PA13(N,P)R

SPLIT–SYSTEM AIR CONDITIONER
For Use With R–22 Refrigerant
1–1/2 TO 5 TONS (018 – 060)

Product Data

*Units factory–shipped with no refrigerant.
Dry nitrogen charge only.

FEATURES AND BENEFITS

AVAILABLE SIZES:

Nominal sizes are available from 018 through 060 to meet the needs of residential and light commercial applications. Factory charged with dry nitrogen (no refrigerant).

CERTIFICATION:

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

ELECTRICAL RANGE:

Units offered in single phase 208/230v are 018-060, three phase 208/230v in 036, 048 and 060.

FAN MOTOR:

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

CABINET:

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

UNIT DESIGN:

The copper tube, enhanced sine wave, aluminum fin coil is designed for optimum heat transfer. Vertical air discharge carries sound and hot condenser air up and away from adjacent patio areas and foliage. The base pan is designed for easy removal of water, dirt, and leaves.

COMPRESSOR:

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

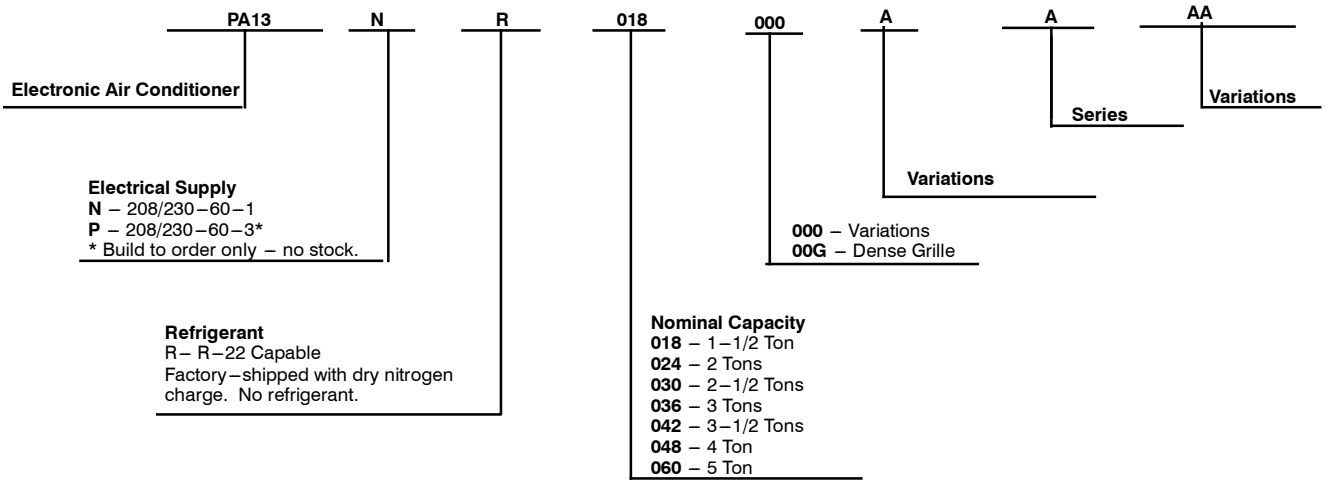
SERVICE VALVES:

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

SERVICEABILITY:

