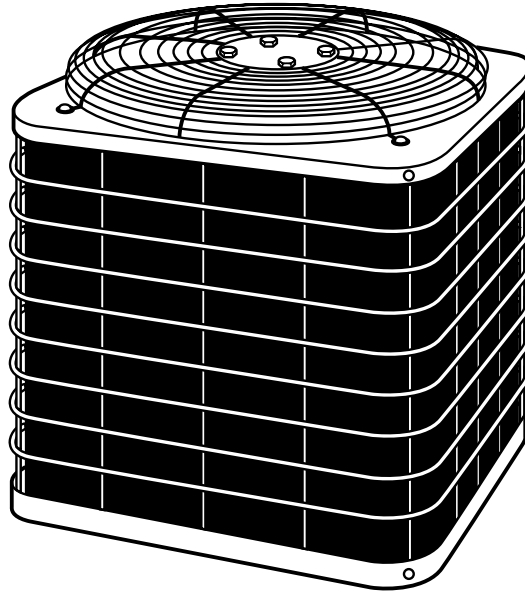




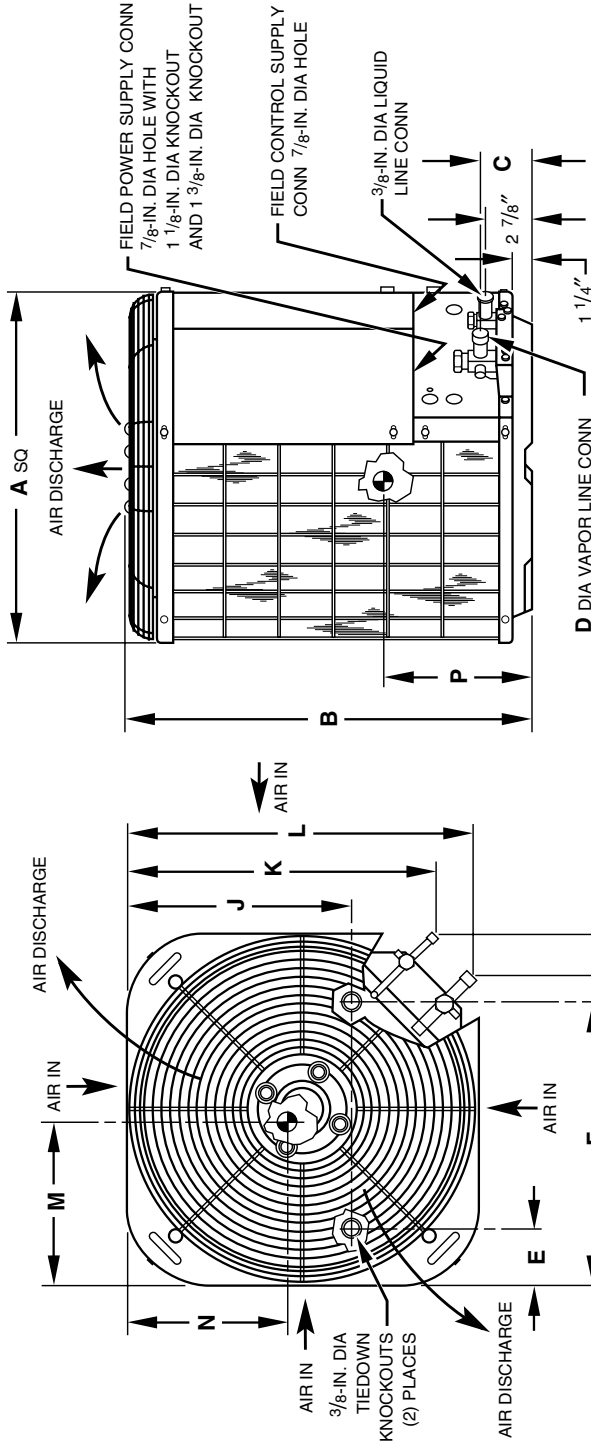
MODEL PH10 10 SEER 3 PHASE HEAT PUMP UNIT SIZES 048, 060 — 4 AND 5 NOMINAL TONS

Product Data



FEATURES

AVAILABLE	Nominal sizes are available in 048 and 060 sizes to meet the needs of light commercial applications.	3-PHASE (SCROLL COMPRESSOR UNITS) MONITOR BOARD	Control board that monitors the electrical phase and prevents compressor operation if wired incorrectly.
EFFICIENCY:	With SEER of at least 10.0 and HSPF of 7.0, these heat pump systems provide economy of operation through energy conservation. They recover heat for indoor comfort from outdoor air during the heating season and, by automatically reversing the refrigerant system, remove indoor heat and excess humidity during the cooling season.	DISCHARGE MUFLER	Minimizes low frequency sound and pressure pulsation generated by compressor discharge gas.
CERTIFICATION:	All models are listed with UL, (U.S. and Canada), ARI, and CEC.	DEFROST CONTROL BOARD:	Incorporates a defrost relay, defrost timer and low-voltage terminations. The defrost control is a time/temperature initiation/termination control which includes 3 field-selectable time periods of 30, 60, and 90 minutes. The control includes built-in 5-minute compressor delay.
ELECTRICAL	Units are offered in 208–230v 3 phase in the 048 and 060 sizes.	COMPRESSOR:	Designed specifically for heat pump duty, with energy efficiency during heating and cooling operation. Each compressor is hermetically sealed against contamination to assure long life and dependable performance and externally mounted on rubber isolators for quiet operation. Continuous compressor operation is approved down to -30°F (-34°C) in the heating mode and down to 55°F (12.8°C) in the cooling mode. For improved serviceability, all models are equipped with a compressor terminal plug.
FAN MOTOR:	The totally enclosed fan motor means greater reliability under adverse weather conditions and dependable performance for many years. Permanent split capacitor type motors provide more economical operation.	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.
CABINET:	The prepainted steel cabinet 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.	SERVICEABILITY:	One panel provides access to electrical controls. Removal of top gives access to fan motor, compressor, and condenser coil.
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.	LIMITED WARRANTY:	Standard 1-year limited warranty on all parts and 5-year limited warranty on compressor parts.
COMPONENTS:	Includes a suction-tube accumulator that minimizes the amount of liquid refrigerant reaching the compressor; a low-pressure switch that stops the compressor if refrigerant charge is lost; and an internal compressor relief valve on all sizes.		



