

# HEAT PUMP WATER HEATERS



**AC Smith**  
Innovation has a name.

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## Heat Pump Water Heaters

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# How do heat pump water heaters work?

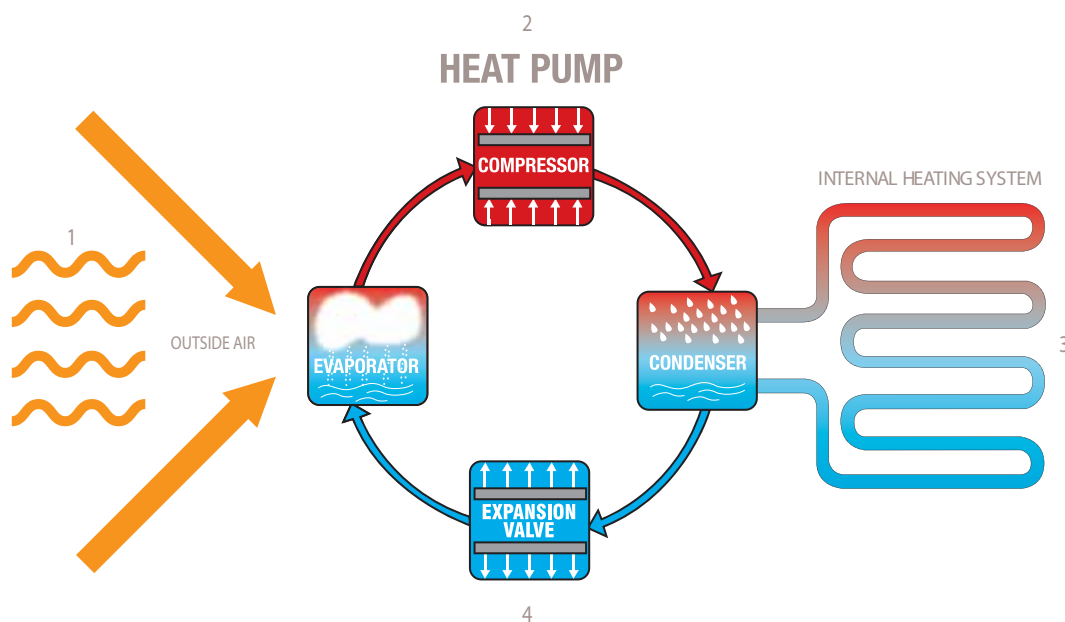
The technology inside the heat pump is similar to any domestic refrigerator, which uses a vapour compression cycle. The main components in the heat pump are the compressor, the expansion valve and two heat exchangers (an evaporator and a condenser).

1 Refrigerant in the evaporator is colder than the heat source. This causes the heat to move from the heat source (in this case the outside air) to the refrigerant, which then evaporates.

2 This vapour moves to the compressor and reaches a higher temperature and pressure.

3 The hot vapour now enters the condenser and gives off heat as it condenses.

4 The refrigerant then moves to the expansion valve; drops in temperature and pressure; and then returns to the evaporator.



## Benefits

- Reduced water heating costs upto 75 %
- Quick payback & return on investment
- Reliable hot water round the year
- Longest product life
- Reduced carbon emissions
- Silent operations
- Negligible maintenance costs

## Common Applications

- Hotels
- Resorts
- Serviced Apartments
- Hospitals
- School & College Hostels
- Restaurants & Kitchen
- Laundry
- Industry

## HPW Series

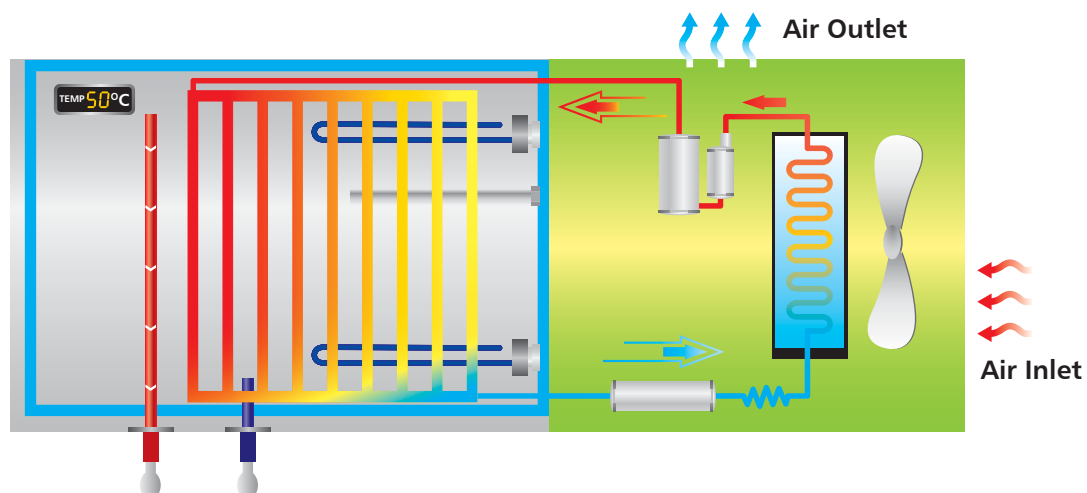
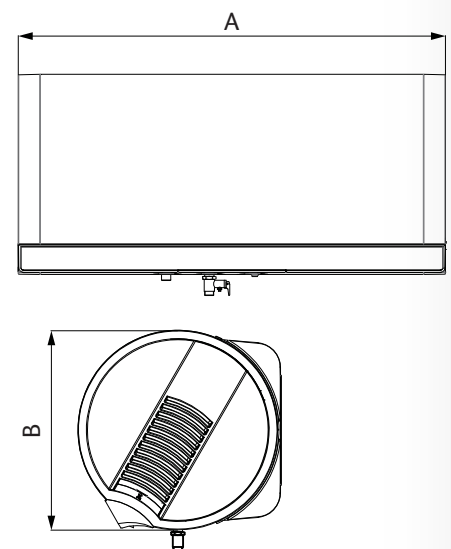
### Features