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

PRODUCT NUMBER NOMENCLATURE



AHRI CERTIFIED www.ahridirectory.org

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 9001:2000 QMI REGISTERED

ASHRAE 90.1 COMPLIANT

SPECIFICATIONS

UNIT SIZE	018	024	030	036	
ELECTRICAL					
Unit Volts—Hertz—Phase	208/230—60—1		208/230—60—1	208/230–60–1	208/230–60–3
Series	J / K	J / k	J / K	J / K	J
Operating Voltage Range*	187—253				
Compressor—Rated Load Amps	8.3	10.8	13.5	15.4	10.8
Locked Rotor Amps	40.3	56.3	68.3	87.0	73.0
Condenser Fan Motor— Full Load Amps	0.5	0.5	0.77	1.1	1.1
Min Unit Ampacity for Wire Sizing	10.9	14.0	17.7	20.4	14.6
Min Wire Size (60°/75° Copper) AWG**	14	14	14	12	14
Max Wire Length (60°/75°) ft (m)‡	72 / 68 (23.2 / 20.7)	56 / 54 (17.1 / 16.5)	46 / 42 (14.0 / 12.8)	60 / 57 (18.3 / 17.4)	53 / 50 (16.2 / 15.2)
Max Branch Circuit Fuse Size†	15	20	30	30	20
COMPRESSOR AND REFRIGERANT					
Compressor—Manufacturer	Copeland				
Type	Scroll				
Temperature and Current Protection	Internal Line Break				
Refrigerant (Field Installed)	R–22				
Field Installed Refrigerant— Amount Lb (kg) @ 15 ft (4.6 m) of lineset	3.56 (1.62)	4.08 (1.85)	4.11 (1.87)	5.35 (2.43)	
Refrigerant Tubes (In. OD) Vapor and Liquid (Up to 80 ft / 24.4 m)	3/4 and 3/8			7/8 and 3/8	
CONDENSER COIL AND FAN					
Coil Face Area (Sq Ft)	8.4	9.8	9.8	12.98	
Fan Motor—HP, Type, and RPM	1/12 PSC and 1100		1/10 PSC and 1100	1/5 PSC and 1100	
Volts—Hertz—Phase	208/230—60—1				
Condenser Airflow (CFM)	1700	1700	2000	3100	
OPTIONAL EQUIPMENT					
Cycle Protector	KSACY0101AAA				
Start Assist—PTC Type	KAACS0201PTC		N/A	KAACS0201PTC	N/A
Ball Bearing Fan Motor (RCD)	HC32GE234		HC34GE239	HC38GE219	
Compressor Sound Hood	KSASH1801COP				
Time–Delay Relay	KAATD0101TDR				
Evaporator Freeze Thermostat	KAAFT0101AAA				
Compressor Crankcase Heater	KAACH1401AAA				
Liquid Line Solenoid Valve††	KAALS0101LLS				
TXV (Hard Shutoff)††	KSATX0601HSO				
Liquid Line Filter Drier	KH43LZ036				

See notes on page 4

SPECIFICATIONS (CONT.)

UNIT SIZE	042	048		060	
ELECTRICAL					
Unit Volts—Hertz—Phase	208/230–60–1	208/230–60–1	208/230–60–3	208/230–60–1	208/230–60–3
Series	J / K	J / K	J	J / K	J
Operating Voltage Range*	187–253				
Compressor—Rated Load Amps	19.2	20.2	12.8	25.3	15.4
Locked Rotor Amps	112.0	137.0	98.0	146.0	114.0
Condenser Fan Motor— Full Load Amps	1.4	1.4	1.4	1.4	1.4
Min Unit Ampacity for Wire Sizing	25.4	26.7	17.4	33.0	20.7
Min Wire Size (60°/75° Copper) AWG**	10	10	14	8	12
Max Wire Length (60°/75°) ft (m)‡	77 / 76 (23.5 / 22.2)	74 / 70 (22.6 / 21.3)	44 / 42 (13.4 / 12.8)	94 / 90 (28.7 / 27.4)	60 / 57 (18.3 / 17.4)
Max Branch Circuit Fuse Size†	40	40	25	50	30
COMPRESSOR AND REFRIGERANT					
Compressor—Manufacturer	Copeland				
Type	Scroll				
Temperature and Current Protection	Internal Line Break				
Refrigerant Type (Field Installed)	R–22				
Field Installed Refrigerant— Amount Lb (kg) @ 15 ft (4.6 m) of lineset	7.01 (3.18)	8.88 (4.04)		10.52 (4.79)	
Refrigerant Tubes (In. OD) Vapor and Liquid (Up to 80 ft / 24.4 m)	7/8 and 3/8	1–1/8 and 3/8			
CONDENSER COIL AND FAN					
Coil Face Area (Sq Ft)	17.3	23.79		19.47	
Fan Motor—HP, Type, and RPM	1/4 PSC and 1100				
Condenser Airflow (CFM)	3400	3400		3400	
OPTIONAL EQUIPMENT					
Cycle Protector	KSACY0101AAA				
Start Assist—PTC Type	KAACS0201PTC	KAACS0201PTC	N/A	KAACS0201PTC	N/A
Ball Bearing Fan Motor (RCD)	HC40GE226				
Compressor Sound Hood	KSASH0601COP			KSASH2101COP	
Time–Delay Relay	KAATD0101TDR				
Evaporator Freeze Thermostat	KAAFT0101AAA				
Compressor Crankcase Heater	KAACH1201AAA				
Liquid Line Solenoid Valve††	KAALS0101LLS				
TXV (Hard Shutoff)††	KSATX0601HSO	KSATX0701HSO		KSATX1001HSO	
Liquid Line Filter Drier	KH43LZ034				

N/A – Not applicable in this application.

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

† Time–delay fuse or circuit breaker.

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

** If wire is applied at ambient greater than 30°C, refer to applicable tables available in 2011 NEC (NFPA 70). The ampacity of nonmetallic–sheathed cable (NM), trade name ROMEX, shall be that of 60°C conductors, per the 2011 NEC (NFPA 70) .

†† Do not use hard shutoff TXV with liquid solenoid valve.

Requires ball–bearing fan motor.

NOTES:

1. Control circuit is 24v on all units and requires external power source.
2. All motors/compressors contain internal overload protection.
3. Copper wire must be used from service disconnect to unit.

