



Twelve-PLUS™ HIGH EFFICIENCY PACKAGED HEAT PUMPS

Cooling Capacities: 23,500 to 47,500 BTUH

Heating Capacities: 22,500 to 45,500 BTUH

HSPF: 7.00 to 7.50 SEER: 12.00 to 13.50

Refrigerant 22

Engineered Features

Optional Field Installed

Electric Heat Strips:

Automatic limit and thermal cut-off.

- Field-installed heater package for 2 through 4 ton models.
- Features slide-in field assembly with various BTUH outputs.
- Permits stocking of only one unit.

Aluminum Finned Copper Coil:

Surfaces expel heat efficiently as required by system.

Electrical Components and Controls

Accessible for easier service.

Solid-State Electronic Heat Pump Control:

Provides efficient 30, 60 or 90 minute defrost cycle.

Indoor Blower:

Features a variable speed (ECM) motor providing super high efficiency, low sound levels, and soft start capabilities. Motor is self-adjusting to provide proper airflow at high static pressure for ducted installations without user adjustment or wiring changes.

Thermostatic Expansion Valves:

For maximum heating performance and reliability.

High Pressure Switch:

Built-in with a lockout circuit that resets from the room thermostat.

Optional Outdoor Thermostat:

Controls compressor operation and supplemental electric heat strips for maximum operating economy.



Basic model PH1236 shown with Electric Heater Package

5 Minute Compressor Time Delay:

Provides short cycle protection. There is a 5 minute delay on break that prevents short cycling and assures pressures are equalized before trying to restart the compressor.

20 Gauge Zinc Coated Galvanneal Steel Cabinet:

Heavily insulated for sound absorption and more efficiency. Cleaned, rinsed, sealed and dried before the polyurethane primer is applied. The cabinet is handsomely finished with a baked on textured enamel which allows it to withstand 1000 hours of salt spray exposure.

Emergency Heat Circuit:

Permits continuous operation of the system.

High Efficiency Scroll Compressor:

Energy Efficient -- The Scroll compressor offers a smooth continuous compression process with very few flow losses. In addition, it requires no valves and, therefore, eliminates all valve losses. Finally, unlike a piston, the scroll compressor's suction and discharge gas are separate. The net result is higher energy efficiency than piston technology.

Volumetric Efficiency -- Scroll has no re-expansion volume, which increases compressor capacity in high compression ratio operating conditions.

Sound -- Scroll's low gas pulses, combined with the elimination of valves (and associated valve noise), result in a smooth and quiet compression process.



NOTE: All models have controls and electrical components on this side.



PH 12 SERIES



Cooling and Heating Efficiency Ratings

MODEL	PHASE	COOLING		HEATING 47°	
		BTUH	SEER	BTUH	HSPF*
PH12241	1	23,500	13.5	22,500	7.20
PH1230	1	29,000	12.5	26,200	7.00
PH1236, PH1236-B	1, 3	34,400	12.0	32,400	7.00
PH1242	1	41,500	12.0	40,000	7.50
PH12481, PH12481-B	1,3	47,500	12.0	45,500	7.50

Tested and Certified in accordance with ARI Standard 210/240-2003.

* Heating Seasonal Performance Factor at Region IV minimum design heating requirement per DOE test procedures in effect at time of printing.