NOTES:

1. Allow 30 in. clearance to service side of unit, 48 in. above unit, 6 in. on one side, 12 in. on remaining side, and 24 in. between units for proper airflow.
2. Minimum outdoor operating ambient in cooling mode is 55°F, max. 125°F.
3. Maximum outdoor operating ambient in heating mode is 66°F.
4. Series designation is the 14th position of the unit model number.
5. Center of gravity

A97071

DIMENSIONS (IN.)

UNIT SIZE	SERIES	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Min Mounting PAD Dim (in.)
048	A	30	39-15/16	3-1/4	7/8	6-1/2	23-1/2	27-1/2	29-1/8	20	26-3/8	29-9/16	15	15-3/4	15-1/2	30 x 30
060	A	30	39-15/16	3-1/4	7/8	6-1/2	23-1/2	27-1/4	29-1/8	20	26-3/8	29-9/16	13-3/4	15-5/8	15	30 x 30

SPECIFICATIONS

UNIT SIZE-SERIES	048-A	060-A
Operating Weight (Lb)	221	238
Shipping Weight (Lb)	242	260
ELECTRICAL		
Unit Volts—Phase—Hertz	208-230—3—60	208-230—3—60
Operating Voltage Range	187—253	187—253
Unit Ampacity for Wire Sizing (MCA)	17.5	27.3
Min Wire Size 60°C Copper (AWG)*	14	10
Min Wire Size 75°C Copper (AWG)*	14	10
Max Wire Length 60°C Copper (Ft)†	51	82
Max Wire Length 75°C Copper (Ft)†	48	78
Max Branch Circuit Fuse Size (Amps)	25	35
Compressor Rated Load Amps	12.9	20.7
Compressor Locked Rotor Amps	91.0	137.0
Fan Motor Full Load Amps	1.4	1.4
COMPRESSOR AND REFRIGERANT		
Compressor Type	Scroll	
Refrigerant Type	R-22	
Refrigerant Charge (Lb)	9.38	10.50
OUTDOOR COIL & FAN		
Coil Face Area (Sq Ft)	22.40	
Coil Fins per In.—Rows—Circuits	20—1—4	25—1—5
Fan Motor HP	1/4	1/4
Fan Motor RPM	1100	1100
Rated Airflow (CFM)	3300	3300
OPTIONAL EQUIPMENT		
Time-Delay Relay	KAATD0101TDR	
Outdoor Thermostat	KHAOT0301FST	
Secondary Outdoor Thermostat	KHAOT0201SEC	
Cycle Protector	KSACY0101AAA	
Compressor Crankcase Heater	Standard	Standard
Compressor Start Assist— Capacitor/Relay	N/A	N/A
Compressor Start Thermistor—PTC	N/A	N/A
Compressor Sound Hood	KSASH2101COP	
TXV Kits (Hard Shutoff)	KSATX0701HSO	KSATX1001HSO
High-Pressure Switch	KHAHI0101HPS	
Low-Ambient Pressure Switch	KSALA0201R22	
MotorMaster® Control	KSALA0401AAA	
Ball Bearing Fan Motor	HC40GE232	
Filter Drier (RCD)	P504-8163S	
Evaporator Freeze Thermostat‡‡	KAAFT0101AAA	
Isolation Relay‡‡	KHAIR0101AAA	
Liquid-Line Solenoid Valve	KHALS0401LLS	
Thermostat, Auto Changeover, Non-Programmable, °F/°C, 1-Stage Heat, 1-Stage Cool	TSTATPPBHP01-A	
Thermostat, Auto Changeover, 7-Day Programmable, °F/°C, 1-Stage Heat, 1-Stage Cool	TSTATPPPHP01-A	
Outdoor Air Temperature Sensor (For Programmable Thermostat)	TSTATXXSEN01-B	
Backplate for Non-Programmable Thermostat	TSTATXXBBP01	
Backplate for Programmable Thermostat	TSTATXXPBP01	
Thermostat Conversion Kit (4 to 5 Wire) — 10 pack	TSTATXXCNCV10	

* The ampacity of non-metallic (NM) sheathed cable shall be that of 60°C (140°F) conductors per NEC 1999, Article 336-26. If wire used is other than specified in chart, refer to applicable tables available in 1999 NEC. Copper wire must be used from disconnect to unit.

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

‡ Units may use fuses or circuit breakers (U.S. only).

‡‡ Consult low-ambient control Installation Instructions for application.