A-WEIGHTED SOUND POWER LEVEL

Unit Sise	Standard	TYPICAL OCTAVE BAND SPECTRUM (dBA without tone adjustment)						
	Rating (dBA)	125	250	500	1000	2000	4000	8000
018−J, K	76	52.5	60	63.5	67	64	60	57
024−J, K	76	52	58.5	64	67.5	64	60	55
030−J, K	77	53	60.5	70.5	73	66	62	60.5
036−J, K	76	59	66.5	70	70.5	68	65	59
042−J, K	80	60	67.5	71.5	75	71	67.5	62
048−J, K	80	65	67	71.5	74.5	70.5	69	65.5
060−J, K	80	63.5	68.5	72	73	72.5	70.5	68

Note: Tested in accordance with AHRI standard 270−2008 (Not listed with AHRI)

METERING DEVICE

UNIT SIZE−SERIES	INDOOR	REQUIRED SUB−COOLING °F (°C)
018−J, K	TXV*	8 (4.4)
024−J, K		10 (5.6)
030−J, K		
036−J, K		
042−J, K		
048−J, K		
060−J, K		

* TXV must be ordered separately when indoor coil is not equipped with a TXV. TXV must be hard−shutoff type.

PA13

RECOMMENDED TUBE DIAMETERS

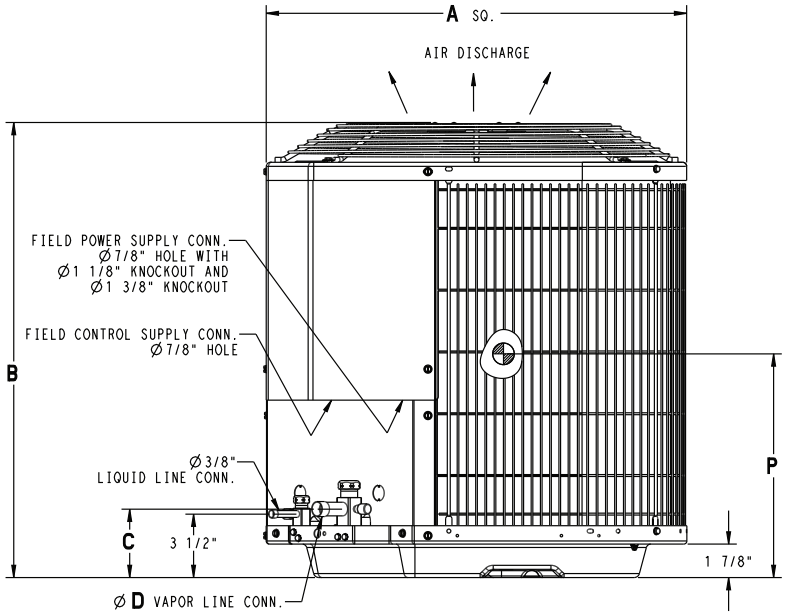
UNIT SIZE	TUBE LENGTH ft (m)*	LIQUID TUBE DIAMETER (In.)	VAPOR TUBE DIAMETER (In.)
018, 024, 030	0 to 80 (0 to 24.38)	3/8	3/4
036, 042			7/8
048, 060			1−1/8

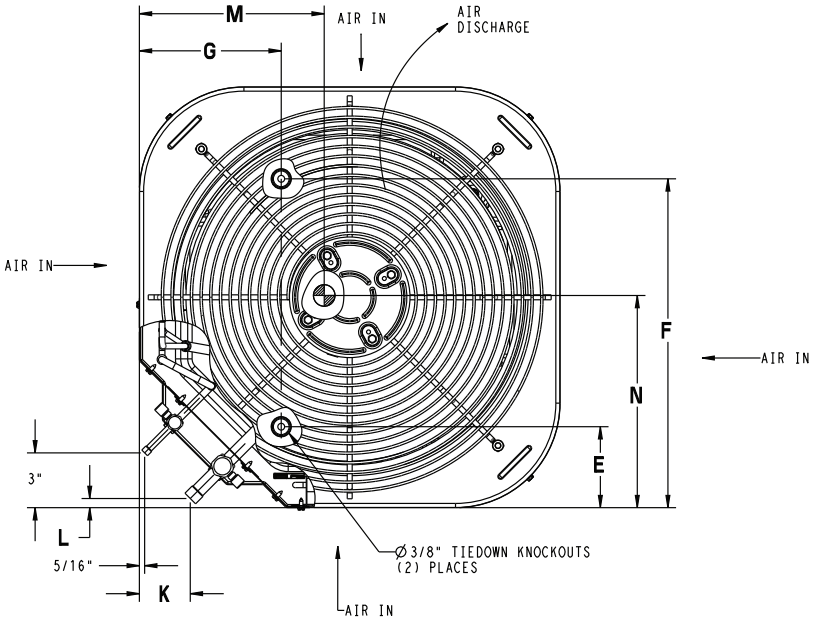
* For tube set over 80 ft (24.4 m) horizontal and/or 20 ft (6.10 m) vertical differential, consult Residential Piping and Long Line Guideline.

