

**288BNV EVOLUTION® V
VARIABLE SPEED HEAT PUMP
WITH PURON® REFRIGERANT
2, 3, AND 4-TON
(5-TON COMING Q4 2014)**



Advance Product Data



The Evolution V heat pump offers high-efficiency variable speed performance in a remarkably small cabinet providing up to 11 HSPF heating efficiency and up to 18 SEER cooling efficiency. The variable speed inverter capacity control delivers up to 5 stages of operation for exceptional load matching, dehumidification and zoning performance.

This product has been designed and manufactured to provide flexible system matching and work with a wide variety of indoor units and controls.

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

- Up to 18 SEER /12.5 EER / 11 HSPF
- Microtube Technology™ refrigeration system

Sound

- Sound level as low as 55 dBA in low speed
- Soft start and smooth ramp to operating speeds

Comfort

- Variable speed compressor operates at 5 stages with capacity range from as wide as 25-100%
- Air cooled Inverter variable speed drive
 - System requires Evolution® Connex™ Control with version 11 software or newer
 - Ratings provided with 2-stage thermostats and suitable non-communicating indoor products for 2-stage operation.

Reliability

- Puron® refrigerant - environmentally sound, won't deplete the ozone layer and low lifetime service cost.
- Front-seating service valves
- Inverter control drives compressor and fan motor
- No control module attached to fan motor
- Evolution intelligence monitors critical system parameters
- Pressure equalizer valve for easy compressor starting
- High pressure switch
- Suction pressure transducer
- Electronic expansion valve (EXV) for heating, TXV for cooling
- Compressor discharge temperature sensor
- Suction temperature sensor
- Filter drier (field installed)
- Internal crankcase heater standard

Flexibility and installation:

- 2 control wires to outdoor unit in complete Evolution system and Evolution® Connex™ Control
- Smaller and lighter than 2-stage units
- Minimum and Maximum adjustments with Evolution® Connex™ Control
- Hybrid Heat™ dual fuel capable
- Compatible with non-communicating thermostats

Durability

DuraGuard™ protection package:

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

Applications

- Line sets up to 100 ft (30.5 m) equivalent length
- No long-line accessories required.

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	8	B	N	V	0	3	6	0	0	0	A
Product Family 2=HP	Tier 8= Evolution Series	SEER 8 = 18 SEER	Major Series B=Puron	Voltage N= 208–230–1 or 208/230–1	Variations V = Variable Speed	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.



288BNV

STANDARD FEATURES

FEATURES	Unit Size – Voltage, Series			
	024–A	025–A	036–A	048–A
Puron Refrigerant	X	X	X	X
Variable Speed Rotary Compressor	X	X	X	X
Air–Cooled Integrated Inverter Drive	X	X	X	X
Louvered Coil Guard	X	X	X	X
Field Installed Filter Drier	X	X	X	X
Front Seating Service Valves	X	X	X	X
Internal Pressure and Temperature Protection	X	X	X	X
Suction Pressure Transducer	X	X	X	X
High Pressure Switch	X	X	X	X
Internal Crankcase Heater	X	X	X	X
Utility Interface Connections	X	X	X	X
Enhanced Diagnostics with Evolution® Connex™ Control with version 11 software or newer	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 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	100 (30.5)	100 (30.5)	N/A
Outdoor unit ABOVE indoor unit	100 (30.5)	100 (30.5)	100 (30.5)
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)
2–Ton	3/8	100*	100*	100*	100*	100*	100*	100*
3–Ton	3/8	100*	100*	100*	100*	100*	100*	100*
4–ton	3/8	100*	100*	100*	100*	100	100	--

* Maximum actual length not to exceed 100 ft (30.5 m)

† Total equivalent length accounts for losses due to elbows or fitting.

-- = outside acceptable range

LONG LINE APPLICATIONS

Unit is approved for up to 100 ft (30.5 m) equivalent length and vertical separations shown above with no additional accessories. Longer line set applications are not permitted.