- Heat pump water temperature 55°C,  
Max water temperature 75°C
- Input 200w, COP 2.6
- Two elements back up for quick recovery
- Patented AES energy saving system
- Timer setting
- Remote control
- PS safety system
- R134a Green refrigerant
- Wall mounted



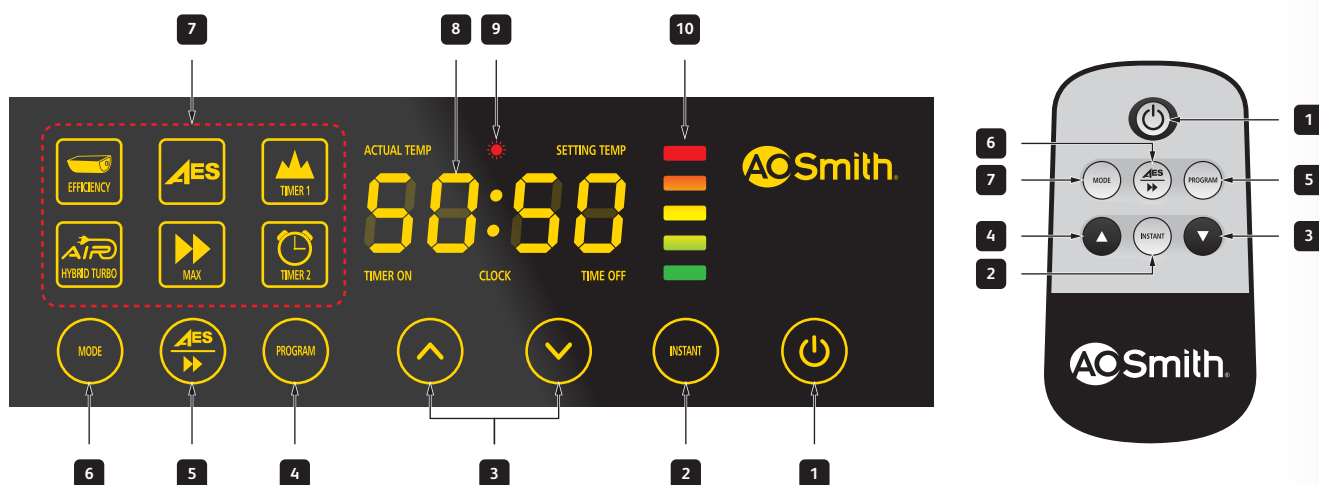
### Technical Specification

MODEL	HPW-60A2	HPW-80A2
Rated volume [L]	60	80
Rated voltage [V] / Rated frequency [Hz]	220 / 50	220 / 50
Rated input power [W] / Rated current [A]		
Efficiency mode	210 / 0.95	210 / 0.95
Hybrid Turbo mode	2200 / 10	2200 / 10
MAX mode	3000 / 13.7	3000 / 13.7
Heating Capacity [W]		
Efficiency mode	540	540
Hybrid Turbo mode	2540	2540
MAX mode	3000	3000
Inner tank rated pressure [MPa]	0.8	0.8
Range of water temperature [°C]	35-75	35-75
Environment range of energy-saving mode [°C]	10-44	10-44
Dimensions [A x B] [mm]	837 x 473	992 x 473
Net weight [kg]	42	45



## Touch Control and Remote Control

Convenience to access your water heater with Touch Control and Remote Control.