Specifications

MODEL	PH12241	PH1230	PH1236	PH1236-B	PH1242	PH12481	PH12481-B
Cooling Capacity BTU/H	23,500	29,000	34,400	34,400	41,500	47,500	47,500
* Hi Temp. Htg. BTU/H @ 47°	22,500	26,200	32,400	32,400	40,000	45,500	45,500
Electrical -- Less KW	230/208-1	230/208-1	230/208-1	230/208-3	230/208-1	230/208-1	230/208-3
(V - Ph @ 60 Hz)	1-Ph	1-Ph	1-Ph	3-Ph	1-Ph	1-Ph	3-Ph
Operating Voltage Range	197-253	197-253	197-253	197-253	197-253	197-253	197-253
Circuit A							
Minimum Circuit Ampacity	17	21	26	19	30	33	25.4
Field Wire Supply**	12	10	10	12	10	8	10
BCSC	10.5	13.5	16.5	10.9	18	20.5	14.7
Max. Fuse or Circuit Breaker †	25	30	40	25	45	50	35
Total Unit Amps 230/208	12.7/13.9	15.6/17.1	19.4/21.2	14.7/15.6	23.5/24.5	25.5/27.5	19/20.3
Compressor Circuit A							
Volts	230/208	230/208	230/208	230/208	230/208	230/208	230/208
Rated Load Amps	9.5/10.5	11.5/13	14.7/16.5	10.0/10.9	16.7/17.7	18.5/20.5	12.0/13.3
Locked Rotor Amps	54/54	72.5/72.5	88/88	77/77	104/104	137/137	91/91
Fan Motor & Condenser							
Fan Motor - HP/RPM	1/5 1090	1/5 1075	1/5 1075	1/5 1075	1/3 825	1/3 825	1/3 825
Fan Motor Amps	1.2	1.4	1.4	1.4	2.5	2.5	2.5
Fan Dia./CFM	20"/1650	20"/2000	20"/2000	20"/2000	24"/3000	24"/3000	24"/3000
Face Area Sq. Ft./Rows/Fins per in.	5.04/3/11	5.04/3/11	5.04/4/11	5.04/4/11	7.7/3/11	7.7/3/11	7.7/3/11
Motor and Evaporator							
Blower Motor -- HP/RPM	1/3 variable	1/2 variable	1/2 variable	1/2 variable	3/4 variable	3/4 variable	3/4 variable
Blower Motor -- Amps	2.2	2.7	3.3	3.3	4.3	4.5	4.5
CFM Cooling w/Filter (Rated)	800@.10	1000@.15	1100@.15	1100@.15	1400@.15	1550@.20	1550@.20
Face Area Sq. Ft./Rows/Fins per in.	3.21/3/10	3.21/4/13	3.21/4/13	3.21/4/13	4.72/4/14	4.72/4/14	4.72/4/14
Refrigerant 22 - oz.	91	99	121	121	133	119	119
Shipping Weight - lbs.	320	335	345	345	420	440	440

* For additional heating capacity add the KW for Table No. 1 See electrical data.

**75°C Copper wire size, basic unit only.

† Maximum time delay fuse or HACR type circuit breaker.