N/A—Not Applicable

REFRIGERANT METERING DEVICE AND LINE SET DATA

UNIT SIZE-SERIES	048-A	060-A
METERING DEVICE		
Outdoor Piston Size	70	86
Indoor Piston Size*	76	96
Required Subcooling (°F)†	15	10
REFRIGERANT LINE CONNECTION DIAMETERS (IN. ID)		
Liquid Line	3/8	
Vapor Line	7/8	7/8
REFRIGERANT LINE DIAMETERS (IN. OD)		
Liquid Line (All Applications Maximum Diameter)	3/8	
Vapor Line (0–80 Ft Line Lengths)	7/8	1-1/8
Vapor Line (Long-Line Applications Maximum Diameter)	1-1/8	1-1/8

* Piston listed is for any approved coil combination.

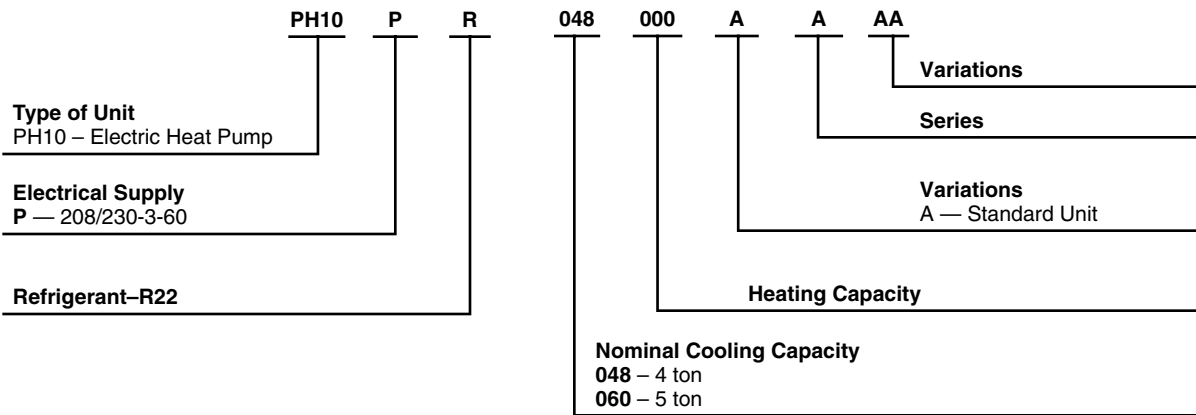
† Charging subcooling for indoor TXV-type expansion device.



SOUND RATING (dBA)

UNIT SIZE-SERIES	SOUND RATING
048-A	80
060-A	80

MODEL NUMBER NOMENCLATURE



OPTIONAL EQUIPMENT USAGE GUIDELINE

ACCESSORY	REQUIRED FOR LOW-AMBIENT APPLICATIONS (Below 55°F)	REQUIRED FOR LONG-LINE APPLICATIONS* (Over 80 Ft)
Crankcase Heater	Yes	Yes
Evaporator Freeze Thermostat	Yes	No
Accumulator	No	No
MotorMaster® Control or Low-Ambient Pressure Switch	Yes	No
Wind Baffle	See Low-Ambient Instructions	No
Support Feet	Recommended	No
Liquid-Line Solenoid Valve or Hard Shutoff TXV	No	See Long-Line Application Guideline
Ball Bearing Fan Motor	Yes‡	No

* For tubing line sets between 80 and 200 ft (250 ft total equivalent length), refer to the Residential Split-System Long-Line Application Guideline.

‡ Required for low-ambient controller (full modulation feature) and MotorMaster® Control only.

OPTIONAL EQUIPMENT DESCRIPTION AND USAGE (Listed Alphabetically)

