COMMERCIAL
HEAT PUMP WATER HEATERS

AHPW SERIES
WATER SOURCE HEAT PUMP
HEAT PUMP WATER HEATER

The A. O. Smith AHPW-125 is a water-to-water heat pump water heater designed to be an energy-efficient, zero-emissions solution for your commercial water heating needs.

FEATURES

- Up to 160°F maximum water temperature
- Ambient operating range of 40-120°F
- Absorbs heat from water sources including process and ground-water
- Environmentally-friendly R134a refrigerant
- Double wall condenser for potable water heating
- Integrated potable water-approved pump
- Suitable for indoor and outdoor applications
- BACnet compatible logic controller optional

APPLICATIONS

- Restaurants
- Hotels
- Apartment buildings
- Laundry facilities
- Healthcare facilities
- Schools
- Sports arenas
- Gyms
- Prisons
- Military barracks
- Manufacturing facilities, etc

ONE-YEAR LIMITED WARRANTY

- Backed by 1-year limited warranty, with an option for additional 5-year Extended Compressor Warranty
- For complete warranty information, consult written warranty or go to hotwater.com

MODEL AHPW-125

hotwater.com | 800-527-1953 Toll-Free USA | A. O. Smith Corporation | 500 Tennessee Waltz Parkway | Ashland City, TN 37015

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SPECIFICATIONS

Operating Conditions	**Model Number**			**AHPW-125**	
	Recovery Rate †			174 Gal/hr	
	Compressor Type			Scroll	
	Refrigerant			R134a	
	Max Water Temperature			160° F	
	Source Water Range			40° F - 100° F	
	Max Working Water Pressure			100 psig	
Multi-Pass Unit Sizing	Water Connections			1 1/2″ FPT Copper	
	Condenser Water Flow Rate			25 GPM	
	Condenser Pressure Drop			11.55 ft Head	
	Evaporator Water Flow Rate			20 GPM	
	Evaporator Pressure Drop			9.92 ft Head	
	External Head Pressure Allowed by Unit			4.27 ft Head / 50 ft run of 1 1/2″ pipe	
Single-Pass Unit Sizing	Water Connections			1″ FPT Copper	
	Average Condenser Water Flow Rate			12.5 GPM	
	Condenser Pressure Drop			3.79 ft Head	
	Evaporator Water Flow Rate			20 GPM	
	Evaporator Pressure Drop			9.92 ft Head	
	External Head Pressure Allowed by Unit			6.89 ft Head / 50 ft run of 1″ pipe	
Unit Specifications	Dry Weight			450 lbs	
	Operating Weight			525 lbs	
	Standard Sound Rating			87 dB	
	Dimensions (L x W x H)			49″ x 31 3/16″ x 38 3/16″	
Power Requirements	**Voltage**	**Compressor LRA**	**RLA**	**Wire and Disconnect Sizing ††**	
				MCA	**MCOP / MFS**
	208-230/3/60	300	53	65	70
	440-480/3/60	150	26.7	33	35
	575/3/60	109	23.5	29	30

Note: Pump for heated side provided by A. O. Smith. Customer responsible for providing source side pump.
† Water heated from 50° F to 150° F with 75° F entering source water temperature
†† Single point electric service

Legend
LRA: Locked Rotor Amps
RLA: Rated Load Amps
MCA: Maximum Current Ampacity (used for wire sizing)
MOCP: Minimum Overcurrent Protection (minimum disconnect size to be used)

