

### AHPW SERIES WATER SOURCE HEAT PUMP HEAT PUMP WATER HEATER

The A. O. Smith AHPW-185 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 groundwater
- 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](http://hotwater.com)



**MODEL AHPW-185**





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## HEAT PUMP WATER HEATERS

### SPECIFICATIONS

<b>Operating Conditions</b>	<b>Model Number</b>			<b>AHPW-185</b>	
	Recovery Rate †			270 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	
<b>Multi-Pass Unit Sizing</b>	Water Connections			2" FPT Copper	
	Condenser Water Flow Rate			40 GPM	
	Condenser Pressure Drop			15.73 ft Head	
	Evaporator Water Flow Rate			30 GPM	
	Evaporator Pressure Drop			10.17 ft Head	
	External Head Pressure Allowed by Unit			2.04 ft Head / 50 ft run of 2" pipe	
<b>Single-Pass Unit Sizing</b>	Water Connections			1 1/2" FPT Copper	
	Average Condenser Water Flow Rate			18.5 GPM	
	Condenser Pressure Drop			3.60 ft Head	
	Evaporator Water Flow Rate			30 GPM	
	Evaporator Pressure Drop			10.17 ft Head	
	External Head Pressure Allowed by Unit			14.24 ft Head / 50 ft run of 1 1/2" pipe	
<b>Unit Specifications</b>	Dry Weight			500 lbs	
	Operating Weight			615 lbs	
	Standard Sound Rating			93 dB	
	Dimensions (L x W x H)			49" x 31 3/16" x 38 3/16"	
<b>Power Requirements</b>	<b>Voltage</b>	<b>Compressor LRA</b>	<b>RLA</b>	<b>Wire and Disconnect Sizing ††</b>	
				<b>MCA</b>	<b>MCOP / MFS</b>
	208-230/3/60	505	78	97	100
	440-480/3/60	225	35	43	45
	575/3/60	180	29.3	36	40

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)

MCOP: Minimum Overcurrent Protection (minimum disconnect size to be used)



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## HEAT PUMP WATER HEATERS

### 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-185	45°F	37	127000	50	58	153850	8.3
		37	123500	60	68	152800	8.6
		37	120000	70	78	152200	9.0
		38	115000	80	88	151200	10.0
		38	109500	90	98	149700	11.2
		38	104500	100	108	148650	12.5
		38	99000	110	118	148000	14.1
		39	93500	120	128	147350	15.6
		39	89500	130	138	146100	16.8
		39	85000	140	148	145400	17.9
	50°F	41	139000	50	58	165700	8.5
		41	135000	60	68	164100	8.9
		41	130000	70	78	163200	9.15
		42	125000	80	88	161800	10.2
		42	119000	90	98	159900	11.4
		42	113000	100	108	158300	12.7
		42	108000	110	118	157500	14.3
		43	101000	120	128	156900	16.1
		43	98000	130	138	155200	17.3
		43	94000	140	148	154300	18.4
	60°F	48	163000	50	59	192500	8.9
		48	158000	60	69	189200	9.1
		49	153000	70	79	187000	9.4
		49	148000	80	89	185300	10.5
		50	140000	90	99	182200	11.8
		50	133000	100	109	181100	13.2
		51	127000	110	119	179100	14.7
		51	120000	120	129	178300	16.5
		52	114000	130	139	176400	18.1
		52	108000	140	149	175800	20.2
	70°F	57	196000	50	61	223500	9.9
		57	187000	60	71	219300	10.4
		58	179000	70	81	214800	10.8
		58	171000	80	91	211500	11.3
		58	164000	90	100	208600	12.2
		59	157000	100	110	206400	13.6
		59	149000	110	120	202800	15.2
		59	141000	120	130	201500	17
		60	135000	130	140	200000	18.4
		60	128000	140	150	198400	20.5