- 1 Power ON/OFF button:**  
Press Power ON/OFF button, the heater will be power-on. Setting temp and actual temp will be displayed a few seconds later.
- 2 Instant Heating button:**  
Users can select instant heating by pressing this button at all times and the water heater starts electrical heating immediately to reach the preset temperature. The heating is just one time.
- 3 Increase/Decrease button:**  
Press the Increase/Decrease button again to make the preset temperature increase or decrease by 1. And adjusting clock, timer also.
- 4 Program button:**  
Program is to set up clock, and timing for heating. Two timers is available.
- 5 AES/MAX button:**  
AES feature adopts heating cycles automatically, which will facilitate water usage and save energy by minimizing thermal loss.  
MAX function means more hot water output.
- 6 Mode button:**  
Change mode of Efficiency or Hybrid Turbo by touch Mode button.
- 7 Indicators:**  
This indicates the water heater is working in which mode, AES/MAX, timer, etc.,
- 8 Digital Indicators:**  
This indicates the water heater is working temperature, clock, timer setting, etc.,
- 9 Heating Indicator:**  
Indicator glows when the heating is in progress.
- 10 Display of hot water:**  
Five lighting blocks display the hot water distribution of different levels in the water tank of the water heater.



## HPI-D Series

### Features

- Heat pump water temperature 55°C,  
Max water temperature 75°C
- Heat pump input 460w, COP 3.8
- Two elements back up for quick recovery
- Patented AES energy saving system
- Timer setting
- Remote control
- PS safety system
- R134a Green refrigerant

### Technical Specification

MODEL	HPI-40DI.0BE	HPI-50DI.0BE
Rated volume [L]	150	180
Voltage / Frequency [V/Hz]	220~ / 50	220~ / 50
Rated Input power	3000	3000
Rated current (A)	13.6	13.6
Maximum power of quick heating [W]	3000	3000
Maximum power of quick heating [A]	13.6	13.6
Water temperature range [°C]	35~75	35~75
Ambient temperature range for Efficiency [°C]	-7~43	-7~43
Tank rated pressure (bar)	10	10
Dimension A [mm]	1660	1850
Diameter of Tank	Ø520	Ø520
Weight of Tank (kg)	87	92



#### Energy Saving Heating:

The New generation water heater extracting heat from the atmosphere and using it for heating water.

#### Max:

MAX function for more hot water output, therefore better bathing experience.

#### AES (adaptive energy-saving system):

AES feature adopts heating cycle automatically, which will facilitate water usage and save energy by minimizing thermal loss.

#### Hot water amount display:

Indicates the amount of hot water available in the tank.

#### Intelligent defrosting:

The automatic intelligent defrost function solves the problems like freezing of exchanger, frosting and resumes the system to operate efficiently.

#### Wired remote controller:

The controller and the unit are to be installed separately for clear view sight and convenient operation.

#### Glass-lined special protective tank:

Patented glass-lined protection by A. O. Smith for better tank life.

#### Anode rod protection:

A powerful steel-core-anode rod to protect tank and prolonged service life of the heat pump water heater.

#### High efficiency Energy Saving Insulation:

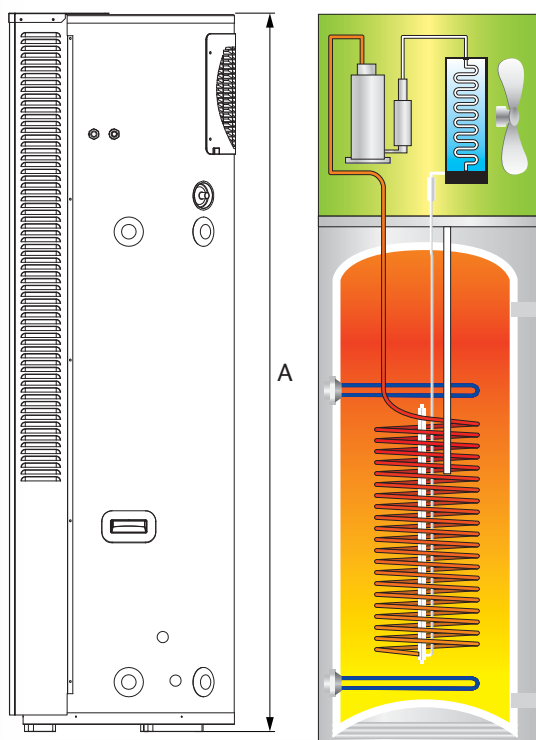
A polyurethane foam insulating layer reduces heat loss effectively.

## Wired Touch Control

Convenience to access your water heater with Wired Touch Control.