- 1. Ball Bearing Fan Motor**
A fan motor with ball bearings which permits speed reduction while maintaining bearing lubrication.
SUGGESTED USE: Required on all units where Low-Ambient Controller (full modulation feature) or MotorMaster® Control has been added.
- 2. Compressor 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 chance of refrigerant slugging. May or may not include a thermostat control.
SUGGESTED USE: When interconnecting tube length exceeds 80 ft.
When unit will be operated below 55°F (12.8°C) outdoor air temperature. (Use with low-ambient controller.)
All commercial installations.
- 3. Compressor Sound Hood**
Wraparound sound attenuation cover for the compressor. Reduces unit sound level by about 2 dBA.
SUGGESTED USE: Unit installed closer than 15 ft to quiet areas—bedrooms, etc.
Unit installed between 2 houses less than 10 ft apart.
- 4. Cycle Protector**
Solid-state timing device which prevents compressor rapid recycling. Control provides an approximate 5-minute delay after power to the compressor has been interrupted for any reason, including normal room thermostat cycling.
SUGGESTED USE: Installations in areas where power interruptions are frequent.
Where user is likely to play with room thermostat.
All commercial installations.
Installations where interconnecting tube length exceeds 80 ft.
High-rise applications.
- 5. Evaporator Freeze Thermostat**
An SPST temperature actuated switch which stops unit operation when evaporator reaches freeze-up conditions.
SUGGESTED USE: All units where Low-Ambient Controller has been added.
- 6. Filter Drier—Bi-Flow**
A device for removing contaminants from refrigerant circulating in a heat pump system: 2-direction flow.
SUGGESTED USE: All field-connected split-system heat pumps.
- 7. High-Pressure Switch**
Auto reset SPST switch activated by refrigerant pressure on high side of refrigerant circuit. Cycles compressor off if refrigerant pressure rises to about 426 ± 7 psig and resets at 320 ± 20 psig. Provides protection against compressor damage due to loss of outdoor airflow. To prevent rapid compressor recycling, Cycle Protector can be used with this switch.
SUGGESTED USE: Installations exposed to very “dirty” outdoor air.
Installations where condenser inlet air temperature exceeds 125°F (51.7°C).
- 8. Isolation Relay**
An SPDT relay which switches the Low-Ambient Controller out of the outdoor fan motor circuit when the heat pump switches to heating mode.
SUGGESTED USE: All heat pumps where Low-Ambient Controller has been added.
- 9. Liquid-Line Solenoid Valve**
An electrically operated shutoff valve to be installed at the outdoor or indoor unit (depending on tubing configuration) which stops and starts refrigerant liquid flow in response to compressor operation. Maintains a column of refrigerant liquid ready for action at next compressor operation cycle.
SUGGESTED USE: For improved system performance in heat pumps for certain combinations of indoor and outdoor units. Refer to ARI Unitary Directory.
In certain long-line applications. Refer to the Residential Split System Long-Line Application Guideline.
- 10. Low-Ambient Pressure Switch**
A long life pressure switch which is mounted to outdoor unit service valve. It is designed to cycle the outdoor fan motor in order to maintain head pressure within normal operating limits (approximately 100 psig to 225 psig). The control will maintain working head pressure at low-ambient temperatures down to 0°F (–17.8°C) when properly installed.
SUGGESTED USE: Cooling operation at outdoor temperatures below 55°F (12.8°C).
- 11. MotorMaster® Control**
A fan speed control device activated by a temperature sensor. Designed to control condenser fan motor speed in response to the saturated, condensing temperature during operation in cooling mode only. For outdoor temperatures down to –20°F, it maintains condensing temperature at 100°F ± 10°F.
SUGGESTED USE: Cooling operation at outdoor temperatures below 55°F (12.8°C).
All commercial installations.
- 12. Outdoor Air Temperature Sensor**
A device that allows the temperature at a remote location (outdoors) to be displayed at the thermostat.
SUGGESTED USE: All Payne programmable thermostats.
- 13. Outdoor Thermostat**
An SPDT temperature-actuated switch which turns on supplemental electric heaters when outdoor air temperature drops below set point.
SUGGESTED USE: Heat pump installations with multiple-stage supplemental heaters.
- 14. Secondary Outdoor Thermostat**
An SPDT temperature actuated switch which turns on third-stage of supplemental electric heaters when outdoor air temperature drops below the second-stage set point.
SUGGESTED USE: Heat pump installations where 3-stage operation of supplemental heaters is desired.
- 15. 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. Kit includes valve, adapter tubes, and external equalizer tube.
SUGGESTED USE: For improved system performance in cooling mode for certain combinations of indoor and outdoor units. Refer to ARI Unitary Directory.
- 16. Time-Delay Relay**
An SPST delay relay which briefly continues operation of the indoor blower motor to provide additional cooling after the compressor cycles off.
SUGGESTED USE: For improved efficiency ratings for certain combinations of indoor and outdoor units. Refer to ARI Unitary Directory.