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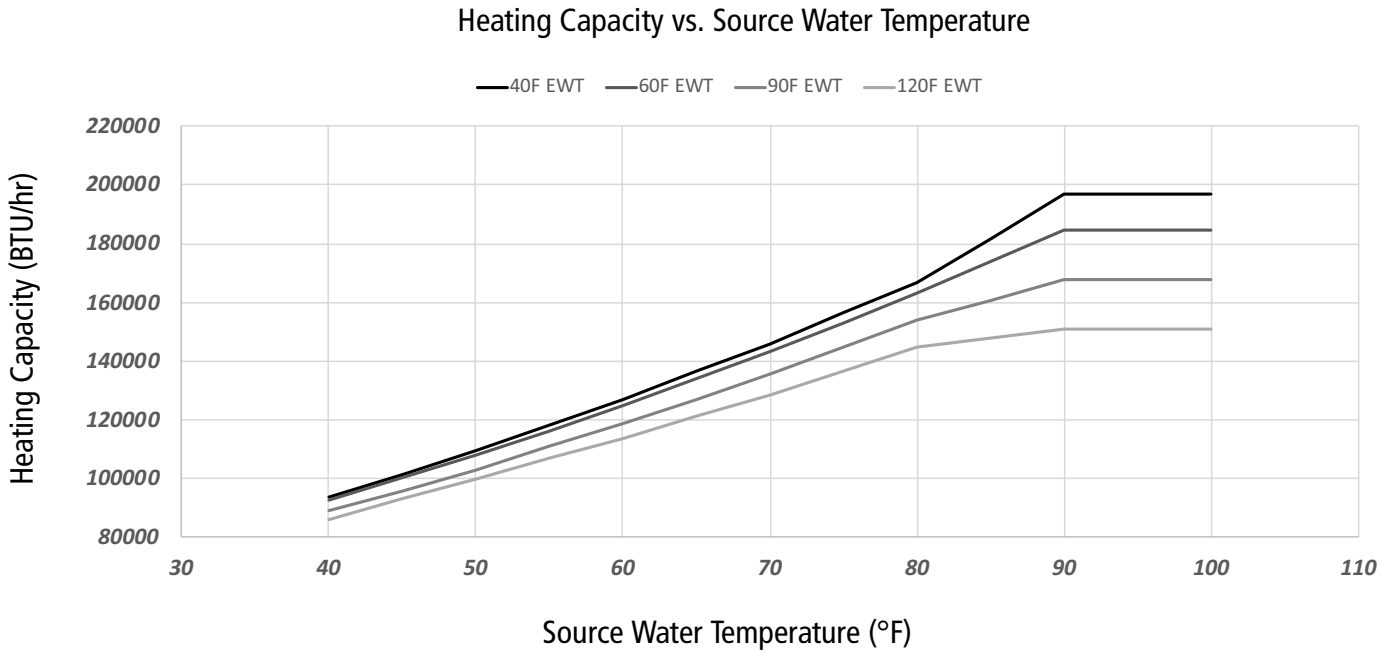
PERFORMANCE DATA