COOLING CAPACITY LOSS TABLE

Nominal Size (Btuh)	Line OD (in.)	288BNV Cooling Capacity Loss (%)				
		Total Equivalent Line Length (ft)				
		25	50	75	80	100
024–A	5/8	0.5	1.2	1.8	1.9	2.4
	3/4	0.1	0.4	0.6	0.7	0.8
	7/8	0.0	0.1	0.3	0.3	0.4
025–A	5/8	0.5	1.2	1.8	1.9	2.4
	3/4	0.1	0.4	0.6	0.7	0.8
	7/8	0.0	0.1	0.3	0.3	0.4
036–A	5/8	1.1	2.4	3.7	4.0	5.0
	3/4	0.3	0.8	1.3	1.4	1.8
	7/8	0.0	0.3	0.5	0.6	0.8
048–A	3/4	0.7	1.6	2.4	2.6	3.2
	7/8	0.3	0.7	1.1	1.2	1.6
	1 1/8	0.0	0.1	0.2	0.3	0.4

Rating Line Size in **Bold**

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 indoor and outdoor combination.

† 5-Ton coming Q4 2014

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 Airflow	Highest Min Capacity Airflow	
2-Ton	739	263	222
3-Ton	990	289	236
4-Ton	1389	542	457

Cooling – Efficiency Mode		
Size	Max Capacity Airflow	Highest Min Capacity Airflow
2-Ton	825	585
3-Ton	1050	600
4-Ton	1400	875

Heating – Comfort Mode		
Size	Max Capacity Airflow	Highest Min Capacity Airflow
2-Ton	819	270
3-Ton	1014	226
4-Ton	1550	429

Heating – Efficiency Mode		
Size	Max Capacity Airflow	Highest Min Capacity Airflow
2-Ton	825	585
3-Ton	1200	700
4-Ton	1600	1000

LEGEND::

Max Capacity Airflow – Stage 5 airflow varies depending on conditions. This is the highest airflow the system will attempt to deliver in this particular mode. Ductwork for non-zoned systems should be sized for this airflow to ensure the system can deliver full capacity when needed. Improper duct design may result in excessive airflow noise and/or cutback occurrences at max airflow conditions.

Highest Min. Capacity Airflow – Stage 1 airflow also varies depending on conditions. In zoned systems, each zone must be capable of delivering this airflow for the system to deliver full capacity into the zone. Otherwise, airflow may be diverted to other zones or cutback may occur.

Min Cooling (Dehum or Zoning) – Lowest airflow the system will deliver. May operate down to this airflow in dehumidification mode or in zoning applications where ductwork restrictions have caused the blower to cut-back.

PHYSICAL DATA

UNIT SIZE SERIES	024 – A	025 – A	036 – A	048 – A
Operating Weight lb (kg)	164 (74.4)	164 (74.4)	164 (74.4)	218 (99)
Shipping Weight lb (kg)	190 (86)	190 (86)	190 (86)	257 (117)
Compressor Type	Variable Speed Rotary		Variable Speed Rotary	
REFRIGERANT	Puron® (R-410A)		Puron® (R-410A)	
Control	TXV (Puron® Hard Shutoff)		TXV (Puron® Hard Shutoff)	
Charge lb (kg)	6.4 (2.91)	6.4 (2.91)	6.4 (2.91)	8.3 (3.76)
Outdoor Htg Exp. Device	EXV		EXV	
COND FAN	Forward Swept Propeller Type, Direct Drive		Forward Swept Propeller Type, Direct Drive	
Air Discharge	Vertical		Vertical	
Air Qty (CFM)	2500	2500	2500	4500
Motor HP	1/3	1/3	1/3	1/3
Motor RPM	1050	1050	1050	850
COND COIL				
Face Area (Sq ft)	13.90	13.90	13.90	21.50
Fins per In.	20	20	20	20
Rows	1	1	1	1
Circuits	6	6	6	8
VALVE CONNECT. (In. ID)				
Vapor	3/4	3/4	3/4	7/8
Liquid	3/8		3/8	
REFRIGERANT TUBES (In. OD)				
Rated Vapor*	7/8	7/8	7/8	1 – 1/8
Max Liquid Line	3/8		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.

CONTROLS

PART NO.	DESCRIPTION
SYSTXBBECN01 – A	Evolution Connex Control (non – Wi – Fi)
SYSTXBBECC01 – A	Evolution Connex Control (Wi – Fi)
SYSTXBBNIM01	Evolution Network Interface Module (NIM)
SYSTXBBECW01 – A	Evolution Connex Control with Wi – Fi Remote Access Capability & Wireless Access Point

CONTROLS ACCESSORIES	
PART NO.	DESCRIPTION
SYSTXXXDBP01	Large Decorative Backplate
SYSTXGRPLG10	10 Pack Replacement – Green Indoor Unit Plug (ABCD Connector)
TSTATXXSEN01 – B	Outdoor Sensor
SYSTXXXGWR01	Wireless Access Point (WAP)
SYSTXBBRCT01	Evolution Remote Access Module, Broadband Cat – 5 Wired
SYSTXBBREF01	Evolution Remote Access Module, Broadband WiFi Wireless
SYSTXBB4ZC01	Evolution Damper Control Module (4 Zone)
SYSTXBBSMS01	Evolution Smart Sensor