COMBINATION RATINGS

UNIT SIZE-SERIES	INDOOR UNIT	ARI STANDARD RATINGS**										
		Cooling						Heating				
		TC	SEER				EER	High-Temp		Low-Temp		HSPF
			Factory-Supplied Enhancement	Standard Rating	Accessory TXV	Payne Gas Furnace or Accessory TDR†		TC	COP	TC	COP	
PH10 048-A	*PF1MNB048	45,500	TDR	10.00	—	—	9.15	47,000	3.20	30,200	2.34	7.20
	CAR**4817A**	45,000	TXV	—	—	10.00	9.20	46,500	3.28	28,600	2.44	7.20
	CAR**4821A**	45,000	TXV	—	—	10.00	9.20	46,500	3.28	29,000	2.44	7.20
	CAR**4824A**	45,000	TXV	—	—	10.00	9.20	46,500	3.28	29,000	2.44	7.20
	CAR**6021A**	47,000	TXV	—	—	10.20	9.50	45,500	3.30	29,000	2.46	7.20
	CAR**6024A**	47,000	TXV	—	—	10.20	9.40	45,500	3.30	29,000	2.46	7.20
	CC5A/CD5AA060	45,000	NONE	—	10.00	10.00	9.25	46,500	3.06	29,800	2.30	7.20
	CC5A/CD5AC048	43,500	NONE	—	10.00	10.00	9.15	46,000	2.94	29,400	2.26	7.00
	CC5A/CD5AW048	45,000	NONE	—	10.00	10.00	9.15	46,500	3.12	29,800	2.32	7.20
	CC5A/CD5AW060	46,000	NONE	—	10.00	10.00	9.40	47,000	3.22	29,800	2.36	7.20
	CD5AA048	45,000	NONE	—	10.00	10.00	9.20	46,500	3.12	29,800	2.32	7.20
	CE3AA048	45,000	NONE	—	10.00	10.00	9.35	47,000	3.12	29,600	2.34	7.20
	CE3AA060	46,000	NONE	—	10.00	10.00	9.45	47,000	3.18	29,800	2.38	7.50
	CF5AA048	44,500	NONE	—	10.00	10.00	9.30	46,500	2.94	29,000	2.28	7.20
	CK3BA048	45,000	NONE	—	10.00	10.00	9.25	46,500	3.16	29,800	2.36	7.20
	CK3BA060	45,000	NONE	—	10.00	10.00	9.40	46,500	3.30	30,000	2.40	7.20
	CK5A/CK5BA048	45,000	NONE	—	10.00	10.00	9.25	46,500	3.16	29,800	2.36	7.20
	CK5A/CK5BA060	45,000	NONE	—	10.00	10.00	9.40	46,500	3.30	30,000	2.40	7.20
	CK5A/CK5BT048	45,000	NONE	—	10.00	10.00	9.25	46,500	3.16	29,800	2.36	7.20
	CK5A/CK5BT060	45,000	NONE	—	10.00	10.00	9.40	46,500	3.30	30,000	2.40	7.20
	CK5A/CK5BW048	45,000	NONE	—	10.00	10.00	9.25	46,500	3.16	29,800	2.36	7.20
	CK5A/CK5BX060	46,000	NONE	—	10.00	10.00	9.50	47,000	3.28	30,000	2.42	7.20
	CNRV*4821A**	45,000	TXV	—	—	10.00	9.20	46,500	3.28	29,000	2.44	7.20
	CNRV*4824A**	45,000	TXV	—	—	10.00	9.20	46,500	3.28	29,000	2.44	7.20
	CNRV*6024A**	47,000	TXV	—	—	10.20	9.50	45,500	3.28	29,000	2.46	7.20
	CNRH*4821A**	46,000	TXV	—	—	10.00	9.40	46,500	3.28	29,000	2.44	7.20
	CNRH*6024A**	47,000	TXV	—	—	10.20	9.50	45,500	3.28	29,000	2.46	7.20
	CNRF*4818A**	45,000	TXV	—	—	10.00	9.20	46,000	3.18	28,600	2.40	7.20
	CSRH*4812A**	46,000	TXV	—	—	10.00	9.20	46,500	3.32	29,000	2.46	7.20
	CSRH*6012A**	47,000	TXV	—	—	10.20	9.50	45,500	3.36	29,000	2.48	7.20
PF1MNB060	46,500	TDR	10.00	—	—	9.20	47,000	3.22	30,400	2.36	7.50	
PF1MNB070	47,000	TDR	10.00	—	—	9.45	42,500	3.30	30,400	2.42	7.50	
PF1MNC048	46,000	TDR&TXV	10.00	—	—	9.30	47,000	3.30	29,400	2.44	7.20	
PF1MNC060	47,000	TDR&TXV	10.00	—	—	9.40	46,000	3.32	29,400	2.44	7.20	
060-A	*PF1MNB060	56,000	TDR	10.10	—	—	9.00	58,000	3.16	38,500	2.38	7.50
	CAR**6021A**	55,000	TXV	—	—	10.20	9.40	56,000	3.20	38,500	2.48	7.20
	CAR**6024A**	56,000	TXV	—	—	10.50	9.40	55,000	3.18	39,000	2.48	7.20
	CC5A/CD5AA060	53,500	NONE	—	10.20	10.20	9.15	56,000	2.94	37,200	2.30	7.00
	CC5A/CD5AW060	55,500	NONE	—	10.50	10.50	9.30	56,500	3.14	37,600	2.40	7.50
	CE3AA060	56,000	NONE	—	10.20	10.20	9.35	56,500	3.16	37,600	2.40	7.50
	CK3BA060	53,500	NONE	—	10.20	10.20	9.30	56,000	3.06	37,200	2.36	7.00
	CK5A/CK5BA060	53,500	NONE	—	10.20	10.20	9.30	56,000	3.06	37,200	2.36	7.00
	CK5A/CK5BT060	53,500	NONE	—	10.20	10.20	9.30	56,000	3.06	37,200	2.36	7.00
	CK5A/CK5BX060	55,500	NONE	—	10.50	10.50	9.40	56,500	3.20	37,800	2.42	7.50
	CNRV*6024A**	56,000	TXV	—	—	10.50	9.40	56,000	3.26	39,000	2.48	7.20
	CNRH*6024A**	56,000	TXV	—	—	10.50	9.40	56,000	3.26	39,000	2.48	7.20
	CSRH*6012A**	56,000	TXV	—	—	10.50	9.50	56,000	3.30	39,000	2.50	7.20
	PF1MNB070	56,500	TDR	10.50	—	—	9.00	57,000	3.32	38,000	2.46	7.50
	PF1MNC060	57,000	TDR&TXV	10.50	—	—	9.50	56,500	3.22	39,000	2.46	7.50

* Outdoor section/indoor section combination tested in accordance with DOE test procedures for heat pumps. Ratings for other combinations are determined under DOE computer simulation procedures.

† In most cases, only 1 method should be used to achieve TDR function. Using more than 1 method in a system may cause degradation in performance. Use either the accessory Time-Delay Relay KAATD0101TDR or a furnace equipped with TDR. All Payne furnaces are equipped with TDR.

‡ Requires hard shutoff TXV; based on computer simulation.

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

Low-Temperature Heating Standard: 70°F (21°C) db indoor entering air temperature and 17°F (-9°C) db, 15°F (-10°C) wb air entering outdoor unit.

COP — Coefficient of Performance

EER — Energy Efficiency Ratio

HSPF — Heating Seasonal Performance Factor

SEER — Seasonal Energy Efficiency Ratio

TC — Total Capacity (Btu/h)