DIMENSIONS - SERIES J - 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)
PA13NR018	J	X	O	O	O	23 1/8"	24 13/16"	3 3/4"	3/4"	4 7/16"	18 1/16"	7 13/16"	2 13/16"	1/2"	12"	11 3/4"	11 7/8"	105.0	120.0	24 1/8" X 24 1/8" X 27 3/16"
PA13NR024	J	X	O	O	O	23 1/8"	28 7/16"	3 3/4"	3/4"	4 7/16"	18 1/16"	7 13/16"	2 13/16"	1/2"	12"	11 3/4"	12/1/2"	108.5	123.0	24 1/8" X 24 1/8" X 30 5/8"
PA13NR030	J	X	O	O	O	23 1/8"	28 7/16"	3 3/4"	3/4"	4 7/16"	18 1/16"	7 13/16"	2 13/16"	1/2"	12"	11 3/4"	12 7/8"	112.5	126.5	24 1/8" X 24 1/8" X 30 5/8"
PA13NR036	J	X	O	O	O	31 3/16"	24 13/16"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	16"	15 1/2"	11 5/8 "	135.0	157.0	32 3/16" X 32 3/16" X 27 3/16"
PA13PR036	J	O	O	X	O	31 3/16"	24 13/16"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	16"	15 1/2"	11 5/8"	135.0	157.0	32 3/16" X 32 3/16" X 27 3/16"
PA13NR042	J	X	O	O	O	31 3/16"	31 13/16"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	16"	15 1/2"	13 3/4"	164.5	188.0	32 3/16" X 32 3/16" X 34"
PA13NR048	J	X	O	O	O	31 3/16"	42"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	16"	15 1/2"	17"	174.0	208.0	32 3/16" X 32 3/16" X 44 1/4"
PA13PR048	J	O	O	X	O	31 3/16"	42"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	16"	15 1/2"	17"	174.0	208.0	32 3/16" X 32 3/16" X 44 1/4"
PA13NR060	J	X	O	O	O	31 3/16"	35 3/16"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	16"	15 1/2"	15 1/4"	208.0	233.0	32 3/16" X 32 3/16" X 37 7/16"
PA13PR060	J	O	O	X	O	31 3/16"	35 3/16"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	16"	15 1/2"	15 1/4"	208.0	233.0	32 3/16" X 32 3/16" X 37 7/16"
		208-230-1-60	230-1-60	208/230-3-60	460-3-60															

X = YES
O = NO





UNIT SIZE	MINIMUM MOUNTING PAD DIMENSIONS
18,24,30	23 1/2" X 23 1/2"
--	26" X 26"
36,42,48,60	31 1/2" X 31 1/2"
--	35" X 35"

DIMENSIONS - SERIES J - 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)
PA13NR018	J	X	O	O	O	587.4	630.2	95.2	19.0	112.7	458.8	198.4	71.4	12.7	304.8	298.4	301.6	47.6	54.4	612.8 X 612.8 X 690.6
PA13NR024	J	X	O	O	O	587.4	722.3	95.2	19.0	112.7	458.8	198.4	71.4	12.7	304.8	298.4	317.5	49.2	55.8	612.8 X 612.8 X 777.9
PA13NR030	J	X	O	O	O	587.4	722.3	95.2	19.0	112.7	458.8	198.4	71.4	12.7	304.8	298.4	327.0	51.0	57.4	612.8 X 612.8 X 777.9
PA13NR036	J	X	O	O	O	792.2	630.2	98.4	22.2	166.7	627.1	231.8	74.6	15.9	406.4	393.7	295.3	61.2	71.2	817.6 X 817.6 X 690.6
PA13PR036	J	O	O	X	O	792.2	630.2	98.4	22.2	166.7	627.1	231.8	74.6	15.9	406.4	393.7	295.3	61.2	71.2	817.6 X 817.6 X 690.6
PA13NR042	J	X	O	O	O	792.2	808.0	98.4	22.2	166.7	627.1	231.8	74.6	15.9	406.4	393.7	349.2	74.6	85.3	817.6 X 817.6 X 863.6
PA13NR048	J	X	O	O	O	792.2	1066.8	98.4	22.2	166.7	627.1	231.8	74.6	15.9	406.4	393.7	431.8	78.9	94.3	817.6 X 817.6 X 1124.0
PA13PR048	J	O	O	X	O	792.2	1066.8	98.4	22.2	166.7	627.1	231.8	74.6	15.9	406.4	393.7	431.8	78.9	94.3	817.6 X 817.6 X 1124.0
PA13NR060	J	X	O	O	O	792.2	893.8	98.4	22.2	166.7	627.1	231.8	74.6	15.9	406.4	393.7	387.4	94.3	105.7	817.6 X 817.6 X 950.9
PA13PR060	J	O	O	X	O	792.2	893.8	98.4	22.2	166.7	627.1	231.8	74.6	15.9	406.4	393.7	387.4	94.3	105.7	817.6 X 817.6 X 950.9
		208-230-1-60	230-1-60	208/230-3-60	460-3-60															