Cooling Application Data -- Outdoor Temperature °F **

Model	D.B./W.B.*	Cooling Capacity	**Outdoor Temperature °F										
			75°	80°	85°	90°	95°	100°	105°	110°	115°	120°	125°
PH12241	75/ 62	Total Cooling	25,100	24,200	23,200	22,100	20,500	19,900	18,800	17,600	16,300	15,000	13,700
		SensibleCooling	19,300	19,000	18,600	18,200	17,800	17,200	16,800	16,200	15,600	15,000	14,400
	80/ 67	Total Cooling	26,800	26,300	25,700	24,900	23,500	23,100	22,100	20,900	19,600	18,200	16,700
		SensibleCooling	18,700	18,600	18,400	18,200	17,900	17,500	17,200	16,700	16,200	15,700	15,100
PH1230	85/ 68	Total Cooling	32,000	30,800	29,500	28,100	26,100	25,300	23,900	22,300	20,600	18,900	17,200
		SensibleCooling	19,200	18,900	18,500	18,100	17,600	17,000	16,400	15,700	15,000	14,200	13,400
	75/ 62	Total Cooling	31,900	30,500	29,000	27,500	25,300	24,300	22,600	20,900	19,100	17,200	15,300
		SensibleCooling	24,000	23,500	22,800	22,200	21,500	20,800	19,900	19,000	18,100	17,000	16,000
PH1236	80/ 67	Total Cooling	34,000	33,200	32,200	31,000	29,000	28,300	26,600	24,900	22,900	20,800	18,600
		SensibleCooling	23,200	23,000	22,600	22,200	21,700	21,100	20,400	19,600	18,800	17,800	16,800
	85/ 68	Total Cooling	40,500	38,800	37,000	35,000	32,200	31,000	28,700	26,500	24,100	21,600	19,200
		SensibleCooling	23,800	23,400	22,700	22,100	21,300	20,400	19,500	18,400	17,300	16,100	14,900
PH1242	75/ 62	Total Cooling	36,200	35,100	33,800	32,200	30,000	28,700	26,600	24,400	22,000	19,400	16,600
		SensibleCooling	27,600	27,000	26,300	25,600	24,800	23,900	22,900	21,900	20,800	19,600	18,400
	80/ 67	Total Cooling	38,600	38,200	37,500	36,400	34,400	33,400	31,400	29,100	26,400	23,500	20,200
		SensibleCooling	26,700	26,400	26,000	25,600	25,000	24,300	23,500	22,600	21,600	20,500	19,300
PH12481	85/ 68	Total Cooling	46,000	44,700	43,100	41,100	38,200	36,600	33,900	31,000	27,800	24,400	20,800
		SensibleCooling	27,400	26,800	26,100	25,500	24,500	23,500	22,400	21,200	19,900	18,500	17,100
	75/ 62	Total Cooling	44,000	42,400	40,700	38,900	36,200	35,500	33,700	31,900	30,100	28,200	26,400
		SensibleCooling	34,700	34,000	33,100	32,300	31,400	30,600	29,700	28,700	27,700	26,700	25,700
PH12481-B	80/ 67	Total Cooling	47,000	46,200	45,200	44,000	41,500	41,300	39,700	38,000	36,200	34,200	32,100
		SensibleCooling	33,600	33,300	32,800	32,300	31,700	31,100	30,400	29,600	28,800	27,900	27,000
	85/ 68	Total Cooling	56,000	54,000	51,900	49,700	46,100	45,200	42,800	40,400	38,100	35,600	33,000
		SensibleCooling	34,400	33,800	33,000	32,100	31,100	30,100	29,000	27,800	26,500	25,200	23,900
PH12481	75/ 62	Total Cooling	49,300	47,800	46,100	44,300	41,400	40,000	37,600	35,000	32,200	29,200	26,100
		SensibleCooling	38,300	37,800	37,100	36,300	35,400	34,200	33,000	31,700	30,100	28,400	26,600
	80/ 67	Total Cooling	52,600	52,100	51,200	50,000	47,500	46,600	44,300	41,700	38,700	35,400	31,800
		SensibleCooling	37,100	37,000	36,700	36,300	35,700	34,800	33,800	32,700	31,300	29,700	28,000
85/ 68	Total Cooling	62,700	60,900	58,800	56,500	52,800	51,000	47,800	44,400	40,700	36,800	32,700	
	SensibleCooling	38,000	37,600	36,900	36,100	35,000	33,700	32,200	30,700	28,800	26,900	24,800	

* Return air temperature °F.

**Below 65°F unit requires a field installed low ambient control.

CAPACITY MULTIPLIER FACTORS

% of Rated Air Flow	-10	Rated	+10
Total Btuh	0.975	1.0	1.02
Sensible Btuh	0.95	1.0	1.05

