATURES °F (°C)														
	37 (2.8)				47 (8.3)				57 (13.9)				67 (19.4)		
EDB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†	ID SCFM	Capacity MBtuh		Total Sys. KW†
		Total	Integ*			Total	Integ*			Total	Integ*			Total	Integ*	
280ANV024 Outdoor Section With FE4ANB006 Indoor Section — Minimum																
65 (18.3)	500	16.89	15.37	1.14	500	14.71	14.71	0.79	500	17.12	17.12	0.78	500	19.72	19.72	0.77
70 (21.1)		16.70	15.19	1.22		14.51	14.51	0.85		16.90	16.90	0.84		19.48	19.48	0.83
75 (23.9)		16.49	15.01	1.31		14.31	14.31	0.92		16.68	16.68	0.91		19.23	19.23	0.90

See notes on page 22

HEAT PUMP HEATING PERFORMANCE CONTINUED

INDOOR AIR	OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C)														
	−3 (−19.4)				7 (−13.9)				17 (−8.3)				27 (−2.8)		
EDB ° F (° C)	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†
		Total	Integ*			Total	Integ*			Total	Integ*			Total	Integ*	
280ANV036 Outdoor Section With FE4ANB006 Indoor Section Maximum																
65 (18.3)	1200	20.64	18.99	2.67	1200	27.29	25.07	3.07	1350	32.39	29.53	3.12	1200	36.70	32.59	3.19
70 (21.1)		20.35	18.72	2.80		27.01	24.82	3.23		32.14	29.30	3.30		36.42	32.35	3.37
75 (23.9)		20.00	18.40	2.92		26.71	24.54	3.39		31.86	29.05	3.48		36.14	32.10	3.57

INDOOR AIR	OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C)														
	37 (2.8)				47 (8.3)				57 (13.9)				67 (19.4)		
EDB ° F (° C)	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†
		Total	Integ*			Total	Integ*			Total	Integ*			Total	Integ*	
280ANV036 Outdoor Section With FE4ANB006 Indoor Section Maximum																
65 (18.3)	1200	32.94	29.98	2.25	1200	33.69	33.69	1.93	1200	37.63	37.63	1.89	1200	42.35	42.35	1.87
70 (21.1)		32.69	29.74	2.41		33.40	33.40	2.07		37.22	37.22	2.04		41.77	41.77	2.02
75 (23.9)		32.42	29.51	2.57		33.10	33.10	2.23		36.86	36.86	2.20		41.22	41.22	2.17

INDOOR AIR	OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C)														
	−3 (−19.4)				7 (−13.9)				17 (−8.3)				27 (−2.8)		
EDB ° F (° C)	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†
		Total	Integ*			Total	Integ*			Total	Integ*			Total	Integ*	
280ANV036 Outdoor Section With FE4ANB006 Indoor Section Minimum																
65 (18.3)	500	9.92	9.12	1.74	500	12.30	11.31	1.79	500	14.73	13.43	1.72	520	16.31	14.48	1.58
70 (21.1)		9.66	8.89	1.82		12.09	11.11	1.89		14.54	13.25	1.83		16.12	14.32	1.69
75 (23.9)		9.37	8.62	1.89		11.85	10.89	1.99		14.33	13.06	1.94		15.93	14.15	1.81

INDOOR AIR	OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C)														
	37 (2.8)				47 (8.3)				57 (13.9)				67 (19.4)		
EDB ° F (° C)	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†
		Total	Integ*			Total	Integ*			Total	Integ*			Total	Integ*	
280ANV036 Outdoor Section With FE4ANB006 Indoor Section Minimum																
65 (18.3)	500	15.31	13.93	1.23	500	13.54	13.54	0.87	500	15.51	15.51	0.84	500	17.68	17.68	0.82
70 (21.1)		15.12	13.76	1.32		13.34	13.34	0.95		15.25	15.25	0.92		17.36	17.36	0.89
75 (23.9)		14.94	13.59	1.42		13.13	13.13	1.03		15.00	15.00	1.00		17.05	17.05	0.97