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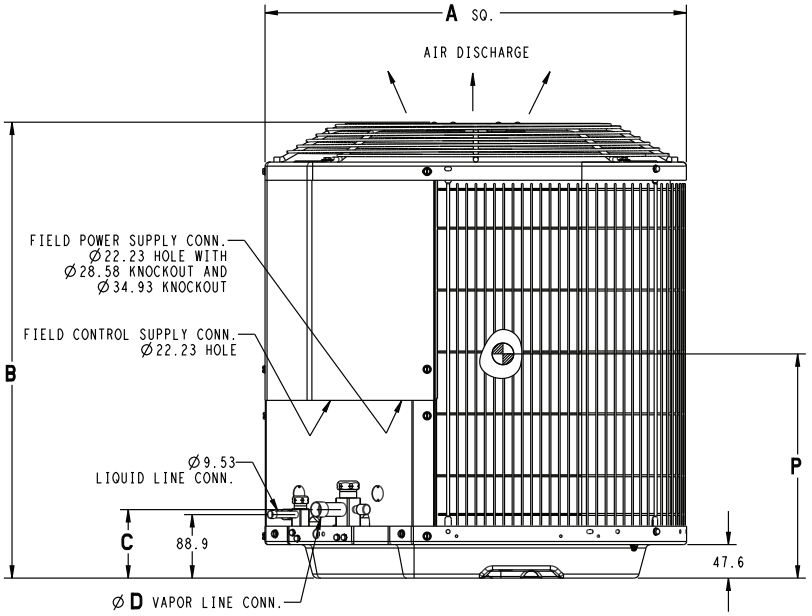
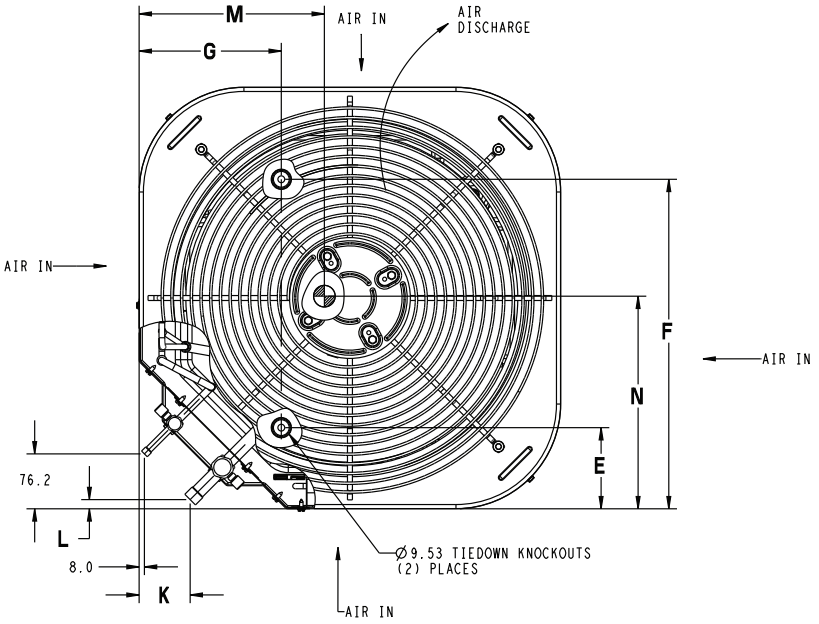