Heating Application Data -- Outdoor Temperature °F*

MODEL		-5°	0°	5°	10°	15°	17°	20°	25°	30°	35°	40°	45°	47°	50°	55°	60°	65°
PH12241	Btuh	6,350	7,700	9,000	10,350	11,650	12,200	13,000	14,250	15,650	17,000	19,300	21,600	22,500	23,550	25,250	27,000	28,700
	Watts	1780	1810	1835	1860	1890	1900	1920	1940	1970	1995	2020	2050	2060	2075	2100	2130	2155
	COP	1.04	1.24	1.43	1.63	1.8	1.88	1.95	2.16	2.32	2.49	2.8	3.08	3.2	3.32	3.52	3.71	3.9
PH1230	Btuh	9,600	10,850	12,050	13,300	14,500	15,000	15,750	16,950	18,200	19,400	22,250	25,050	26,200	27,300	29,200	31,050	32,900
	Watts	2105	2130	2160	2190	2220	2230	2250	2275	2300	2330	2360	2390	2400	2420	2445	2475	2500
	COP	1.33	1.49	1.63	1.77	1.91	1.97	2.05	2.18	2.31	2.43	2.76	3.07	3.2	3.3	3.49	3.67	3.85
PH1236	Btuh	11,500	13,000	14,400	15,850	17,300	17,850	18,700	20,150	20,550	23,000	26,900	30,850	32,400	33,855	36,300	38,700	41,150
	Watts	2575	2620	2670	2715	2760	2780	2800	2855	2900	2950	3000	3040	3062	3090	3135	3185	3230
	COP	1.3	1.45	1.58	1.71	1.83	1.88	1.95	2.06	2.17	2.28	2.62	2.97	3.1	3.21	3.39	3.57	3.73
PH1242	Btuh	13,700	16,200	18,800	21,300	23,800	24,800	25,400	26,400	27,400	28,300	33,200	38,100	40,000	41,600	44,100	46,600	49,200
	Watts	2950	3000	3040	3080	3130	3140	3170	3210	3260	3300	3350	3390	3410	3430	3480	3520	3560
	COP	1.37	1.59	1.82	2.03	2.23	2.32	2.35	2.41	2.47	2.52	2.91	3.3	3.44	3.56	3.72	3.88	4.05
PH12481	Btuh	16,400	17,500	20,500	23,500	26,500	27,600	28,100	28,900	29,700	30,600	36,800	43,100	46,500	47,300	50,300	53,300	56,300
	Watts	3210	3280	3340	3400	3460	3490	3530	3590	3650	3710	3770	3840	3880	3900	3960	4020	4080
	COP	1.49	1.57	1.8	2.03	2.25	2.29	2.34	2.36	2.39	2.42	2.87	3.29	3.45	3.56	3.73	3.89	4.05

* 70°F DB Indoor Return Air at rated CFM, includes defrost operation below 45 degrees.

Optional Field-Installed Heater Packages Are Only To Be Used With The Heat Pump Models As Indicated Below

HEATER MODEL NO.	VOLTS AND PHASE	PH12241	PH1230	PH1236	PH1236-B	PH1242	PH12481	PH12481-B
EH3PC-A05	240/208-1	X	X	X				
EH3PB-A10			X	X				
EH3PC-A10		X						
EH3PC-A15			X①	X①				
EH3PB-B09	240/208-3				X			
EH3PB-B15					X②			
EH5PB-A05	240/208-1					X	X	
EH5PB-A10						X	X	
EH5PB-A15						X①	X①	
EH5PB-B09	240/208-3							X
EH5PB-B15								X②

①--Maximum KW that can operate concurrently with heat pump is 10KW. All 15KW will operate during emergency heat condition.

②--Maximum KW that can operate concurrently with heat pump is 9KW. All 15KW will operate during emergency heat condition.