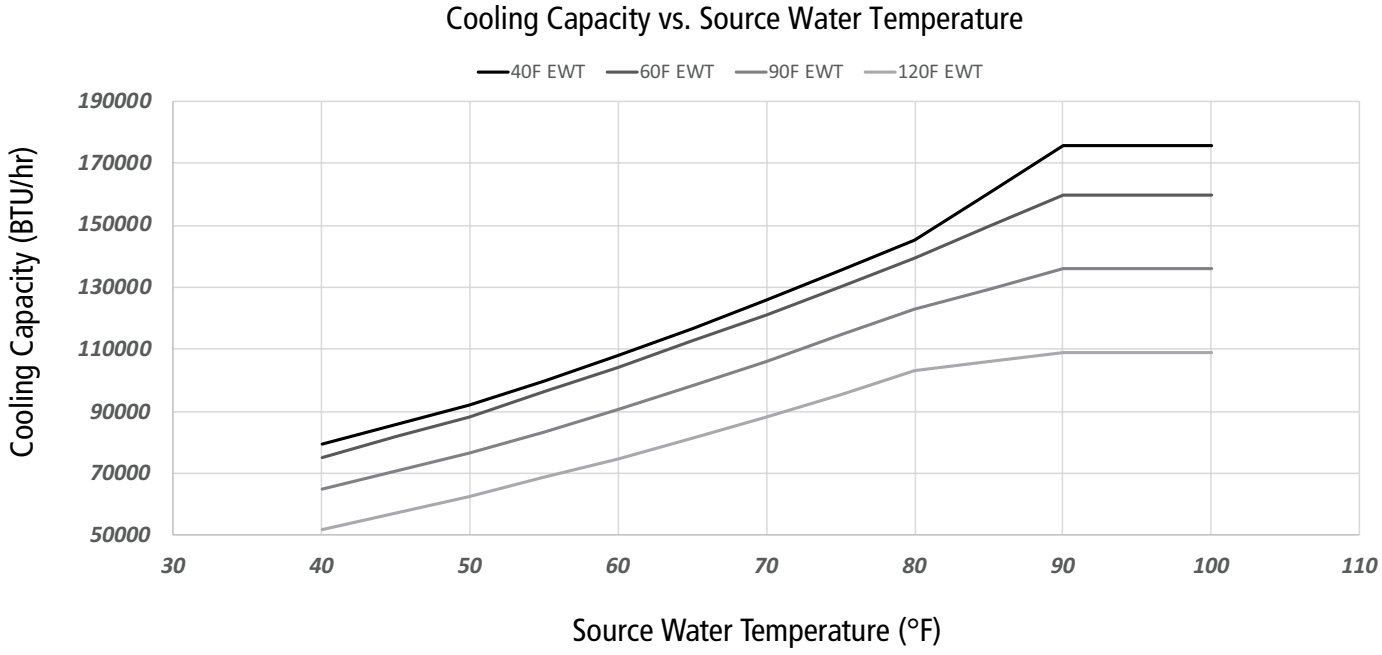
Model	Entering Source Water Temp(F°)	Leaving Source Water Temp(°F)	Source Cooling Capacity (Btu/hr)	Entering Heated Water Temp(°F)	Leaving Heated Water Temp(°F)	Supply Heating Capacity (Btu/hr)	Power Input (kW)
AHPW-125	45°F	36	88072	50	57	102480	4.96
		36	85872	60	67	101380	5.32
		37	83372	70	77	100880	5.90
		37	78172	80	87	97780	6.53
		38	74072	90	97	96280	7.28
		38	69772	100	107	94880	8.14
		38	65272	110	117	93780	9.12
		39	60472	120	127	92680	10.25
		39	55272	130	137	92041	11.55
		40	49272	140	147	90820	12.95
	50°F	41	94600	50	58	112000	5.06
		41	92400	60	68	110900	5.42
		41	89900	70	78	110400	6
		42	84700	80	88	107300	6.63
		42	80600	90	98	105800	7.38
		42	76300	100	108	104400	8.24
		43	71800	110	117	103300	9.22
		43	67000	120	127	102200	10.35
		44	61800	130	137	101561	11.65
		44	55800	140	147	100340	13.05
	60°F	49	112500	50	59	130600	5.29
		49	109000	60	69	128500	5.72
		50	105000	70	79	126500	6.29
		50	100500	80	89	124200	6.93
		50	95800	90	99	121900	7.66
		51	91100	100	109	120200	8.54
		51	85900	110	119	118500	9.55
		52	80500	120	128	116800	10.65
		53	74700	130	138	115485	11.95
		53	68000	140	148	113734	13.4
	70°F	57	132000	50	61	150900	5.55
		57	127500	60	71	148200	6.06
		58	122500	70	80	145100	6.61
		58	117500	80	90	142300	7.26
		59	112500	90	100	139800	8.01
		59	107000	100	110	137300	8.87
		60	101500	110	120	135100	9.85
		60	95400	120	130	132800	10.95
		61	88800	130	139	130609	12.25
		62	81100	140	149	127858	13.7