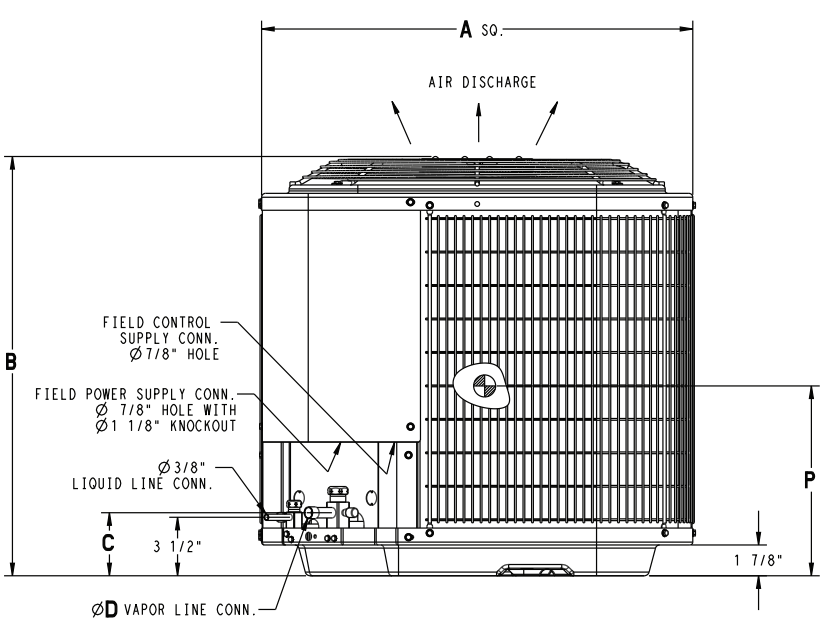


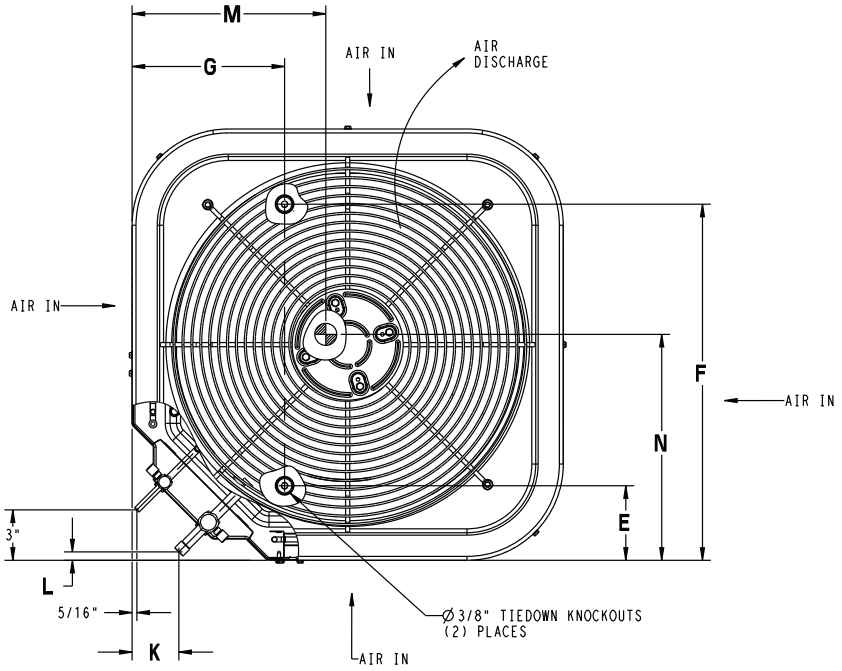
UNIT SIZE	MINIMUM MOUNTING PAD DIMENSIONS
18,24,30	596.9 X 596.9
--	660.4 X 660.4
36,42,48,60	800.1 X 800.1
--	889.0 X 889.0

DIMENSIONS - SERIES K - 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)
PA13NR018	K	X	O	O	O	23 1/8"	24 13/16"	3 3/4"	3/4"	4 7/16"	18 1/16"	7 13/16"	2 13/16"	1/2"	12"	11 3/4"	11 7/8"	105.0	120.0	24 1/8" X 24 1/8" X 27 3/16"
PA13NR024	K	X	O	O	O	23 1/8"	28 7/16"	3 3/4"	3/4"	4 7/16"	18 1/16"	7 13/16"	2 13/16"	1/2"	12"	11 3/4"	12/1/2"	108.5	123.0	24 1/8" X 24 1/8" X 30 5/8"
PA13NR030	K	X	O	O	O	23 1/8"	28 7/16"	3 3/4"	3/4"	4 7/16"	18 1/16"	7 13/16"	2 13/16"	1/2"	12"	11 3/4"	12 7/8"	112.5	126.5	24 1/8" X 24 1/8" X 30 5/8"
PA13NR036	K	X	O	O	O	31 3/16"	24 13/16"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	16"	15 1/2"	11 5/8 "	135.0	157.0	32 3/16" X 32 3/16" X 27 3/16"
PA13NR042	K	X	O	O	O	31 3/16"	31 13/16"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	16"	15 1/2"	13 3/4"	164.5	188.0	32 3/16" X 32 3/16" X 34"
PA13NR048	K	X	O	O	O	31 3/16"	42"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	16"	15 1/2"	17"	174.0	208.0	32 3/16" X 32 3/16" X 44 1/4"
PA13NR060	K	X	O	O	O	31 3/16"	35 3/16"	3 7/8"	7/8"	6 9/16"	24 11/16"	9 1/8"	2 15/16"	5/8"	16"	15 1/2"	15 1/4"	208.0	233.0	32 3/16" X 32 3/16" X 37 7/16"
		208-230-1-60	230-1-60	208/230-3-60	460-3-60															

