



# BENCHMARK®

Air to Water Heat Pump System

**Quality at the forefront of Technology**  
**Safety features you can Trust**  
**Service you can count on**  
**WE REDEFINE BENCHMARK**

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Benchmark excels in providing simple installations to customized  
Water Heating Solutions to discerning buyers.  
Be it Heat Pump, Gas, Solar or Electric an amalgamation of technologies.  
No wonder why our customers Trust Us  
when it comes to providing Hot Water Solution.



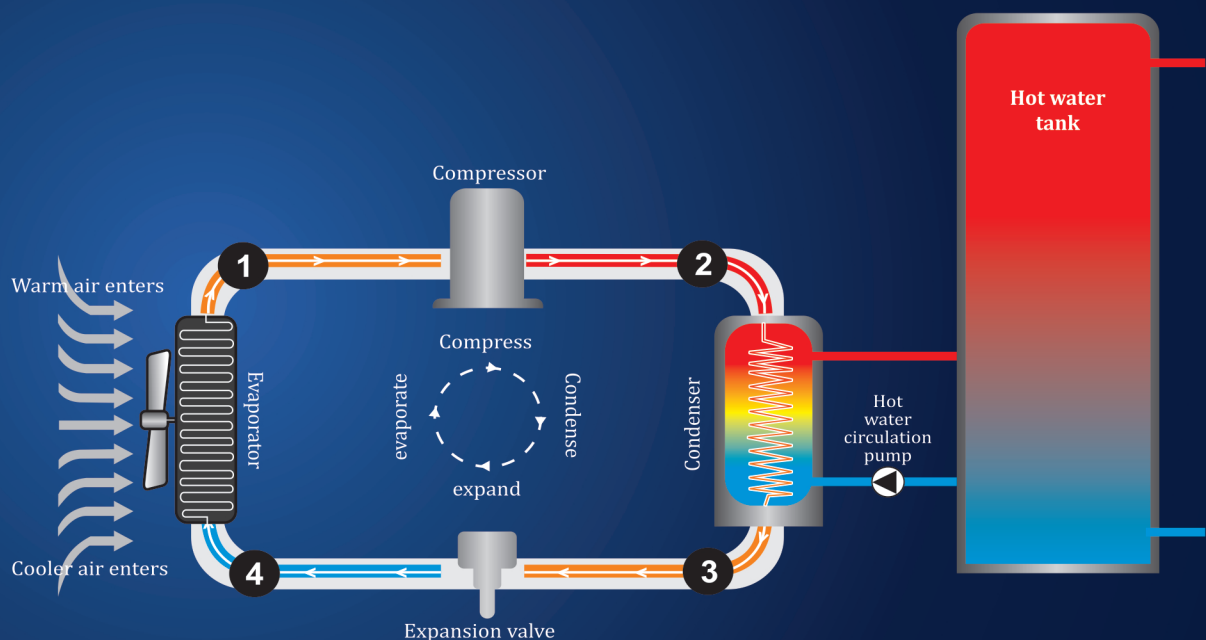
**Setting new quality standards**

## Heat Pump

Benchmark Agencies Pvt. Ltd. began its operation in 2004 with the objective of providing world class water heaters suitable to Indian water conditions and great value for money to consumers.

- BENCHMARK introduces a Fifth Generation series in water heater with an innovative approach involving a creative design – A Heat Pump.
- Ultra-efficient equipment with amazing SEER [Seasonal Energy Efficiency Ratio] of more than 5.0 is the foundation feature of device performance. This reflects in drastic reduction in running cost to  $\frac{1}{4}$  of resistive electrical heater,  $\frac{1}{3}$  of gas heater and  $\frac{1}{2}$  of oil-fired heater
- Using Reverse Carnot cycle as the principle of operation, the device has inbuilt safety feature and fully protected against electrical hazards like shocks, leakages etc.
- Electricity heats the refrigerant through compression and in turn hot refrigerant heats the water. This arrangement of two-step heating completely isolates water from electrical power and thus provides a totally safe operation.
- Can be used as a source to the single point consumer of hot water or as a centralized source for multiple uses at various outlets in the premises. Multiple applications can be supported like bathing, laundries and dish washing.
- Sturdy construction and durable design with life span of 10 to 15 years of trouble free operation with minimum of maintenance.
- Fully automatic digital control hardware and software to regulate the un-manned operation on 365x24x7 basis for temperature, flow and heat buffering of heat energy.
- Fully supporting the de-frosting phenomenon.
- Eco-friendly with zero ozone depletion layer performance and reduction of greenhouse effect.