- 1 Power ON/OFF button:**  
Press Power ON/OFF button, the heater will be power-on. Setting temp and actual temp will be displayed a few seconds later.
- 2 Instant Heating button:**  
Users can select instant heating by pressing this button at all times and the water heater starts electrical heating immediately to reach the preset temperature. The heating is just one time.
- 3 Increase/Decrease button:**  
Press the Increase/Decrease button again to make the preset temperature increase or decrease by 1. And adjusting clock, timer also.
- 4 Program button:**  
Program is to set up clock, and timing for heating. Two timers is available.
- 5 AES button:**  
AES feature adopts heating cycles automatically, which will facilitate water usage and save energy by minimizing thermal loss.
- 6 Mode button:**  
Change mode of Efficiency or Hybrid Turbo by touch Mode button.
- 7 Indicators:**  
This indicates the water heater is working in which mode, AES, timer, etc.,
- 8 Digital Indicators:**  
This indicates the water heater is working temperature, clock, timer setting, etc.,
- 9 Heating Indicator:**  
Indicator glows when the heating is in progress.
- 10 Display of hot water:**  
Five lighting blocks display the hot water distribution of different levels in the water tank of the water heater.
- 11 Circulation Pump:**  
Controls the building Re-circulation pump (sold seperately)



## HPA-80/120 Split type

### Features

- Heat pump water temperature 65°C,  
Max water temperature 75°C
- Two elements back up for quick recovery
- Patented AES energy saving system
- Timer setting
- Remote control
- R134a Green refrigerant

#### Energy Saving Heating:

The New generation water heater extracting heat from the atmosphere and using it for heating water.

#### Max:

MAX function for more hot water output, therefore better bathing experience.

#### AES (adaptive energy-saving system):

AES feature adopts heating cycle automatically, which will facilitate water usage and save energy by minimizing thermal loss.

#### Hot water amount display:

Indicates the amount of hot water available in the tank.

#### Intelligent defrosting:

The automatic intelligent defrost function solves the problems like freezing of exchanger, frosting and resumes the system to operate efficiently.

#### Wired remote controller:

The controller and the unit are to be installed separately for clear view sight and convenient operation.

#### Glass-lined special protective tank:

Patented glass-Lined protection by A. O. Smith for better tank life.

#### Anode rod protection:

A powerful steel-core-anode rod to protect tank and prolonged service life of the heat pump water heater.

#### High efficiency Energy Saving

##### Insulation:

A polyurethane foam insulating layer reduces heat loss effectively.



### Technical Specification

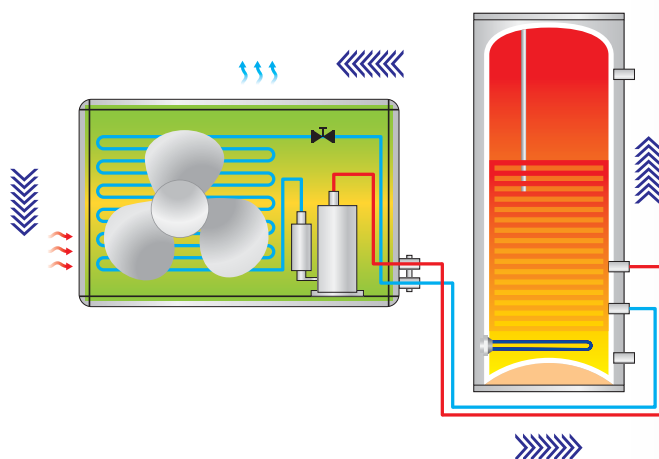
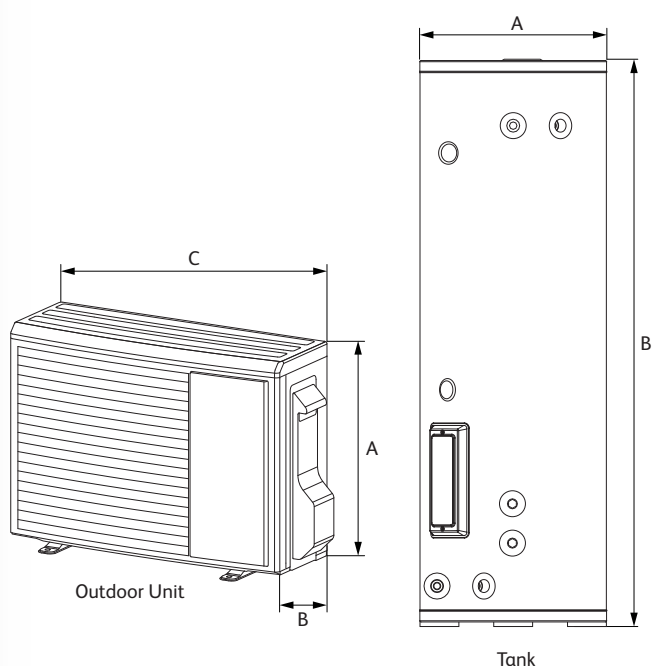
MODEL	HPA-80C1.5A	HPA-120D2.0A
Rated volume [L]	300	450
Voltage / Frequency [V/Hz]	220~ / 50	220~ / 50
Rated Input / Current [W/A]		
Efficiency Mode	1010/4.6	1380/6.5
Hybrid Turbo Mode	2010/9.1	2380/11
Output(W) COP	3.6	4.2
Efficiency Mode	3640	5800
Hybrid Turbo Mode	4640	4200 (Max. Power Consumption)
Water temperature range [°C]	35~75	35~75
Ambient temperature range for Efficiency [°C]	-7~43	-7~43
Tank rated pressure (bar)	10	10
External unit dimension A [mm]	560	740
B [mm]	320	350
C [mm]	835	820
Tank dimension A [mm]	Ø610	Ø710
B [mm]	1640	1660
Weight of external unit (kg)	37	55
Weight of tank (kg)	98	133
Refrigerant/Qty	R1349/940(g)	R1349/1400(g)