X = YES
O = NO



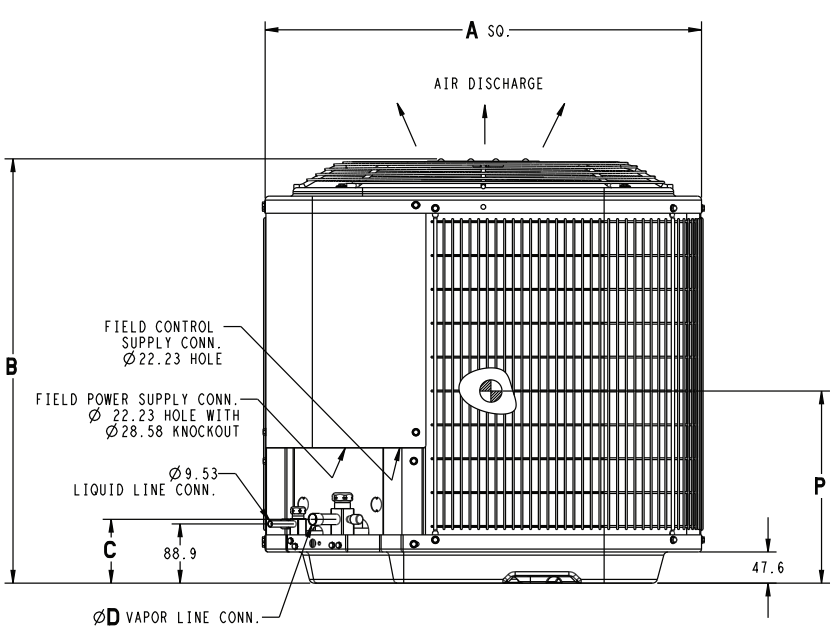


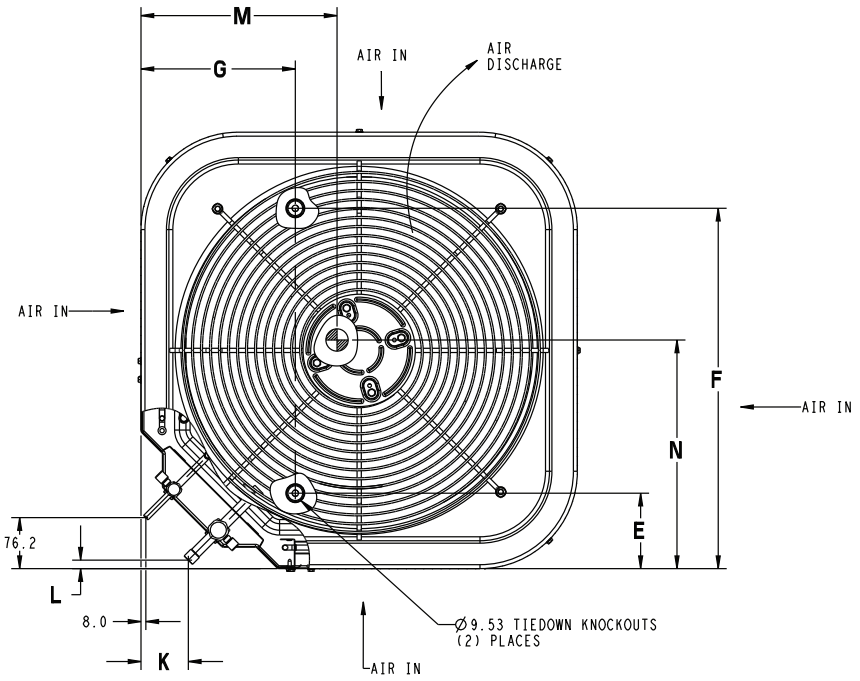
UNIT SIZE	MINIMUM MOUNTING PAD DIMENSIONS
18,24,30	23 1/2" X 23 1/2"
--	26" X 26"
36,42,48,60	31 1/2" X 31 1/2"
--	35" X 35"