THERMOSTATS

PART NUMBER	PROGRAM	GAS	ELECTRIC	HEAT PUMP	HYBRID HEAT	HEAT	COOL
T6 – PRH01 – A	7 – Day	√	√	√	√	3	2
T6 – PHP01	7 – Day		√	√		3	2
T6 – NRH01 – A	NP	√	√	√	√	3	2
T6 – NHP01	NP		√	√		3	2

ACCESSORIES

KIT NUMBER	KIT NAME	024 – A	025 – A	036 – A	048 – A
HK702016	MODEL PLUG FOR FV4(A,B), FK, 40FK	X	X		
HK702017	MODEL PLUG FOR FV4(A,B), FK, 40FK			X	
HK702018	MODEL PLUG FOR FV4(A,B), FK, 40FK				X
KHASS0606MPK*	SNOW STAND	X	X	X	X
KSASF0101AAA	SUPPORT FEET	X	X	X	X
KSATX0301PUR	TXV	X	X	X	
KSATX0401PUR	TXV				X
KSATX0501PUR	TXV				
LM10KK003	VAPOR LINE MUFFLER	X	X	X	X

x = Accessory S = Standard * Available from RCD

Accessory Description and Usage

Model Plug - FV4(A,B), FK, 40FK

Replaces production model plug in outdoor unit and adjusts compressor speed in heating mode to match indoor airflow.

Usage Guideline:

Required when using heat pump in replacement applications with FV4(A,B), FK4, 40FK fan coil indoor unit.

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.

Support Feet

Raises unit above base pad. 2 and 3 ton kit contains 5 feet for stable installation with small base. 4 and 5 ton kit contains 4 feet.

Usage Guideline:

Recommended in cold climates where snow can accumulate around unit. Allows improved base pan drainage.

Recommended for rooftop applications.

Thermostatic Expansion Valve (TXV)

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:

Required if indoor unit does not already contain Puron refrigerant TXV

4. Vapor Line Muffler

An external muffler installed in the vapor line to minimize vibration transmitted through refrigerant lines

Usage Guideline:

Recommended if vapor line is not installed per recommendations in the installation instructions and vibration may be transmitted into the structure.

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	N/A	17.7	1.2	23.6	12	12	52 (15.9)	50 (16.2)	40
025–A				N/A	17.7	1.2	23.6	12	12	52 (15.9)	50 (16.2)	40
036–A				N/A	18.3	1.2	24.4	12	12	51 (15.5)	48 (14.6)	40
048–A				N/A	25.1	1.2	31.4	10	10	64 (19.5)	60 (18.3)	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	Max Speed Heating
024–A	Freq (Hz)	1200 RPM	3300 RPM	4800 RPM
	125	43.0	53.0	51.5
	250	47.0	59.5	61.5
	500	51.0	62.5	62.5
	1000	49.5	63.5	63.5
	2000	42.5	63.0	61.5
	4000	35.5	63.5	62.0
	8000	46.0	54.0	54.5
	Sound Rating (dBA)	55.0	72.0	71.0
025–A	Freq (Hz)	1200 RPM	3300 RPM	4800 RPM
	125	43.0	52.0	52.5
	250	47.0	59.5	59.0
	500	51.0	64.5	61.5
	1000	49.5	63.0	62.0
	2000	42.5	60.0	60.0
	4000	35.5	59.5	64.0
	8000	46.0	50.5	54.5
	Sound Rating (dBA)	55.0	69.0	71.0
036–A	Freq (Hz)	1200 RPM	4800 RPM	5400 RPM
	125	43.0	53.0	51.5
	250	47.0	59.5	61.5
	500	51.0	62.5	62.5
	1000	49.5	63.5	63.5
	2000	42.5	63.0	61.5
	4000	35.5	63.5	62.0
	8000	46.0	54.0	54.5
	Sound Rating (dBA)	55.0	72.0	71.0
048–A	Freq (Hz)	1500 RPM	4320 RPM	5400 RPM
	125	49.5	59.0	55.5
	250	54.5	64.0	66.5
	500	54.0	66.0	65.0
	1000	54.5	64.5	63.0
	2000	52.0	63.5	66.0
	4000	54.5	63.5	67.5
	8000	46.5	53.0	58.5
	Sound Rating (dBA)	64.0	72.0	73.0