See notes on page 22

HEAT PUMP HEATING PERFORMANCE CONTINUED

INDOOR AIR	OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C)														
	−3 (−19.4)				7 (−13.9)				17 (−8.3)				27 (−2.8)			
EDB ° F (° C)	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†
		Total	Integ*			Total	Integ*			Total	Integ*			Total	Integ*	
280ANV048 Outdoor Section With FE4ANB006 Indoor Section – Maximum																
65 (18.3)	1800	31.83	29.29	3.91	1800	43.78	40.23	4.98	1800	52.18	47.57	5.41	1800	53.92	47.89	4.78
70 (21.1)		31.46	28.95	4.07		43.42	39.90	5.20		51.86	47.28	5.66		53.57	47.58	5.01
75 (23.9)		31.02	28.54	4.23		43.01	39.53	5.42		51.52	46.97	5.91		53.21	47.26	5.26

INDOOR AIR	OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C)														
	37 (2.8)				47 (8.3)				57 (13.9)				67 (19.4)			
EDB ° F (° C)	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†
		Total	Integ*			Total	Integ*			Total	Integ*			Total	Integ*	
280ANV048 Outdoor Section With FE4ANB006 Indoor Section – Maximum																
65 (18.3)	1800	51.12	46.52	3.76	1640	45.90	45.90	2.80	1640	52.16	52.16	2.89	1640	58.98	58.98	2.99
70 (21.1)		50.74	46.17	3.96		45.50	45.50	2.96		51.68	51.68	3.05		58.38	58.38	3.15
75 (23.9)		50.35	45.82	4.17		45.11	45.11	3.13		51.18	51.18	3.22		57.74	57.74	3.31

INDOOR AIR	OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C)														
	−3 (−19.4)				7 (−13.9)				17 (−8.3)				27 (−2.8)			
EDB ° F (° C)	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†
		Total	Integ*			Total	Integ*			Total	Integ*			Total	Integ*	
280ANV048 Outdoor Section With FE4ANB006 Indoor Section – Minimum																
65 (18.3)	580	17.91	16.48	2.28	580	22.07	20.28	2.49	700	26.40	24.07	2.53	840	30.60	27.18	2.47
70 (21.1)		17.53	16.13	2.37		21.76	20.00	2.60		26.15	23.84	2.66		30.36	26.96	2.62
75 (23.9)		17.09	15.73	2.45		21.40	19.67	2.71		25.87	23.58	2.80		30.10	26.73	2.77

INDOOR AIR	OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C)														
	37 (2.8)				47 (8.3)				57 (13.9)				67 (19.4)			
EDB ° F (° C)	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†
		Total	Integ*			Total	Integ*			Total	Integ*			Total	Integ*	
280ANV048 Outdoor Section With FE4ANB006 Indoor Section – Minimum																
65 (18.3)	700	28.71	26.13	2.08	630	24.62	24.62	1.49	780	28.16	28.16	1.44	820	31.91	31.91	1.47
70 (21.1)		28.46	25.90	2.21		24.37	24.37	1.59		27.86	27.86	1.53		31.58	31.58	1.57
75 (23.9)		28.21	25.67	2.34		24.11	24.11	1.69		27.56	27.56	1.63		31.21	31.21	1.66

See notes on page 22

HEAT PUMP HEATING PERFORMANCE CONTINUED

INDOOR AIR	OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C)														
	–3 (–19.4)				7 (–13.9)				17 (–8.3)				27 (–2.8)			
EDB ° F (° C)	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†
		Total	Integ*			Total	Integ*			Total	Integ*			Total	Integ*	
280ANV060 Outdoor Section With FE4ANB006 Indoor Section – Maximum																
65 (18.3)	2250	37.76	34.74	5.33	2250	45.75	42.05	5.79	2250	56.63	51.63	6.62	2100	62.61	55.61	6.44
70 (21.1)		37.37	34.38	5.54		45.42	41.74	6.03		56.32	51.35	6.91		62.22	55.26	6.73
75 (23.9)		36.90	33.94	5.73		45.04	41.39	6.28		55.97	51.03	7.21		61.83	54.92	7.04