DIMENSIONS - SERIES K - ENGLISH

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)
PA13NR018	K	X	O	O	O	587.4	630.2	95.2	19.0	112.7	458.8	198.4	71.4	12.7	304.8	298.4	301.6	47.6	54.4	612.8 X 612.8 X 690.6
PA13NR024	K	X	O	O	O	587.4	722.3	95.2	19.0	112.7	458.8	198.4	71.4	12.7	304.8	298.4	317.5	49.2	55.8	612.8 X 612.8 X 777.9
PA13NR030	K	X	O	O	O	587.4	722.3	95.2	19.0	112.7	458.8	198.4	71.4	12.7	304.8	298.4	327.0	51.0	57.4	612.8 X 612.8 X 777.9
PA13NR036	K	X	O	O	O	792.2	630.2	98.4	22.2	166.7	627.1	231.8	74.6	15.9	406.4	393.7	295.3	61.2	71.2	817.6 X 817.6 X 690.6
PA13NR042	K	X	O	O	O	792.2	808.0	98.4	22.2	166.7	627.1	231.8	74.6	15.9	406.4	393.7	349.2	74.6	85.3	817.6 X 817.6 X 863.6
PA13NR048	K	X	O	O	O	792.2	1066.8	98.4	22.2	166.7	627.1	231.8	74.6	15.9	406.4	393.7	431.8	78.9	94.3	817.6 X 817.6 X 1124.0
PA13NR060	K	X	O	O	O	792.2	893.8	98.4	22.2	166.7	627.1	231.8	74.6	15.9	406.4	393.7	387.4	94.3	105.7	817.6 X 817.6 X 950.9
		208-230-1-60	230-1-60	208/230-3-60	460-3-60															

X = YES
O = NO





UNIT SIZE	MINIMUM MOUNTING PAD DIMENSIONS
18,24,30	596.9 X 596.9
--	660.4 X 660.4
36,42,48,60	800.1 X 800.1
--	889.0 X 889.0

OPTIONAL EQUIPMENT 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)
Ball Bearing Fan Motor	Yes†	No	No
Compressor Start Assist Capacitor and Relay	Yes	Yes	No
Crankcase Heater	Yes	Yes	No
Evaporator Freeze Thermostat	Yes	No	No
Hard Shut–Off TXV	Yes	Yes	Yes
Liquid Line Solenoid Valve	No	No	No
Low–ambient Switch	Yes	No	No
Support Feet	Recommended	No	Recommended

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

† Required for Low–Ambient Controller (full modulation feature) MotorMaster® Control.

Accessory Description and Usage (Listed Alphabetically)

1. Ball-Bearing Fan Motor

A fan motor with ball bearings which permits speed reduction while maintaining bearing lubrication.

Usage Guideline:

Required on all units when MotorMaster® is used.

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. Cycle Protector

The cycle protector is designed to prevent compressor short cycling. This control provides an approximate 5-minute delay after power to the compressor has been interrupted for any reason, including power outage, protector control trip, thermostat jiggling, or normal cycling.

5. 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.

6. Outdoor Air Temperature Sensor

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

7. Sound Hood

Wraparound sound reducing cover for the compressor. Reduces the sound level by about 2 dBA.

Usage Guideline:

Suggested when unit is installed closer than 15 ft (4.57 m) to quiet areas, bedrooms, etc.

Suggested when unit is installed between two houses less than 10 ft (3.05 m) apart.

8. Support Feet

Four stick-on plastic feet that raise the unit 4 in. (101.6 mm) above the mounting pad. This allows sand, dirt, and other debris to be flushed from the unit base, minimizing corrosion.

Usage Guideline:

Suggested in the following applications:

Coastal installations.

Windy areas or where debris is normally circulating.

Rooftop installations.

For improved sound ratings.

9. 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.

Kit includes valve, adapter tubes, and external equalizer tube. Hard shut off types are available.

NOTE: When using a hard shut off TXV with single phase reciprocating compressors, a Compressor Start Assist Capacitor and Relay is required.

Usage Guideline:

Required to achieve AHRI ratings in certain equipment combinations. Refer to combination ratings.

Hard shut off TXV or LLS required in air conditioner long line applications.

Required for use on all zoning systems.

10. 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:

For improved efficiency ratings for certain combinations of indoor and outdoor units. Refer to AHRI Unitary Directory.

11. Winter Start Control

This control is designed to alleviate nuisance opening of the low-pressure switch by bypassing it for the first 3 minutes of operation.

SYSTEM DESIGN

1. Intended for outdoor installation with free air inlet and outlet. Outdoor fan external static pressure available is less than 0.01-in. w.c.
2. Minimum outdoor operating air temperature without low-ambient operation accessory is 55°F (12.8°C).
3. Maximum outdoor operating air temperature is 115°F (46.1°C).
4. For reliable operation, unit should be level in all horizontal planes.
5. Maximum elevation of indoor coil above or below base of outdoor unit is: indoor coil above = 80 ft (24.38 m), indoor coil below = 200 ft (60.96 m).
6. For interconnecting refrigerant tube lengths greater than 80 ft (24.38 m) horizontal or 20 ft (6.10 m) vertical differential, consult Residential Split System Long-Line Application Guideline available from equipment distributor.
7. Crankcase heater required when interconnecting refrigerant tube length exceeds 80 ft (24.38 m).
8. If any refrigerant tubing is buried, provide a minimum 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.
9. Use only copper wire for electric connection at unit. Aluminum and clad aluminum are not acceptable for the type of connector provided.

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