PERFORMANCE DATA

Model	Entering Source Water Temp(F°)	Leaving Source Water Temp(°F)	Source Cooling Capacity (Btu/hr)	Entering Heated Water Temp(°F)	Leaving Heated Water Temp(°F)	Supply Heating Capacity (Btu/hr)	Power Input (kW)
AHPW-125	80°F	65	150500	50	62	171400	6.12
		65	147500	60	72	169300	6.39
		66	142000	70	82	165700	6.95
		66	136500	80	92	162500	7.61
		67	131000	90	101	159500	8.36
		67	125000	100	111	156500	9.22
		68	118500	110	121	153300	10.2
		69	111500	120	131	150100	11.3
		70	104000	130	141	147004	12.6
		70	95600	140	150	143382	14
	85°F	69	159000	50	63	181350	6.54
		69	157250	60	73	179950	6.655
		71	139250	70	83	177100	7.135
		70	146250	80	92	172800	7.78
		71	139000	90	102	168050	8.51
		72	131500	100	112	163450	8.85
		73	123750	110	121	158900	10.3
		73	115500	120	131	154450	11.4
		74	107000	130	141	150200	12.65
		75	97800	140	150	145800	14.2
	90°F	73	172500	50	64	191300	6.96
		73	167500	60	74	190600	7.1
		74	160800	70	83	184300	7.32
		73	153600	80	93	176500	7.95
		73	141200	90	103	172500	8.66
		72	138000	100	112	165700	8.48
		71	129000	110	122	159500	10.4
		70	115500	120	131	154500	11.5
		70	109200	130	141	153200	12.7
		69	101500	140	151	149500	14.4