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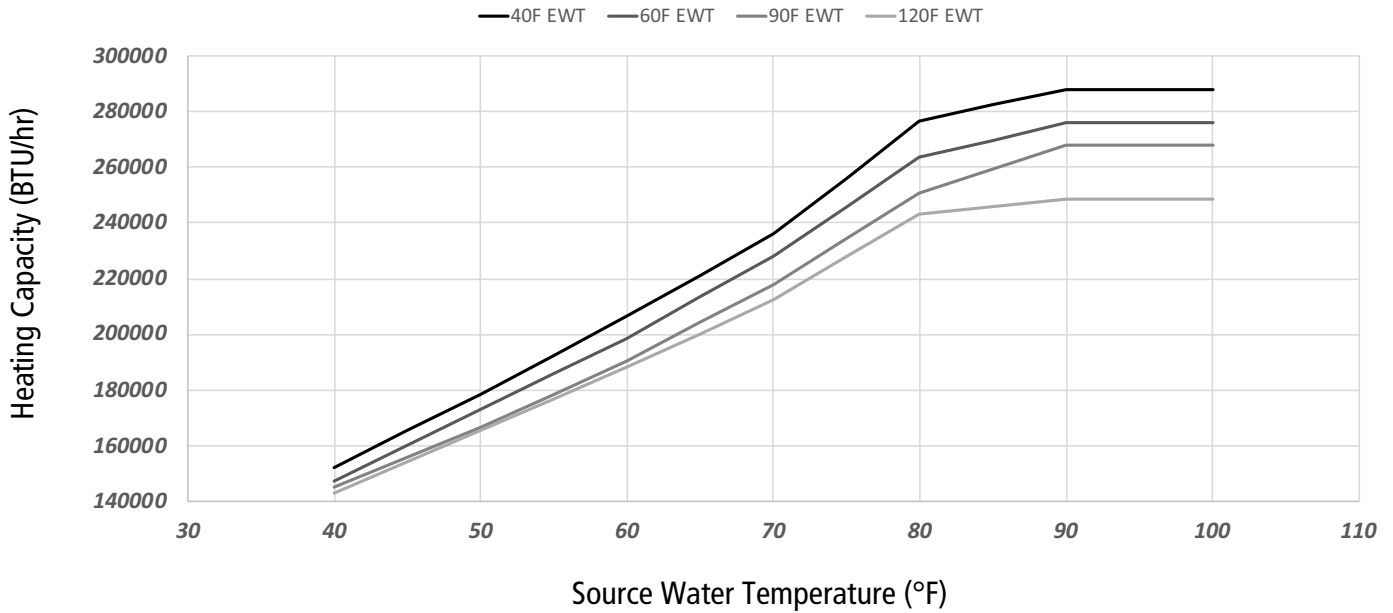
## HEAT PUMP WATER HEATERS

### PERFORMANCE DATA

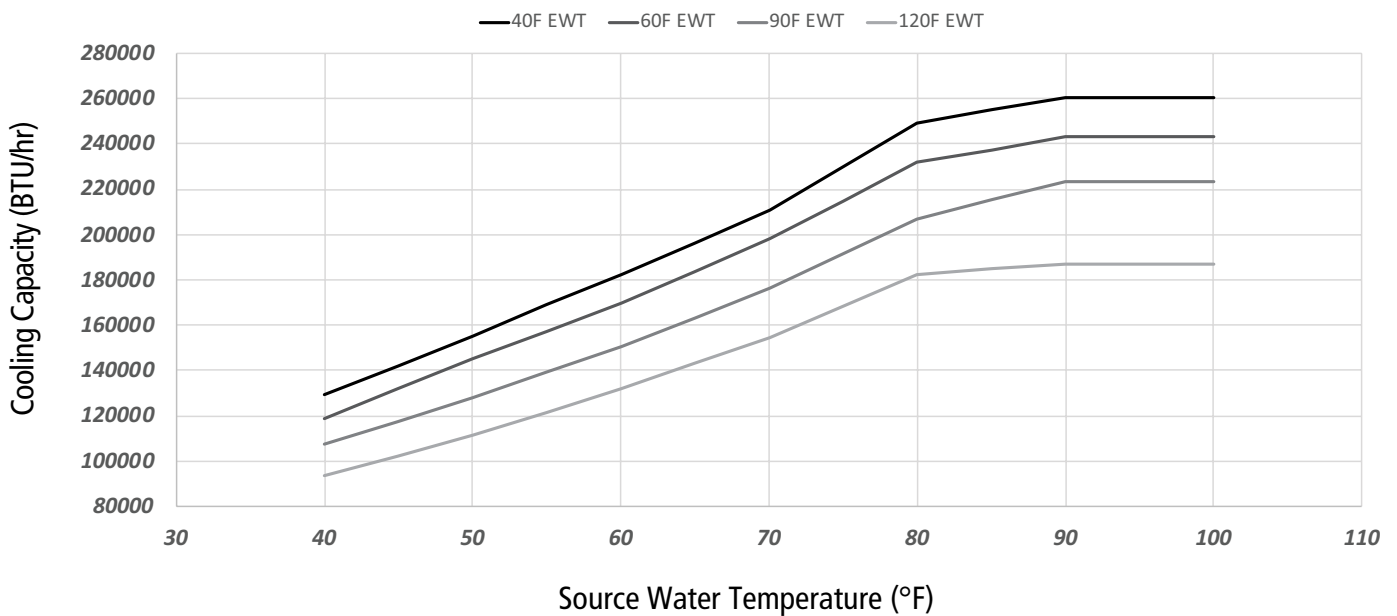
Model	Entering Source Water Temp(F°)	Leaving Source Water Temp(°F)	Source Cooling Capacity (Btu/hr)	Entering Heated Water Temp(°F)	Leaving Heated Water Temp(°F)	Supply Heating Capacity (Btu/hr)	Power Input (kW)
AHPW-185	80°F	65	226000	50	62	258500	10.1
		65	218000	60	72	254000	10.7
		66	210000	70	82	249500	11.1
		66	201000	80	92	244600	11.6
		66	192000	90	102	239700	12.8
		67	182000	100	112	233800	14.3
		67	172000	110	122	229600	15.9
		67	162000	120	132	225300	17.8
		68	156000	130	142	222000	18.6
		68	150000	140	152	217500	20.9
	85°F	70	234500	50	63	266050	10.3
		70	227000	60	73	261500	10.8
		70	219000	70	83	257500	11.3
		70	209750	80	93	252300	11.8
		71	200750	90	103	246200	12.9
		71	189250	100	112	239600	14.4
		71	179250	110	122	233800	16.1
		72	167750	120	132	229000	17.9
		72	161750	130	142	225250	18.8
		72	156250	140	152	221300	21.0
	90°F	74	243000	50	64	273600	10.4
		74	236000	60	74	269000	10.9
		74	228000	70	84	265500	11.4
		75	218500	80	93	260000	11.9
		75	209500	90	103	252700	13.0
		76	196500	100	113	245400	14.5
		76	186500	110	123	238000	16.2
		77	173500	120	132	232700	18.0
		77	167500	130	142	228500	18.9
		77	162500	140	152	225100	21.0