TDR — Time-Delay Relay

TXV — Thermostatic Expansion Valve

DETAILED COOLING CAPACITIES*

EVAP AIR		CONDENSER ENTERING AIR TEMPERATURES °F											
		85			95			105			115		
		Capacity MBtu/h†		Total Sys kW**	Capacity MBtu/h†		Total Sys kW**	Capacity MBtu/h†		Total Sys kW**	Capacity MBtu/h†		Total Sys kW**
CFM	EWB	Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
PH10PR048-A Outdoor Section With PF1MNB048 Indoor Section													
1500	72	51.2	26.1	4.53	48.8	25.3	4.96	46.4	24.4	5.44	43.7	23.5	5.95
	67	46.9	33.8	4.44	44.7	32.9	4.87	42.4	32.0	5.33	40.0	31.0	5.84
	63††	43.7	32.8	4.38	41.6	31.9	4.80	39.4	30.9	5.26	37.0	29.9	5.75
	62	43.2	41.0	4.37	41.2	40.0	4.79	39.2	38.8	5.25	37.1	37.1	5.76
	57	42.5	42.5	4.35	40.8	40.8	4.78	39.0	39.0	5.25	37.1	37.1	5.76
1600	72	51.5	26.7	4.58	49.1	25.9	5.01	46.6	25.0	5.49	43.9	24.1	6.00
	67	47.3	34.8	4.49	45.0	33.9	4.92	42.6	33.0	5.39	40.2	32.0	5.89
	63††	44.0	33.7	4.42	41.8	32.8	4.85	39.6	31.8	5.31	37.2	30.8	5.80
	62	43.6	42.3	4.42	41.6	41.1	4.84	39.6	39.6	5.31	37.7	37.7	5.82
	57	43.2	43.2	4.41	41.5	41.5	4.84	39.6	39.6	5.31	37.7	37.7	5.82
1700	72	51.8	27.3	4.63	49.4	26.4	5.06	46.8	25.5	5.54	44.1	24.6	6.05
	67	47.6	35.8	4.54	45.3	34.9	4.97	42.9	34.0	5.44	40.4	33.0	5.94
	63††	44.2	34.6	4.47	42.1	33.7	4.90	39.8	32.8	5.36	37.4	31.7	5.85
	62	44.0	43.4	4.47	42.1	42.0	4.90	40.2	40.2	5.37	38.2	38.2	5.88
	57	43.8	43.8	4.46	42.0	42.0	4.90	40.2	40.2	5.37	38.2	38.2	5.88

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Size	Cooling		Indoor Section	Size	Cooling	
		Capacity	Power			Capacity	Power
CAR**	4817A**	0.98	0.94	CK5A/CK5BT	048	0.99	0.98
	4821A**	0.98	0.95		060	1.01	0.99
	4824A**	0.98	0.96	CK5A/CK5BW	048	0.99	0.98
	6021A**	1.00	0.96	CK5A/CK5BX	060	1.03	1.00
	6024A**	1.00	0.96	CNRV*	4821A**	0.98	0.95
CC5A/CD5AA	060	0.99	0.99		4824A**	0.98	0.95
CC5A/CD5AC	048	0.97	0.98		6024A**	1.00	0.96
CC5A/CD5AW	048	0.98	0.98	CNRH*	4821A**	0.98	0.95
CD5AA	048	0.98	0.98		6024A**	1.00	0.96
CE3AA	048	0.99	0.98	CNRV*	4818A**	0.98	0.96
	060	1.02	0.98		4812A**	0.98	0.95
CF5AA	048	1.00	0.98	CSRH*	6012A**	1.00	0.95
CK3BA	048	0.99	0.98		PF1MNB	048	1.00
	060	1.03	1.00	060		1.02	1.02
	048	0.99	0.98	070		1.06	1.02
CK5A/CK5BA	048	0.99	0.98	PF1MNC	048	0.98	0.96
	060	1.01	0.99		060	1.00	0.97
—	—	—	—	—	—	—	—

See notes on page 8.

PH10

DETAILED COOLING CAPACITIES* Continued

EVAP AIR		CONDENSER ENTERING AIR TEMPERATURES °F											
		85			95			105			115		
CFM	EWB	Capacity MBtuh†		Total Sys kW**	Capacity MBtuh†		Total Sys kW**	Capacity MBtuh†		Total Sys kW**	Capacity MBtuh†		Total Sys kW**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
PH10PR060-A Outdoor Section With PF1MNB060 Indoor Section													
1900	72	64.2	32.6	5.73	61.2	31.5	6.25	58.0	30.4	6.83	54.7	29.3	7.46
	67	58.6	42.4	5.61	55.8	41.2	6.13	52.8	40.1	6.69	49.7	38.9	7.31
	63††	54.4	41.0	5.53	51.8	39.9	6.04	49.0	38.7	6.60	46.0	37.4	7.19
	62	53.7	51.5	5.51	51.3	50.2	6.03	48.7	48.6	6.59	46.3	46.3	7.20
	57	53.0	53.0	5.50	50.9	50.9	6.02	48.7	48.7	6.59	46.3	46.3	7.20
2000	72	64.5	33.2	5.79	61.4	32.1	6.32	58.1	31.0	6.89	54.9	29.8	7.52
	67	58.9	43.4	5.67	56.0	42.2	6.19	53.0	41.0	6.76	49.9	39.9	7.37
	63††	54.7	42.0	5.59	52.0	40.8	6.10	49.1	39.6	6.66	46.2	38.3	7.26
	62	54.2	52.8	5.58	51.6	51.3	6.09	49.2	49.2	6.66	46.8	46.8	7.27
	57	53.7	53.7	5.57	51.5	51.5	6.09	49.2	49.2	6.66	46.8	46.8	7.28
2100	72	64.8	33.7	5.85	61.6	32.6	6.38	58.4	31.5	6.95	55.0	30.4	7.58
	67	59.1	44.4	5.73	56.1	43.2	6.25	53.1	42.0	6.82	50.0	40.8	7.43
	63††	55.0	42.9	5.64	52.1	41.7	6.16	49.4	40.5	6.72	46.3	39.2	7.32
	62	54.6	53.9	5.64	52.2	52.1	6.16	49.8	49.8	6.73	47.3	47.3	7.35
	57	54.3	54.3	5.63	52.1	52.1	6.16	49.7	49.7	6.73	47.3	47.3	7.35