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

CHARGING SUBCOOLING (TXV-TYPE EXPANSION DEVICE)

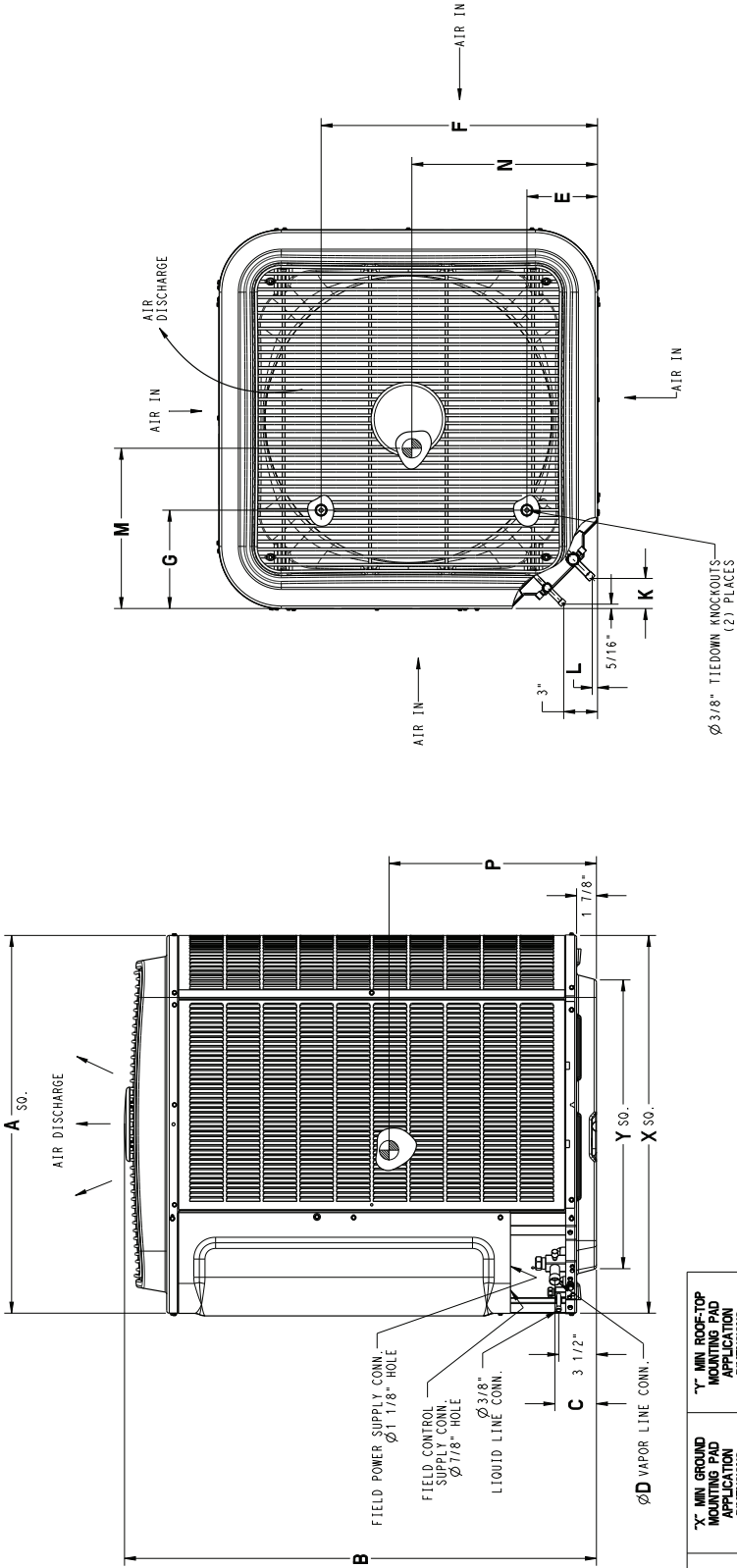
UNIT SIZE – VOLTAGE, SERIES	If a Connex Control is installed, subcooling recommendation displayed in Charging Mode must be followed. If not, subcooling chart shown on the charging label must be followed
024–A	
025–A	
036–A	
048–A	

