

## CHP SERIES

### FULLY INTEGRATED HEAT PUMP WATER HEATER

The CHP-120 heat pump water heater is an integrated system designed specifically for the commercial market.

#### FEATURES

##### ENERGY SAVING AND ENVIRONMENTALLY FRIENDLY

- Heat pump transfers heat from surrounding area into the tank
- Industry leading 4.3\* COP
- Multiple operating modes maximizes efficiency while meeting specific hot water needs
- Large capacity tank enables heat pump to operate more frequently than electric elements, saving money for the end user
- R-134a refrigerant
- ENERGY STAR® Qualified

##### COMMERCIAL PERFORMANCE

- First hour delivery of 194 GPH
- Rated heat pump power of 3.81 Horse Power (240Vac) or 3.69 Horse Power (208Vac)
- Electric heating element capacity of 12 kW (240Vac) or 9 kW (208Vac)
- Max water temperature of 150°F in efficiency/Hybrid modes and 180°F in electric mode
- Operating ambient range of 20 - 110 °F
- Low operating sound measured at 59 dB (A)
- Dual evaporator fans maximize performance and provide room cooling
- 3/4" NPT water inlet and outlet

\*DOE test standard, 80°F ambient with 63% humidity, inlet water temperature at 70°F, outlet water temperature at 120° F

#### EASE OF OPERATION

- Integrated design and pre-charged refrigeration system makes for quick and easy install
- Large touch screen LCD display allows for mode selection, provides run information and includes troubleshooting alerts and detail
- Choose from three operating modes: Efficiency, Hybrid or Electric

#### DEPENDABLE AND LONG LASTING DESIGN

- A. O. Smith-developed glass coated tank
- Tank rated at 160 PSI working pressure
- Commercial grade anode protects the tank and extends the service life
- Proven heat pump technology
- Electric elements have incoloy sheathing and provide excellent protection from oxidation and scaling

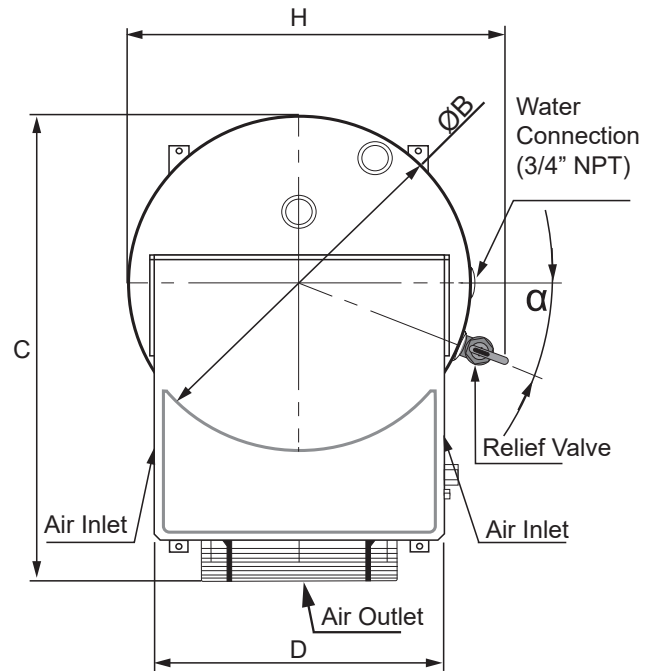
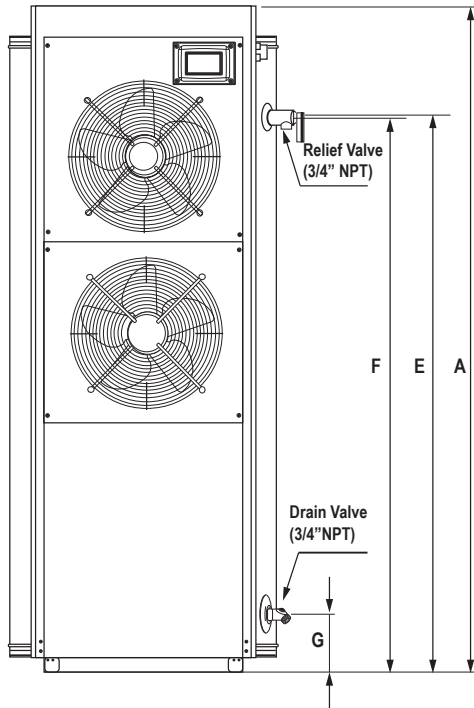
#### THREE YEAR LIMITED TANK WARRANTY

- Backed by 3-year tank and 1-year parts/compressor limited warranties
- For complete warranty information, consult written warranty or go to [hotwater.com](http://hotwater.com)



**MODEL CAHP 120**





### ROUGH-IN DIMENSIONS

Physical Dimensions								
Total Height (A)	Tank Diameter (B)	Maximum Depth (C)	Service Panel Width (D)	Relief Valve Height (E)	Water Outlet Height (F)	Water Inlet Height (G)	Relief Valve Angle $\alpha$ (°)	Maximum Width (H)
69 11/16	28 1/32	39 11/64	23 5/8	58 7/64	57 51/64	6 1/32	22	30 29/32