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Size	Cooling		Indoor Section	Size	Cooling	
		Capacity	Power			Capacity	Power
CAR**	6021A**	1.00	0.94	CK5A/CK5BX	060	1.01	0.96
	6024A**	1.00	0.94	CNRV*	6024A**	1.00	0.95
CC5A/CD5AA	060	0.96	0.96	CNRH*	6024A**	1.00	0.95
CC5A/CD5AW	060	0.99	0.97	CSRH*	6012A**	1.00	0.94
CE3AA	060	1.01	0.97	PF1MNB	060	1.00	1.00
CK3BA	060	1.01	0.96		070	1.03	0.99
CK5A/CK5BA	060	0.97	0.95	PF1MNC	060	1.00	0.97
CK5A/CK5BT	060	0.97	0.95		—	—	—

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

*Detailed cooling capacities are based on indoor and outdoor unit at the same elevation and connected by 25 ft (4.59m) of tubing. If other than 25 ft (4.59m) of tubing is used 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.

HEAT PUMP HEATING PERFORMANCE

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES °F																							
		-3			7			17			27			37			47			57			67		
EDB	CFM	Capacity MBtu/h†		Total Pwr	Capacity MBtu/h†		Total Pwr	Capacity MBtu/h†		Total Pwr	Capacity MBtu/h†		Total Pwr	Capacity MBtu/h†		Total Pwr	Capacity MBtu/h†		Total Pwr	Capacity MBtu/h†		Total Pwr	Capacity MBtu/h†		Total Pwr
		Total	Int	kW‡	Total	Int	kW‡	Total	Int	kW‡	Total	Int	kW‡	Total	Int	kW‡	Total	Int	kW‡	Total	Int	kW‡	Total	Int	kW‡
PH10PR048-A Outdoor Section With PF1MNB048 Indoor Section																									
65	1500	26.4	24.2	3.76	30.0	27.5	3.79	33.5	30.6	3.80	37.2	33.0	3.83	40.9	37.2	3.87	45.2	45.2	3.96	50.4	50.4	4.12	53.2	53.2	4.17
	1600	26.5	24.4	3.79	30.1	27.7	3.81	33.7	30.7	3.82	37.4	33.2	3.84	41.1	37.4	3.87	45.5	45.5	3.95	50.6	50.6	4.10	52.8	52.8	4.11
	1700	26.7	24.6	3.82	30.3	27.9	3.83	33.9	30.9	3.84	37.6	33.4	3.85	41.3	37.6	3.88	45.7	45.7	3.96	50.8	50.8	4.09	53.2	53.2	4.11
70	1500	26.0	23.9	3.90	29.6	27.2	3.94	33.2	30.3	3.96	36.8	32.7	3.99	40.5	36.8	4.04	44.7	44.7	4.13	49.9	49.9	4.29	53.6	53.6	4.41
	1600	26.2	24.1	3.93	29.8	27.4	3.96	33.4	30.5	3.98	37.0	32.9	4.00	40.7	37.0	4.04	45.0	45.0	4.12	50.2	50.2	4.29	53.6	53.6	4.36
	1700	26.4	24.3	3.96	30.0	27.6	3.98	33.6	30.6	4.00	37.2	33.1	4.01	40.9	37.2	4.04	45.2	45.2	4.12	50.4	50.4	4.28	53.5	53.5	4.33
75	1500	25.5	23.4	4.03	29.3	26.9	4.09	32.9	30.0	4.13	36.5	32.4	4.17	40.1	36.5	4.21	44.2	44.2	4.30	49.3	49.3	4.47	53.6	53.6	4.64
	1600	25.7	23.6	4.06	29.5	27.1	4.12	33.1	30.2	4.14	36.7	32.6	4.17	40.3	36.7	4.21	44.5	44.5	4.29	49.6	49.6	4.46	53.7	53.7	4.60
	1700	25.9	23.8	4.09	29.7	27.3	4.14	33.3	30.3	4.16	36.9	32.7	4.18	40.5	36.8	4.22	44.7	44.7	4.29	49.8	49.8	4.45	53.4	53.4	4.54
Multipliers for Determining the Performance With Other Indoor Sections																									
Indoor Section	Size	Heating		Indoor Section	Size	Heating																			
		Capacity	Power			Capacity	Power																		
CAR**	4817A**	0.96	0.93	CK5A/CK5BT	048	0.99	1.00																		
	4821A**	0.96	0.93		060	1.00	1.01																		
	4824A**	0.96	0.94	CK5A/CK5BW	048	0.99	1.00																		
	6021A**	0.79	0.88		060	0.98	0.96																		
	6024A**	0.79	0.88	CNRV*	4821A**	0.96	0.93																		
CC5A/CD5AA	060	0.99	4824A**		0.96	0.93																			
CC5A/CD5AC	048	0.96	6024A**		0.88	0.92																			
CC5A/CD5AW	048	0.99	1.02	CNRH*	4821A**	0.96	0.93																		
CD5AA	048	0.99	1.02		6024A**	0.88	0.92																		
CE3AA	048	0.99	1.01	CNRH*	4821A**	0.96	0.93																		
	060	0.97	0.96		6024A**	0.88	0.92																		
CF5AA	048	0.95	1.00	CSRH*	4812A**	0.96	0.93																		
CK3BA	048	0.99	1.00		PF1MNB	6012A**	0.85	0.89																	
	060	0.98	0.96	048		1.00	1.00																		
CK5A/CK5BA	048	0.99	1.00	060		0.97	0.97																		
	060	1.00	1.01	PF1MNC	070	0.90	0.92																		
	—	—	—		048	0.94	0.94																		
					060	0.82	0.90																		

See notes on page 10.