## Wired Touch Control

Convenience to access your water heater with Wired Touch Control.



- 1 Power ON/OFF button:**  
Press Power ON/OFF button, the heater will be power-on. Setting temp and actual temp will be displayed a few seconds later.
- 2 Instant Heating button:**  
Users can select instant heating by pressing this button at all times and the water heater starts electrical heating immediately to reach the preset temperature. The heating is just one time.
- 3 Increase/Decrease button:**  
Press the Increase/Decrease button again to make the preset temperature increase or decrease by 1. And adjusting clock, timer also.
- 4 Program button:**  
Program is to set up clock, and timing for heating. Two timers is available.
- 5 AES button:**  
AES feature adopts heating cycles automatically, which will facilitate water usage and save energy by minimizing thermal loss.
- 6 Mode button:**  
Change mode of Efficiency or Hybrid Turbo by touch Mode button.
- 7 Indicators:**  
This indicates the water heater is working in which mode, AES, timer, etc.,
- 8 Digital Indicators:**  
This indicates the water heater is working temperature, clock, timer setting, etc.,
- 9 Heating Indicator:**  
Indicator glows when the heating is in progress.
- 10 Display of hot water:**  
Five lighting blocks display the hot water distribution of different levels in the water tank of the water heater.
- 11 Circulation Pump:**  
Controls the building Re-circulation pump (sold seperately)



## CAHP-1.5HP DI

### Features

- Unique heat exchanger design, heat pump water temperature to 65°C
- Energy saving, fast heating, electric back up and standard modes for choosing
- Smart control to avoid cold water mixing
- LCD display
- R134a green refrigerant
- Integrate design for outdoor installation
- Available in 300 & 450 Litre storage

### Wired Remote Control

Convenience to access your water heater with Wired Touch Control.

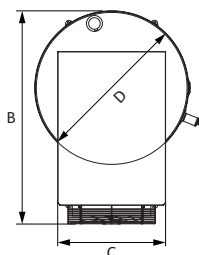
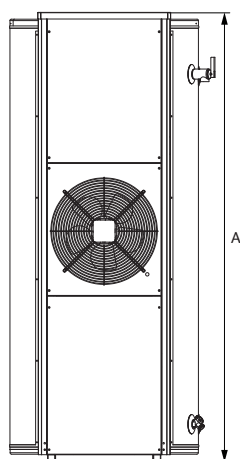


- 1 Power ON/OFF button:**  
Press Power ON/OFF button, the heater will be power-on. Setting temp and actual temp will be displayed a few seconds later.
- 2 Instant Heating button:**  
Users can select instant heating by pressing this button at all times and the water heater starts electrical heating immediately to reach the preset temperature. The heating is just one time.
- 3 Increase/Decrease button:**  
Press the Increase/Decrease button again to make the preset temperature increase or decrease by 1. And adjusting clock, timer also.
- 4 Program button:**  
Program is to set up clock, and timing for heating. Two timers is available.
- 5 AES button:**  
AES feature adopts heating cycles automatically, which will facilitate water usage and save energy by minimizing thermal loss.
- 6 Mode button:**  
Change mode of Efficiency or Hybrid Turbo and Standard (Timing) by touch Mode button.
- 7 Indicators:**  
This indicates the water heater is working in which mode, AES, timer, etc.,
- 8 Digital Indicators:**  
This indicates the water heater is working temperature, clock, timer setting, etc.,
- 9 Heating Indicator:**  
Indicator glows when the heating is in progress.
- 10 Display of hot water:**  
Five lighting blocks display the hot water distribution of different levels in the water tank of the water heater.
- 11 Circulation Pump:**  
Controls the building Re-circulation pump (sold separately)