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)	
288B024	A	X	0	0	23 1/8"	38 1/2"	3 3/4"	3/4"	4 7/16"	18 1/16"	7 13/16"	2 13/16"	10 3/4"	10 3/4"	18 1/4"	164	190	25 1/4" X 25 1/4" X 43 3/8"	
288B025	A	X	0	0	23 1/8"	38 1/2"	3 3/4"	3/4"	4 7/16"	18 1/16"	7 13/16"	2 13/16"	10 3/4"	10 3/4"	18 1/4"	164	190	25 1/4" X 25 1/4" X 43 3/8"	
288B036	A	X	0	0	23 1/8"	38 1/2"	3 3/4"	3/4"	4 7/16"	18 1/16"	7 13/16"	2 13/16"	10 3/4"	10 3/4"	18 1/4"	164	190	25 1/4" X 25 1/4" X 43 3/8"	
288B048	A	X	0	0	31 3/16"	38 15/16"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	14 1/2"	14 5/8"	18 3/4"	218	257	33 3/8" X 33 3/8" X 46 1/8"	

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

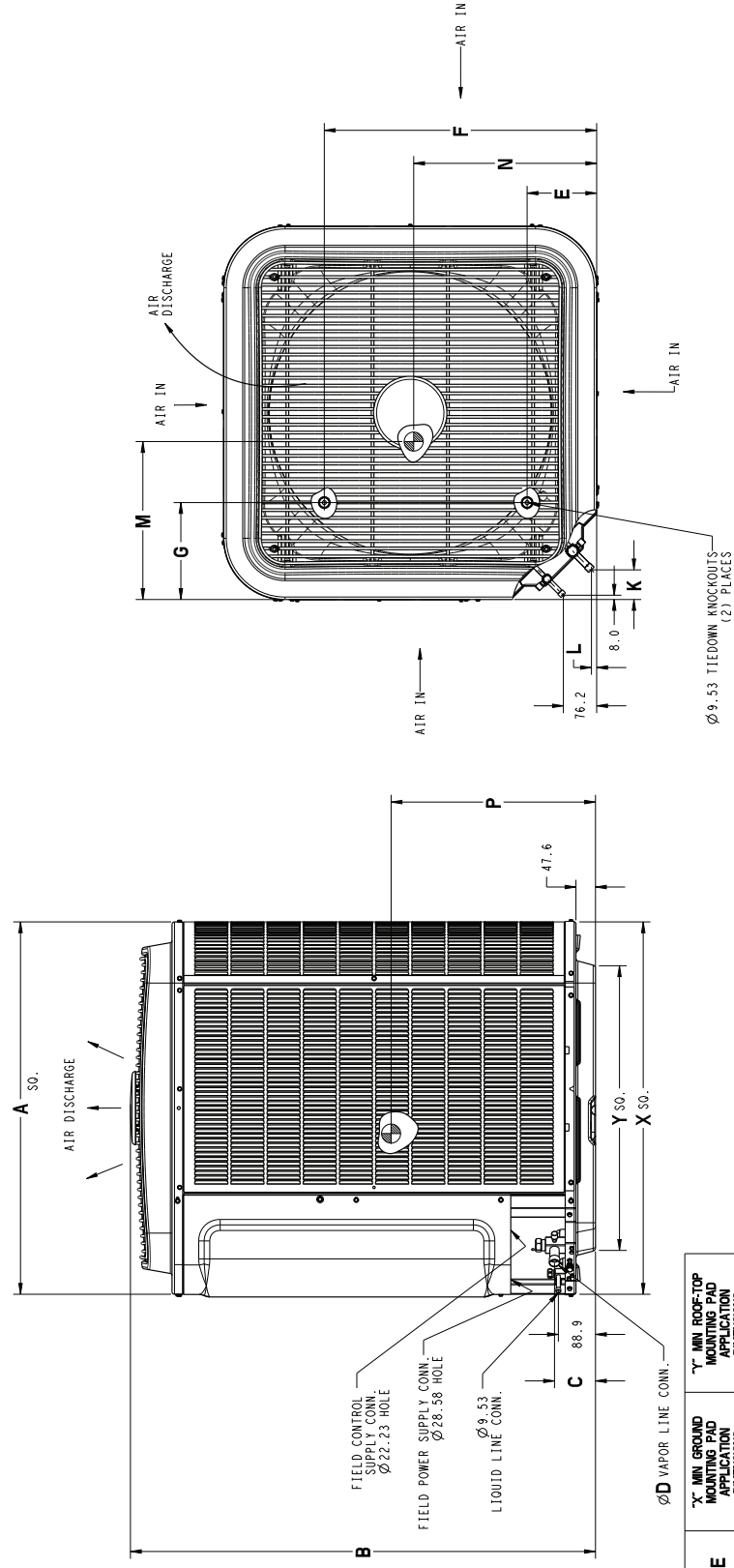


UNIT SIZE	"X" MIN GROUND MOUNTING PAD APPLICATION DIMENSIONS	"Y" MIN ROOF-TOP MOUNTING PAD APPLICATION DIMENSIONS
24, 25, 36	23 1/8"	17 3/4"
48	25 3/4"	20 7/16"
-	31 3/16"	23"
-	35"	26 3/4"