### Working principle



1. Cold refrigerant absorb heat from the air/water and become warm refrigerant.
2. Warm refrigerant be compressed as hot refrigerant.
3. Hot refrigerant transfer heat to water.
4. Hot refrigerant become cold after expanding.

## Latest generation water heater working on the principle of reverse Carnot cycle

Highly energy efficient

25% to 30% energy consumption as compared to conventional resistive electric heaters

COP from 3.8 to 4.5

Ideally suited for centralized hot water system, swimming pool and as backup equipment for large solar projects

Economic electric backup for large solar system

Hot and cold water option

### World famous components

Copeland & panasonic compressor

R410a / R 417a - Eco friendly refrigerant

Emerson expansion valve

Wilo circulation pump

High efficiency heat exchanger

Multi-function digital control panel



### Heat Pump specification

Model		BMHP 4.6	BMHP 6.5	BMHP 9.3	BMHP13	BMHP 19	BMHP 39
Power supply	V/PH/HZ	220/1/50			220/1/50	415/3/50	
Refrigerant & compressor		R410a/Panasonic rotary			R417a/Copeland scroll		
Air outlet		Side			Top		
Rated input	Kw	1.22	1.7	2.45	2.8	4.3	8.47
Rated output	Kw	4.6	6.5	9.3	13	19	39
COP		3.8	3.8	3.8	4.6	4.4	4.6
Rated working current	A	6.3	8	11.3	12	24	45
Rated water heating capacity $\Delta T$ 40°C		100	140	200	280	410	820
Rated water outlet temp.	C	55					
Max. outlet water temp.	C	60					
Circulation pump flow	m3/hr.	2	2	2.5	2.5	3	5
Compressor qty.		1	1	1	1	1	2
Fan qty.		1	1	1	1	1	2
Sound level	dBa	52			65		
Water inlet/outlet	Inch	3/4"			3/4"	1"	1.5"
Operating temperature range		-5°C to 43°C					
Water-refrigerant heat exchanger		Copper pipe in steel case heat exchanger					
Evaporator		Glod color aluminum fin/Copper tube type evaporator					
Defrosting		Included					
Controller		Controller with 5mtr. Signal wire					
Outline dimension		930x360x560		1000x370x630	710x710x850	810x810x1055	1450x705x1180
Weight	Kg.	50	55	70	100	147	280
Suitable tank capacity	Ltr.	300/400	500	750/1000	1000/1500	1500/2000	2500 to 4000

**Testing Condition:** 1. Dry-bulb temperature 20°C, 2. Wet-bulb temperature 15°C, Water outlet temperature 55°C

Company reserves the right to change specifications and models without prior notice.

## Glass enamel tank

- ◆ Consists of hot rolled steel with double internal layer of enamel, processed at 860<sup>o</sup>c according to DIN 4753 standard.
- ◆ Floor standing model.
- ◆ Magnesium anodes for hard water.
- ◆ Electric tubular heating element produced in Eldominvest using the last generation technology.
- ◆ Thick insulation made of CFC free polyurethane foam, ensuring minimal heat losses and energy saving.
- ◆ Precision thermometer for all models.
- ◆ Water, suitable for drinking.
- ◆ High pressure tolerance.

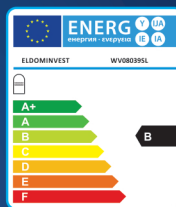
Glass enamel tank specifications							
Model	GL300	GL400	GL500	GL750	GL1000	GL1500	GL2000
Capacity (L)	300	400	500	750	1000	1500	2000
Working pressure (bar)	8	8	8	6	6	6	6
Electric back up heater (kw)	4kw	5kw	3x2=6kw	Optional			
Power supply	220/1/50						
Insulation thickness (mm)	50	50	50	125	125	100	100
Insulation material	PUF				EPS		
Connection (inch)							
Inlet/outlet	1"	1"	1"	1	1 1/2"	2"	2"
Heat Pump circulation	3/4"	3/4"	3/4"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
Thermostat	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Additional				1 1/2"	1 1/2"	1 1/2"	1 1/2"
Flange (DN)				120	120	200	200
Dimensions							
Ø X H	650x1500	710x1525	710x1900	1100x1675	1100x2020	1250x2210	1400x2255
Weight (kg)	89	118	155	210	238	367	420

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SVP Hospital  
Ahmedabad • 50,000 Ltr.



Maruti Suzuki  
Mahesana • 16,000 Ltr.



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