## Technical Specification

Model			CAHP1-5DI-80-6	CAHP1-5D-120-6	CAHP1-5D-120-12
Model Type	/	Outdoor integrated heat pump water heater			
HP Rated Power	W	875			
HP Rated heating capacity	W	3680			
COP	W/W	4.20			
Electrical Heating Capacity	W	6000	6000	12000	
Maximum Operation	400V / 3N / 50Hz	A	/	/	37.5
Current	230V / 1N / 50Hz	A	38.7	38.7	71.9
Hot Water Delivering	Efficiency	L/h	79.7		
Rate	High Demand	L/h	201	201	323
Refrigerant	/	R134a			
Refrigerant charge quantity	g	940			
Tank capacity	L	300	455	455	
Net Weight	Kg	161	194	194	
Operation Weight	Kg	461	649	649	
Water Temp in efficiency mode	°C	65			
Operation Temperature Range	°C	37~75			
Ambient Temperature for HP	°C	-7~43			
Ambient Temperature for Unit	°C	-15~50			
Unit Operation Noise	dB (A)	54			
Air Outlet Noise	dB (A)	58			
Demison (LxWxH) mm	mm	910x610x1700	1012x713x1700	1012x713x1700	
Anode	/	Aluminum Rod			
Control Mode	/	Led wire Display (Standard 10m, Optional Maxium 30 m)			
Operation Mode	/	Efficiency, High Demand, Standard			
Other Control Functions	/	Timer, Fault Alarming, Water pump controlling, AES HP			
Power Supply Specifications	/	230V~50Hz	230V~50Hz	400V 3N~50Hz	
Connection Size ~ Inlet / Outlet / T&P Valve	/	NPT 3/4 (Female Thread)			
Drain Valve	/		NPT 3/4 (Female Thread)		



## CAHP-3HP DI

### Features

- Unique heat exchanger design, heat pump water temperature to 65°C
- Energy saving, fast heating, electric back up and standard modes for choosing
- Smart control to avoid cold water mixing
- LCD display
- R134a green refrigerant
- Integrate design for outdoor installation

### Wired Touch Control

Convenience to access your water heater with Wired Touch Control.



- 1 Power ON/OFF button:**  
Press Power ON/OFF button, the heater will be power-on. Setting temp and actual temp will be displayed a few seconds later.
- 2 Instant Heating button:**  
Users can select instant heating by pressing this button at all times and the water heater starts electrical heating immediately to reach the preset temperature. The heating is just one time.
- 3 Increase/Decrease button:**  
Press the Increase/Decrease button again to make the preset temperature increase or decrease by 1. And adjusting clock, timer also.
- 4 Program button:**  
Program is to set up clock, and timing for heating. Two timers is available.
- 5 AES button:**  
AES feature adopts heating cycles automatically, which will facilitate water usage and save energy by minimizing thermal loss.

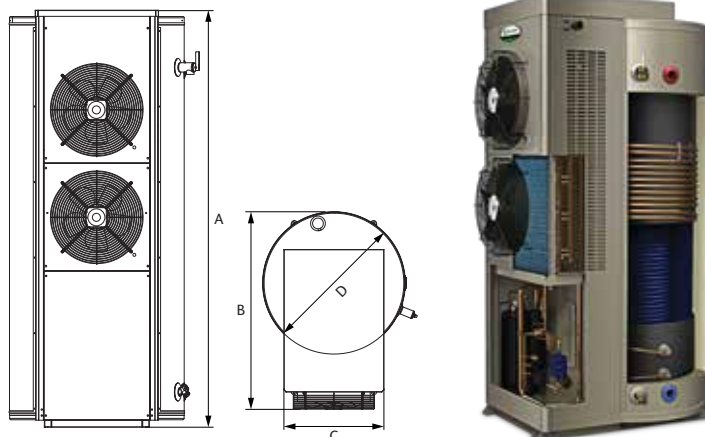
- 6 Mode button:**  
Change mode of Efficiency or Hybrid Turbo and Standard (Timing) by touch Mode button.
- 7 Indicators:**  
This indicates the water heater is working in which mode, AES, timer, etc.,
- 8 Digital Indicators:**  
This indicates the water heater is working temperature, clock, timer setting, etc.,
- 9 Heating Indicator:**  
Indicator glows when the heating is in progress.
- 10 Display of hot water:**  
Five lighting blocks display the hot water distribution of different levels in the water tank of the water heater.
- 11 Circulation Pump:**  
Controls the building Re-circulation pump (sold separately)