INDOOR AIR	OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C)														
	37 (2.8)				47 (8.3)				57 (13.9)				67 (19.4)			
EDB ° F (° C)	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†
		Total	Integ*			Total	Integ*			Total	Integ*			Total	Integ*	
280ANV060 Outdoor Section With FE4ANB006 Indoor Section – Maximum																
65 (18.3)	2000	60.88	55.40	5.22	2000	55.78	55.78	3.95	1700	57.61	57.61	3.57	1625	59.14	59.14	3.23
70 (21.1)		60.45	55.01	5.48		55.30	55.30	4.15		57.05	57.05	3.76		58.51	58.51	3.40
75 (23.9)		59.99	54.59	5.74		54.83	54.83	4.37		56.50	56.50	3.96		57.89	57.89	3.58

INDOOR AIR	OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C)														
	–3 (–19.4)				7 (–13.9)				17 (–8.3)				27 (–2.8)			
EDB ° F (° C)	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†
		Total	Integ*			Total	Integ*			Total	Integ*			Total	Integ*	
280ANV060 Outdoor Section With FE4ANB006 Indoor Section – Minimum																
65 (18.3)	580	18.15	16.70	2.51	580	22.36	20.55	2.74	700	26.75	24.39	2.78	800	31.31	27.80	2.82
70 (21.1)		17.77	16.34	2.61		22.05	20.26	2.86		26.49	24.16	2.93		31.05	27.58	2.98
75 (23.9)		17.32	15.93	2.69		21.68	19.93	2.98		26.21	23.89	3.08		30.78	27.34	3.15

INDOOR AIR	OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C)														
	37 (2.8)				47 (8.3)				57 (13.9)				67 (19.4)			
EDB ° F (° C)	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†	ID SCFM	Capacity MBtuh		Total System KW†
		Total	Integ*			Total	Integ*			Total	Integ*			Total	Integ*	
280ANV060 Outdoor Section With FE4ANB006 Indoor Section – Minimum																
65 (18.3)	700	29.07	26.45	2.29	625	24.94	24.94	1.65	800	28.56	28.56	1.57	815	32.32	32.32	1.62
70 (21.1)		28.82	26.22	2.43		24.69	24.69	1.75		28.25	28.25	1.67		31.99	31.99	1.73
75 (23.9)		28.56	25.99	2.57		24.43	24.43	1.86		27.94	27.94	1.78		31.62	31.62	1.83

* 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.

† 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.

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, forward-swept blade 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 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) refrigerant, 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, forward swept blade, discharging air upward.
- Condenser fan motors will be totally enclosed, 1-phase type with class B insulation and permanently lubricated.
- 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.
- Compressor will be covered with a sound absorbing blanket.

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 front-seating shutoff valve with sweat connections, vapor-line front-seating shutoff valve with sweat connections, system charge of Puron® (R-410A) refrigerant, POE compressor oil, accumulator, charge compensator, electronic expansion valve, and reversing valve.
- Unit will be equipped with high-pressure switch, suction pressure transducer, and filter drier for Puron® refrigerant and an electronic expansion valve (EXV) for metering in heating mode.

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.
- Evolution control with appropriate software version is required for full featured operation.

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 qualified for low ambient cooling operation (below 55°F / 12.8°C) with an Evolution User Interface **ONLY**.
3. The maximum outdoor operating ambient in cooling mode is 125°F (51.67°C).
4. Minimum outdoor operating air temperature for heating mode is –15°F (–26.1°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.

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Replaces: PDS280A–03