DIMENSIONS - SI

UNIT	SERIES	ELECTRICAL CHARACTERISTICS										A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	OPERATING WEIGHT (Kgs)	SHIPPING WEIGHT (Kgs)	SHIPPING DIMENSIONS (L x W x H)
2888024	A	X	0	0	0	0	0	0	0	0	587.3	980.1	96.1	19.1	112.7	456.8	198.4	71.4	12.7	273.1	273.1	273.1	463.6	463.6	74.4	86.2	641.5 X 641.5 X 1102.2		
2888025	A	X	0	0	0	0	0	0	0	0	587.3	980.1	96.1	19.1	112.7	456.8	198.4	71.4	12.7	273.1	273.1	273.1	463.6	463.6	74.4	86.2	641.5 X 641.5 X 1102.2		
2888036	A	X	0	0	0	0	0	0	0	0	587.3	980.1	96.1	19.1	112.7	456.8	198.4	71.4	12.7	273.1	273.1	273.1	463.6	463.6	74.4	86.2	641.5 X 641.5 X 1102.2		
2888048	A	X	0	0	0	0	0	0	0	0	792.2	988.5	98.4	22.2	166.7	627.1	231.8	74.6	15.9	368.3	371.5	371.5	476.3	476.3	98.9	116.6	846.6 X 846.6 X 1172.2		

X = YES
O = NO



UNIT SIZE	"X" MIN GROUND MOUNTING PAD APPLICATION DIMENSIONS	"Y" MIN ROOF-TOP MOUNTING PAD APPLICATION DIMENSIONS
24, 25, 36	587.4	451.3
-	654.0	518.5
48	792.2	583.2
-	889.0	679.7

288BNV

TESTED AHRI COMBINATION RATINGS*

Advance PD ratings shown below. Ratings will be available in AHRI ratings database 30 days prior to first production.

Outdoor Model	Indoor Model	Furnace Model	Cooling			Heating					
			Cooling Cap.	SEER	EER	ID CFM	HSPF	High Temp		Low Temp	
								Capacity 47° F (8° C)	COP	Capacity 17° F (–8° C)	COP
288BNV024–A	FE4AN(B,F)005L+UI		24,000	17.0	11.0	825	10.0	25,000	3.32	15,500	2.01
288BNV024–A	FV4CN(B,F)003L		23,200	15.5	11.0	700	8.0	25,000	2.97	15,500	2.00
288BNV025–A	FE4AN(B,F)005L+UI		24,000	18.0	12.5	825	10.0	26,800	3.56	19,900	2.58
288BNV025–A	FV4CN(B,F)003L		23,200	16.5	11.5	700	8.2	30,200	3.04	20,000	2.38
288BNV036–A	FE4AN(B,F)005+UI		34,200	17.5	10.5	1,050	10.5	34,200	3.56	23,000	2.58
288BNV036–A	FV4CN(B,F)005L		34,600	15.5	10.0	1,050	9.0	34,000	3.58	22,400	2.58
288BNV048–A	FE4AN(B,F)005L+UI		46,000	18.0	11.0	1,400	11.0	50,500	3.44	35,200	2.66

* 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

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

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.

AIR-COOLED, SPLIT-SYSTEM HEAT PUMP 288BNV

- 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.

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.
- Compliant with IEC 61000-4-5 Transient Surge Requirement.

Special Features

- Refer to section of this literature identifying accessories and descriptions for specific features and available enhancements.
- Evolution Connex 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 not qualified for low ambient cooling operation.
Minimum cooling outdoor operating temperatures:
 - Communicating systems: 40°F (4.44°C)
 - Non-communicating systems: 55°F (12.8°C)
3. The maximum outdoor operating ambient in cooling mode is 115°F (46.11°C).
4. Minimum outdoor operating air temperature for heating mode is 10°F (-12.2°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. This unit is qualified for up to 100 ft (30.5 m) equivalent length of line set without additional accessories.
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. Puron refrigerant TXV required on indoor coil.