## Technical Specification

Model			CAHP3.0-120-6	CAHP3.0-120-12
Model Type		/	Outdoor integrated heat pump water heater	
HP Rated Power		kW	2.22	
HP Rated heating capacity		kW	8	
COP		W/W	3.6	
Electrical Heating Capacity		W	6000	12000
Maximum Operation Current	400V / 3N / 50Hz	A	15.8	31.5
	230V / 1N / 50Hz	A	47.1	78.5
Hot Water Delivering Rate	Efficiency	A	172	172
	High Demand	A	295	418
Refrigerant		/	R134a	
Refrigerant charge quantity		g	1850	
Tank capacity		L	455	
Net Weight		Kg	229	
Operation Weight		Kg	684	
Water Temp in efficiency mode		°C	65	
Operation Temperature Range		°C	35~75	
Ambient Temperature for HP		°C	-7~48	
Ambient Temperature for Unit		°C	-15~50	
Unit Operation Noise		dB (A)	59	
Air Outlet Noise		dB (A)	62	
Demison (LxWxH) mm		mm	995x785x1700	
Anode		/	Aluminum Rod	
Control Mode		/	Led wire Display (Standard 10m, Optional Maxium 20 m)	
Operation Mode		/	Efficiency, High Demand, Standard	
Other Control Functions		/	Timer, Fault Alarming, Anti freezing, Water pump controlling	
Power Supply Specifications		/	230V~50Hz and 400V/3N/50Hz	
Connection Size ~ Inlet / Outlet / T&P valve Drain valve		/	3/4 Inch (Female Thread)	

Heat pump performance is the mean performance under condition\* 20(dry bulb) / 15(wet bulb) Cambient temperature and 15°C to 55°C water temperature\*



## CAHP-10HP

### Features

- Smart control to avoid cold water mixing
- Energy Saving
- Power Off memory
- Auxiliary heater
- Refrigerant: R410



### Technical Specification

Technical Specifications		
ITEM	CAHP-MC-38 (10HP)	CAHP-MC-19 (5HP)
POWER SUPPLY	380V 3N ~ 50Hz	380V 3N ~ 50Hz
VOLTAGE RANGE	380V +/- 10%	380V +/- 10%
RATED HEATING CAPACITY(1)	38 kW	19.8 kW
RATED WATER FLOW(1)	6.5 CMH	3.4 CMH
RATED POWER INPUT (1)	10.3 kW	6.02 kW
RATED OPERATION CURRENT(1)	18.6 A	11.0A
MAX. POWER INPUT	13.2 kW	6.8 kW
MAX. OPERATION CURRENT	23.3 A	11.7 A
OPERATION NOISE (2)	65 dB(A)	60 dB(A)
REFRIGERANT / QUANTITY	R410a / 6.2kg	R410a / 2.8kg
REFRIGERANT SIDE HIGH SIDE	4.2 Mpa	4.4 Mpa
DESIGN PRESSURE LOW SIDE	3.1 Mpa	3.1 Mpa
WATER SIDE DESIGN PRESSURE	1.0 Mpa	1.0 Mpa
WATER SIDE PRESSURE DROP (3)	45 kPa	73 kPa
WATER CONNECTION SIZE	DN40 (R1 1/2")	DN32 (R1 1/4")
WATERPROOF CLASS	IPX4	IPX4
NET WEIGHT	287 kg	170 kg
DIMENSIONS (L x W x H)	1020 x 846 x 1840 mm	719 x 761 x 1160 mm

Note:

(1) Rated condition: Ambient temperature 20/15°C (dry/wet bulb), water temperature 47/52°C (inlet/outlet).

(2) Sound pressure value at one meter.

(3) Measured at the rated water flow.

## COMMON APPLICATIONS

<b>Commercial</b>	: Restaurant/Kitchens
<b>Institutional</b>	: Hospitals, Hotels, Schools, Hostels, Resorts
<b>Residential</b>	: Villas, Apparments, Guest houses
<b>Industrial</b>	: Factories, Laundries

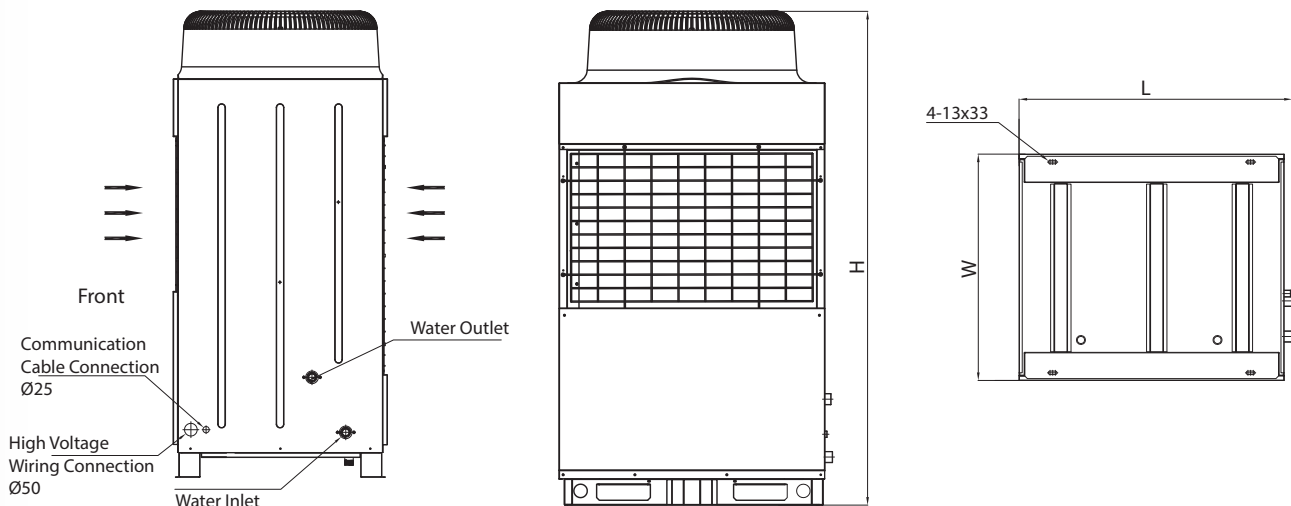
## WHY ARE HEAT PUMP WATER HEATERS AN ENVIRONMENTALLY FRIENDLY CHOICE?