PH10

HEAT PUMP HEATING PERFORMANCE Continued

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES °F																							
		-3			7			17			27			37			47			57			67		
EDB	CFM	Capacity MBtuh†		Total Pwr	Capacity MBtuh†		Total Pwr	Capacity MBtuh†		Total Pwr	Capacity MBtuh†		Total Pwr	Capacity MBtuh†		Total Pwr	Capacity MBtuh†		Total Pwr	Capacity MBtuh†		Total Pwr	Capacity MBtuh†		Total Pwr
		Total	Int	kW‡	Total	Int	kW‡	Total	Int	kW‡	Total	Int	kW‡	Total	Int	kW‡	Total	Int	kW‡	Total	Int	kW‡	Total	Int	kW‡
PH10PR060-A Outdoor Section With PF1MNB060 Indoor Section																									
65	1900	28.0	25.8	4.36	32.8	30.2	4.51	38.2	34.8	4.67	44.0	39.1	4.86	50.9	46.3	5.12	59.4	59.4	5.50	69.7	69.7	6.06	79.0	79.0	6.35
	2000	28.2	25.9	4.40	33.0	30.4	4.54	38.4	35.0	4.70	44.3	39.3	4.89	51.2	46.6	5.14	59.7	59.7	5.52	70.0	70.0	6.08	78.8	78.8	6.51
	2100	28.4	26.1	4.44	33.2	30.5	4.58	38.6	35.2	4.73	44.5	39.5	4.92	51.4	46.8	5.17	59.9	59.9	5.54	70.3	70.3	6.11	78.5	78.5	6.47
70	1900	27.7	25.5	4.51	32.5	29.8	4.68	37.8	34.4	4.86	43.6	38.7	5.06	50.3	45.8	5.32	58.7	58.7	5.70	68.8	68.8	6.27	78.7	78.7	6.87
	2000	27.9	25.6	4.55	32.7	30.0	4.71	38.0	34.6	4.88	43.8	38.9	5.08	50.6	46.0	5.34	59.0	59.0	5.72	69.0	69.0	6.28	78.9	78.9	6.85
	2100	28.1	25.8	4.59	32.9	30.2	4.75	38.2	34.8	4.91	44.0	39.1	5.11	50.8	46.2	5.36	59.3	59.3	5.74	69.4	69.4	6.31	78.8	78.8	6.82
75	1900	27.3	25.1	4.66	32.1	29.5	4.85	37.4	34.1	5.05	43.1	38.3	5.26	49.7	45.3	5.53	58.0	58.0	5.92	68.0	68.0	6.49	78.2	78.2	7.16
	2000	27.5	25.3	4.70	32.3	29.7	4.89	37.6	34.3	5.07	43.3	38.5	5.28	50.0	45.5	5.55	58.3	58.3	5.94	68.3	68.3	6.50	78.4	78.4	7.16
	2100	27.7	25.5	4.74	32.5	29.9	4.92	37.8	34.5	5.10	43.6	38.7	5.31	50.2	45.7	5.57	58.5	58.5	5.95	68.6	68.6	6.52	78.8	78.8	7.19
Multipliers for Determining the Performance With Other Indoor Sections																									
Indoor Section	Size	Heating		Indoor Section	Size	Heating																			
		Capacity	Power			Capacity	Power																		
Indoor Section	Size	Heating		Indoor Section	Size	Heating																			
		Capacity	Power			Capacity	Power																		
CAR**	6021A**	0.97	0.94	CK5A/CK5BX	060	0.98	0.97																		
	6024A**	0.96	0.93	CNRV*	6024A**	0.98	0.95																		
CC5A/CD5AA	060	0.97	1.03	CNRH*	6024A**	0.98	0.95																		
CC5A/CD5AW	060	0.98	1.00	CSRH*	6012A**	0.98	0.93																		
CE3AA	060	0.98	0.98	PF1MNB	060	1.00	1.00																		
CK3BA	060	0.98	0.97		070	1.00	0.96																		
CK5A/CK5BA	060	0.97	1.00	PF1MNC	060	0.97	0.95																		
CK5A/CK5BT	060	0.97	1.00		—	—	—																		

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

† 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.

EDB—Entering Dry Bulb

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. wc.
2. Minimum outdoor operating air temperature for cooling mode without low-ambient operation accessory is 55°F (12.8°C).
3. Maximum outdoor operating air temperature for cooling mode is 115°F (46.1°C).
4. Minimum outdoor operating air temperature for heating mode is -30°F (-34.4°C).
5. Maximum outdoor operating air temperature for heating mode is 66°F (18.9°C).
6. For reliable operation, unit should be level in all horizontal planes.
7. Maximum elevation of indoor coil above or below base of outdoor unit is: indoor coil above = 60 ft, indoor coil below = 200 ft. (See items 8 and 9 following.)
8. For interconnecting refrigerant tube lengths greater than 80 ft or 20 ft vertical differential (250 ft total equivalent length), consult the Residential Split-System Long-Line Application Guideline available from equipment distributor.
9. IF ANY refrigerant tubing is buried, provide a minimum 6-in. vertical rise to the valve connections at the unit. Refrigerant tubing lengths up to 36 in. may be buried without further consideration.
10. Use only copper wire for electric connection at unit. Aluminum and clad aluminum are not acceptable for the type of connector provided.