Optional Field-Installed Electric Heater Table

HEATER PACKAGE MODEL NO.	HEATER PACKAGE VOLTS PHASE	HTR. KW & CAPACITY @ 240V		HEATER KW & CAPACITY @ 208 VOLTS		HEATER AMPS @ 240/208V	CIRCUIT B					
		KW	BTUH	KW	BTUH		HEATER INTERNAL FUSES	NUMBER FIELD CKTS.	MINIMUM CIRCUIT AMPACITY	MAX. OVER-CURRENT PROTECTION	FIELD POWER WIRING	GROUND WIRE SIZE
EH3PC-A05	240/208-1	5	17,100	3.75	12,800	20.8/18.1	30/60	1	26/23	30/25	10/10	10
EH3PB-A10		10	34,100	7.5	26,000	41.6/36.2		1	53/46	60/50	6/8	10
EH3PC-A10		10	34,100	7.5	26,000	41.6/36.2		1	53/46	60/50	6/8	10
EH3PC-A15	240/208-3	15	51,200	11.25	38,400	62.5/54.1	30/60	1	79/68	80/70	4/4	8
EH3PB-B09		9	30,700	6.75	23,000	21.7/18.7		1	28/24	30/25	10/10	10
EH3PB-B15		15	51,200	11.25	38,400	36.2/31.2		1	46/39	50/40	8/8	10
EH5PB-A05	240/208-1	5	17,100	3.75	12,800	20.8/18.1	30/60	1	26/23	30/25	10/10	10
EH5PB-A10		10	34,100	7.5	26,000	41.6/36.2		1	53/46	60/50	6/6	10
EH5PB-A15		15	51,200	11.25	38,400	62.5/54.1		1	79/68	80/70	3/4	8
EH5PB-B09	240/208-3	9	30,700	6.75	23,000	21.7/18.7	30/60	1	28/24	30/25	10/10	10
EH5PB-B15		15	51,200	11.25	38,400	36.2/31.2		1	46/39	50/40	6/8	10

① Time delay fuses or "HACR Type" circuit breakers must be used for 60 and smaller sizes. Standard fuses or circuit breakers are suitable for sizes 70 and larger.

② Based on wire suitable for 75°C. Other wiring materials must be marked "Minimum Circuit Ampacity" or greater.

③ Based upon Table 250-95 of National Electrical Code latest edition.

④ A separate power supply must be provided for use with optional heater packages. See electrical data for basic heat pump for Circuit A wiring specification requirements.

Optional Field-Installed Electric Heater Package

Optional field-installed electric heater packages are available. The heater packages are UL listed to be field-installed into the basic unit. They feature pre-wired control circuit wiring

with plug-in connector. Simply slide the heater into the unit, plug in the pre-tested control circuit and connect the separate high voltage circuit wiring.



IMPORTANT: While this electrical data is presented as a guide, it is important to electrically connect properly sized fuses and conductor wires in accordance with the National Electrical Code and all existing local codes.