- High efficiency with coefficient of performance (COP) up to 4
- No fossil fuels are used or burned at the source
- Ozone layer-friendly refrigerant R410a
- Uses less electricity than standard electric water heaters
- Contributes to space cooling at the same time
- Taps into heat sources typically discarded by other units for peak efficiency

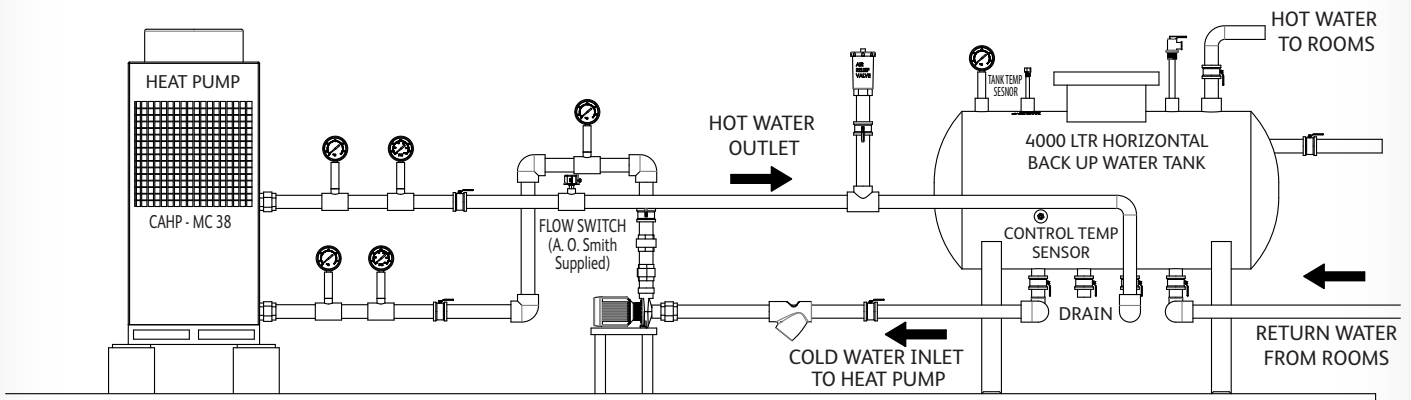
## HOW DO HEAT PUMP WATER HEATERS WORK?

Heat pump water heaters capture heat and humidity from the surrounding atmosphere through the cooling coil and utilize it for heating potable water. Simply put, they move heat from where it is not needed to where it is wanted. This innovative advanced technology provides low cost hot water and free cooling (by product).

### Physical Dimensions



## SCHEMATIC DRAWING





## A.O. Smith Corporation

### A. O. Smith Corporation

A. O. Smith Corporation is one of the world's leading manufacturers of residential and commercial water heating equipment, offering a comprehensive product line featuring the best-known brands in North America, China, and India.

The company was founded in 1874 in Milwaukee, Wisconsin where today the company is headquartered. A. O. Smith employs approximately 11,400 men and women at operations in the United States, Canada, Mexico, China, India, the United Kingdom, the Netherlands, and Turkey, which has the global reach to serve customers worldwide. We also have sales and distribution in more than 60 countries around the world.

As a global leader A. O. Smith and its employees pride themselves on applying innovative technology and energy-efficient solutions to products marketed worldwide. The company's goal is to be a leading global water technology company, and our focus is on building this platform through new product development, global expansion, strategic acquisitions and partnerships.

### A. O. Smith India

A. O. Smith India was incorporated in 2006. Manufacturing facilities is set up in Harohalli, Bengaluru, India. After conducting extensive market research, a special range of water heaters have been developed for the Indian market. A. O. Smith inaugurated their manufacturing facility in their state-of-the-art factory in Harohalli, Bengaluru in June 2010.



### REGISTERED OFFICE:

**Manufactured by A. O. Smith India Water Products Private Limited**

Plot No. 300, Phase - II, KIADB Industrial Area, Harohalli, Kanakapura Taluk, Ramanagara District, Karnataka – 562 112, India.

CIN: U31909KA2006PTC040282