### MODEL SPECIFICATIONS

Model Number	Nominal Capacity	COP	Number of Elements	Total Element Wattage (both elements at 240V)	First Hour Delivery at 100° Temperature Rise in Hybrid Mode (GPH)	Recovery in GPH at 100° Temperature Rise in Hybrid Mode	Recovery in GPH for each operation mode	Approx. Shipping Weight (lbs)
CAHP 120	119	4.3*	2	12,000	194	99	Efficiency = 50 Hybrid = 99 Electric = 49	620

\*DOE test standard, 80°F ambient with 63% humidity, inlet water temperature at 70°F, outlet water temperature at 120° F



# COMMERCIAL HEAT PUMP WATER HEATERS

## RECOVERY CAPACITIES

Table 3. Recovery Rate In Gallons Per Hour															
Mode of Operation	Output		Temperature Rise °F												
	BTU/h	kW	F	30	40	50	60	70	80	90	100	110	120	130	140
			C	17	22	28	33	39	45	50	56	61	67	72	78
Efficiency	41,669	12.2	GPH	169	126	101	84	72	63	56	50	46	-	-	-
			LPH	638	478	382	318	272	238	211	190	173	-	-	-
Hybrid	82,615	24.2	GPH	334	250	200	167	143	125	111	99	91	-	-	-
			LPH	1265	948	757	630	540	472	419	377	343	-	-	-
Electric	40,946	12	GPH	166	124	99	83	71	62	55	49	45	41	38	35
			LPH	627	470	375	312	267	234	208	187	170	156	144	134
			Density (lb/gal)	8.24	8.25	8.26	8.27	8.28	8.29	8.30	8.30	8.30	8.29	8.28	8.27
			Stored Energy (BTU)	23,531	31,416	39,318	47,237	55,171	63,119	71,079	79,073	86,875	94,679	102,460	110,219
			Inlet (F)	110	100	90	80	70	60	50	40	40	40	40	40
			Outlet (F)	140	140	140	140	140	140	140	140	150	160	170	180

Technical Characteristics	
Model Type	Integrated Heat Pump Water Heater
COP	4.3
HP Rated Input Power	3.81 Horse Power (2.84kW)
HP Rated Heating Output Capacity	12.21 kW
Power Specification	208/240Vac ~ 60Hz 1Ph
Maximum Operation Current	67 A
Refrigerant	R134a
Refrigerant Charge Quantity	3.3 Lbs (1.5 Kg)
Electrical Heating Capacity	12.0 kW @ 240Vac and 9.0 kW @ 208Vac
Operation Modes	Efficiency, Hybrid, Electric
Max. Water Temperature	<b>Efficiency/Hybrid</b>
	150°F (66°C)
Max. Water Temperature	<b>Electric</b>
	180°F (82°C)
Operating Ambient Temperature	20 - 110°F (4.4 - 43.3°C)
Unit Operation Noise	59 dB (A)
Approx. Heater Weight	498 Lbs (226 Kg)
Approx. Shipping Weight	620 Lbs (281 Kg)



# COMMERCIAL HEAT PUMP WATER HEATERS

Installation Key Considerations	
Service clearances	A service clearance of 24 inches should be maintained from serviceable parts such as the T&P valve, control system components, drain valve, and anode.
Ambient air temperature	In Efficiency Mode, the heater will minimize element use when the ambient air temperature is between 45°F and 110°F
Room size requirement	Recommended to have a minimum installation space of approximately 3,200 cubic feet. Installation spaces less than the recommended could result in reduced water heater efficiency and performance. If the water heater is installed in a confined space with less than 3,200 cubic feet, provisions should be made to ensure sufficient airflow, such as installing louvered grills or fully louvered doors to ensure the most efficient operation of the water heater. Failure to do so could result in reduced heater efficiency and performance.
Amperage/Overcurrent protection	This water heater requires a 208 or 240 VAC single phase power supply. 208V requires 80 amp power supply at 60 Hz; 240V requires 90 amp power supply at 60 Hz.
Condensate draining	This water heater produces condensate and must be properly drained.
Ducting	There is not an optional ducting kit. Discharge air from the front of the water heater must be into a suitable room.
Indoor/Outdoor	This water heater is approved for indoor use only.
This is a partial list. Please reference the Installation Manual for detailed installation considerations.	

## SUGGESTED SPECIFICATION

The heater(s) shall be Commercial Heat Pump Model Number CAHP 120 as manufactured by A. O. Smith Water Products Company or equivalent. Heater(s) shall be rated at 12 kW @ 240V or 9 kW @ 208V, single phase, 60 cycle AC as listed by Underwriters' Laboratories. All models meet National Sanitation Foundation NSF-5 requirements. Water heater shall have LCD display with built-in diagnostic and troubleshooting information. Tank(s) shall be 119 gallon capacity with 160 psi working pressure and equipped with a commercial grade anode. All internal surfaces of the heater(s) exposed to water shall be glass-lined with an alkaline borosilicate composition that has been fused to steel by firing at a temperature range of 1400°F to 1600°F. Internal power circuit fusing shall be provided. The heat pump water heater shall be capable of operating in Efficiency, Hybrid or Electric only modes. 3/4" NPT inlet and outlet water connections shall be provided. The water heater tank shall have a three year limited warranty; the compressor, refrigeration components and all other parts shall have a one year limited warranty. Fully illustrated instruction manual to be included.

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