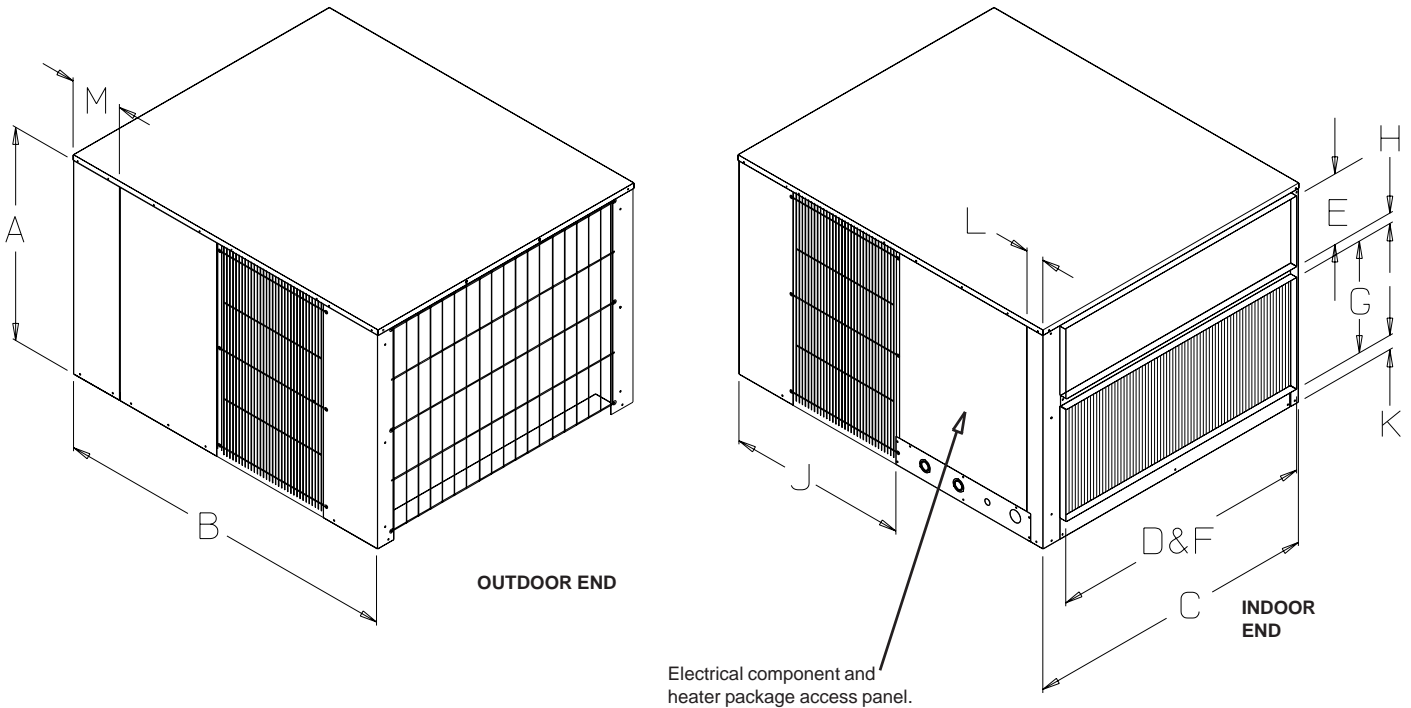
Optional Control Modules - Field-Installed

FIELD INSTALLED PART	APPLICABLE TO	DESCRIPTION
CMH-3	All Models	Low Pressure Control (Auto Reset)
CMH-7	All Models	Low Ambient Control with Relay
CMH-9	All Models	Low Ambient Control with Relay, and Low Pressure Control (Auto Reset)
CMH-14	All Models	Outdoor Thermostat Kit

Indoor Blower Performance CFM - Dry Coil With Filter

MODEL	RATED ESP	RATED CFM	MAX. ESP
PH12241	0.10	800	0.5
PH1230	0.15	1000	0.5
PH1236	0.15	1100	0.5
PH1242	0.15	1400	0.5
PH12481	0.20	1575	0.5

The 12 SEER units are equipped with variable speed (ECM) indoor motor that automatically adjusts itself to maintain approximately the same rate of indoor air flow for both dry and wet conditions and at 230 and 208 volts.



MIS-1305

Dimensions For All Models

MODEL	NOMINAL CABINET DIMENSIONS (INCHES)								DUCT OPENINGS (IN)				
									DISCHARGE		RETURN AIR		
	A	B	C	H	J	K	L	M	D	E	F	G	H
PH12241													
PH1230	24-1/4	48-3/16	38-1/8	7/8	26-1/8	2-1/8	9/16	9/16	33	6	33	14	7/8
PH1236													
PH1242	31-1/4	50	42	1-3/8	26	3	2-3/4	7-9/16	38	10	38	16	1-3/8
PH12481													

NOTE: For roof application, roof hoods & roof curbs are available, see Prefabricated Roof Curb/Roof Hood Accessories Form No. S3002 and Bard Commercial Products - Complete Pricing and Products Guide, Form No. F1402



Bard Manufacturing Company, Inc.
BRYAN, OHIO 43506

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just as planned

Due to our continuous product improvement policy, all specifications subject to change without notice.

Before purchasing this appliance, read important energy cost and efficiency information available from your retailer.

Form No.
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