## PERFORMANCE CHARTS

### Heating Capacity vs. Source Water Temperature

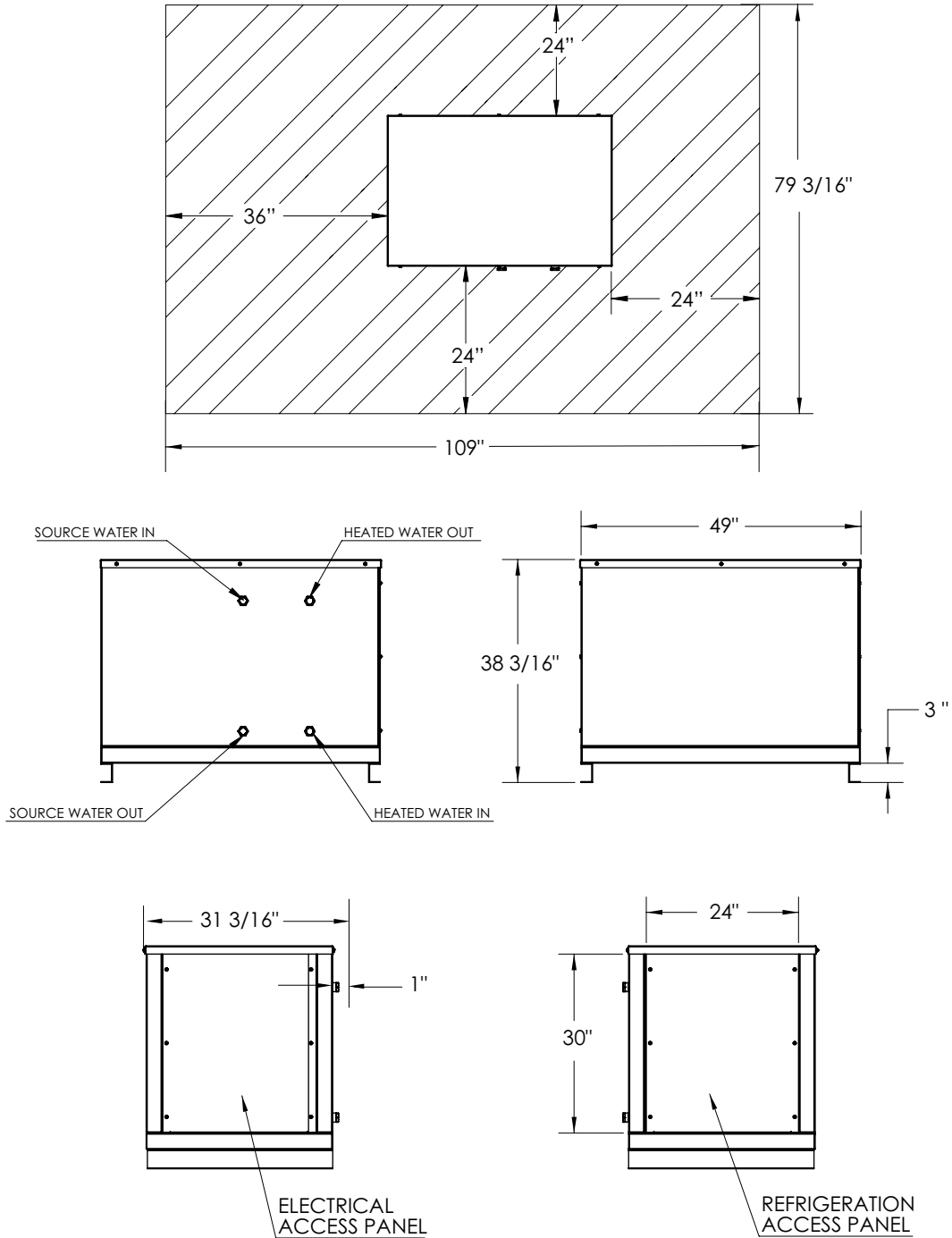


### Cooling Capacity vs. Source Water Temperature



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.



## COMMERCIAL HEAT PUMP WATER HEATERS

### SUGGESTED SPECIFICATION

The HEAT PUMP shall be A. O. Smith Model AHPW-185 having a heating capacity capable of 222,950 BTU/h and cooling capacity of 171,750 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.**