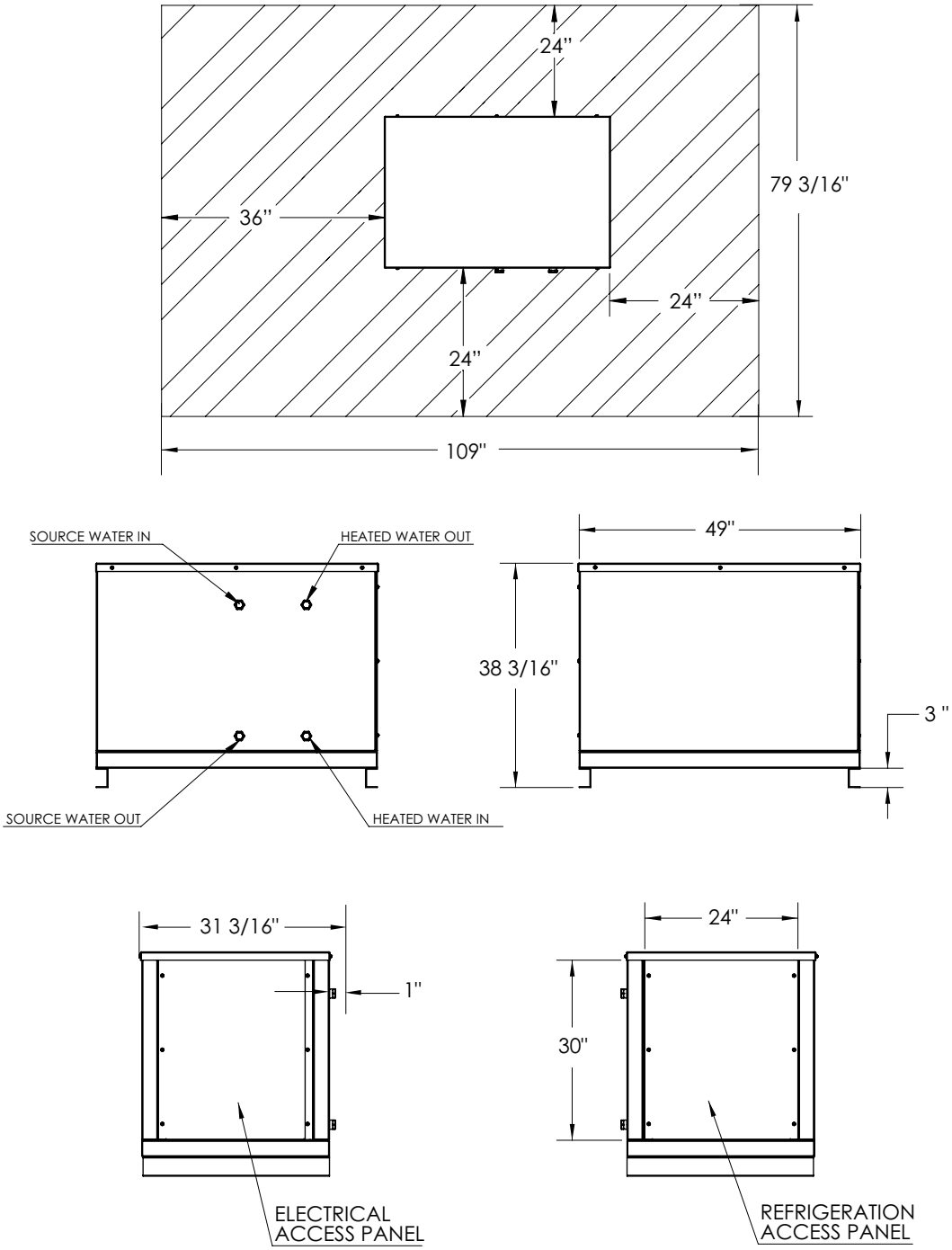
PERFORMANCE CHARTS





Water heated from 50°F to 150°F with 75°F entering source water temperature

DIMENSIONS



NOTE: 36" electrical service clearance per NEC 110.26(A)(1) Working Spaces for "Condition 1."
Check with local codes for additional requirements.

SUGGESTED SPECIFICATION

The HEAT PUMP shall be A. O. Smith Model AHPW-125 having a heating capacity capable of 146,792 BTU/h and cooling capacity of 110,775 BTU/h.

The HEAT PUMP shall have a scroll compressor, factory charged with R134a refrigerant, NSF61-approved stainless steel circulator pump, and double-wall stainless steel condenser for potable water applications. The HEAT PUMP shall be equipped with a stainless steel single-wall heat exchanger evaporator. The complete heat pump assembly shall carry a one (1) year limited warranty.

The HEAT PUMP refrigerant circuit shall contain an adjustable thermal expansion valve, receiver, accumulator, serviceable filter drier and service ports for refrigerant gauges.

The HEAT PUMP shall be certified and listed by TUV to CSA C22.2 No. 236:2015, UL 1995:2015-07 standards. The HEAT PUMP shall be certified for indoor and/or outdoor installation.

The HEAT PUMP shall be constructed with a heavy gauge aluminum jacket assembly and painted on both sides.

The HEAT PUMP shall utilize a 24 VDC control circuit and components. The control system shall have a display (PLC Option) for HEAT PUMP set-up, HEAT PUMP status and HEAT PUMP diagnostics. All components shall be easily accessed and serviceable. The HEAT PUMP shall be equipped with low and high refrigerant pressure switches short-cycle control outlet water temperature sensor and return water temperature sensor.

The HEAT PUMP shall have an optional control for "Cascade" to sequence and rotate while maintaining operation of up to eight HEAT PUMPs of same BTU inputs. The HEAT PUMP shall be capable of controlling a valve (single pass option) that maintains constant delivery temperature to the storage tank. The HEAT PUMP shall have an optional gateway device which will allow integration with BACnet.

The HEAT PUMP shall be equipped with terminal strips for electrical connections. A low voltage connection board shall have connection points for safety and operating controls, i.e., alarm contacts, runtime contacts and tank thermostat. A high voltage terminal strip shall be provided for supply voltage connection. Supply voltage shall be 208-230V/3PH/60Hz, 440-480V/3PH/60Hz, or 575V/3PH/60Hz.

The HEAT PUMP shall be suitable for use with polypropylene glycol, up to 50% concentration. The de-rate associated with the glycol will vary per glycol manufacturer.

STANDARD CONSTRUCTION

The HEAT PUMP shall be constructed in accordance with the code requirements as standard equipment.

For technical information, call 800-527-1953. A. O. Smith Corporation reserves the right to make product changes or improvements without prior notice.

hotwater.com | 800-527-1953 Toll-Free USA | A. O. Smith Corporation | 500 Tennessee Waltz Parkway | Ashland City, TN 37015