



BENCHMARK[®]

20 YEARS OF EXCELLENCE

All in One Heat Pump System

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

WE REDEFINE BENCHMARK

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

About Benchmark

Promoted by professionals with over two decades of experience, Benchmark Agencies Pvt Ltd commenced operations in 2004 with the objective of providing world class Water Heaters suitable to Indian conditions and great value for money to consumers.

Benchmark has emerged as innovator and system integrator for large residential, commercial and industrial Hot Water Solutions. Gas, Electric, Solar, Heat Pump and now customized hybrid water heating solutions have now propelled Benchmark as India's leading Water Heater company.

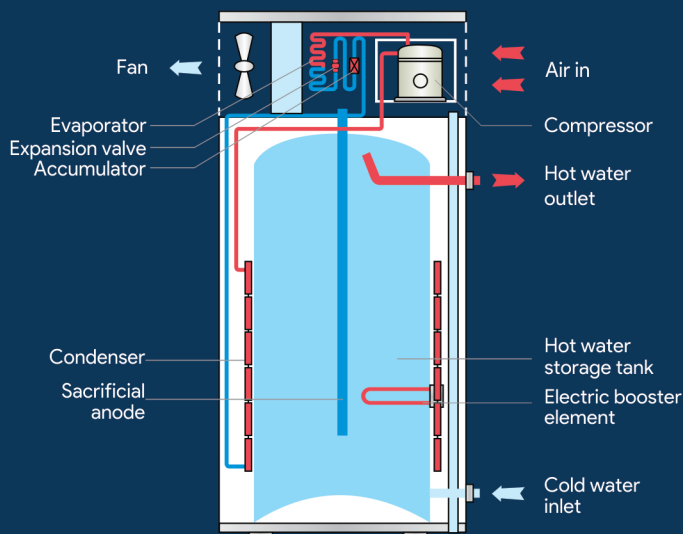
Heat Pump working principle

Benchmark Air Source Heat Pump is a water heater that sources the heat from the air to heat water. Working principle is based on the Reversed Carnot Cycle. Usually, a Heat Pump water heater has four main components: evaporator, compressor, condenser and expansion device. The refrigerant is the medium to connect the four parts. With our technology the liquid refrigerant in the compressor will be pumped into high temperature and high pressure gas by using very little amount of electricity.

Benchmark Heat Pump water heater consumes only $\frac{1}{4}$ electric power compared to regular electric water heater. This way our product is not just saves money by its power saver mode but also is an environment friendly new generation water heater.

Benchmark is also a proud supplier of split Heat Pump, swimming pool Heat Pump and high temperature Heat Pump.

Working diagram



Safety

High voltage protection

Compressor over heating protection

Hot water over heating protection

Refrigerant high pressure protection

Refrigerant low pressure protection

Over water pressure protection

Circuit failure protection



How to choose an excellent air source Heat Pump water heater: Key features



1st time in India

Micro channel heat exchanger

Benchmark has developed external micro channel heat exchanger fitted water tank which avoids direct contact between water and heat exchanger. This helps in preventing scaling problems in hard water regions. Our innovative heat exchanger is wound closely on the outer surface of the water tank resulting in increased contact area, higher heat efficiency, making the system more stable and a longer service life. Our variable programming flow technology maximizes the effectiveness of heat exchanger.



- ◆ **Glass enamel tank:** Enamel coated inner tank in the heat pump is manufactured in an international advanced automatic plant, making it the highest quality tank available in the market.
- ◆ **Eco-friendly refrigerant:** R134a is an environment friendly, non-poisonous, non-flammable, non-explosive, non-irritant and non-corrosive refrigerant.
- ◆ **High COP:** Micro channel heat exchanger enhances the surface between inner tank and heat exchanger thus enhances the performance of Heat Pump. The COP of this kind of unit can reach upto 4.28 based on European standard.
- ◆ **Panasonic special compressor:** A special compressor with operating range of -7°C to 45°C .
- ◆ **Low noise:** Benchmark Heat Pumps are specially designed to reduce noise level to as low as 40 to 45dB.
- ◆ **Advanced anode protection:** The anode rod is a highly effective corrosion fighting system which protects internal tank surfaces from corrosive elements.
- ◆ **360° insulation:** Extremely thick and high intensity insulation for better thermal protection.
- ◆ **Controller:** User friendly controller.
- ◆ **Suitable for low temperature environment:** The ambient temperature range for Heat Pump operation is -7°C to 43°C .

Specification

Model	All in One 100	All in One 160	All in One 200	All in One 300	All in One 350	All in One 420
Capacity (Ltr.)	100 (HWM)	160	200	300	350	420
Heat Pump						
Heat Pump input power	220W	420 W	420 W	875 W	1300 W	1300 W
Heat Pump output	750W	1780 W	1780 W	3500 W	5300 W	5300 W
Coefficient of performance	3.41	4.28	4.28	4.0	4.07	4.07
Electric heater input power	2500 W	2500 W	2500 W	2500 W	3000 W	3000 W
Max. input power	2800 W	3200 W	3200 W	3700 W	5000W	5000W
Max. current (A)	13 A	16 A	16 A	17 A	23 A	23 A
Power supply	220V/1ph/50Hz	220V/1ph/50Hz	220V/1ph/50Hz	220V/1ph/50Hz	220V/1ph/50Hz	220V/1ph/50Hz
Heating capacity in eco mode	16 L/h	38 L/h	38 L/h	78 L/h	118 L/h	118 L/h
Heating capacity in hybrid mode	76 L/h	91 L/h	91 L/h	135 L/h	190 L/h	190 L/h
Max. temperature by eco mode	60°C	65° C	65° C	65° C	65° C	65° C
Max. temperature by hybrid mode	75°C	75° C	75° C	75° C	75° C	75° C
Heat pump noise level	40 dBa	40 dBa	40 dBa	45 dBa	45 dBa	45 dBa
Refrigerant / Volume	R134a/360g	R134a/870g	R134a/870g	R134a/1000g	R134a/1150g	R134a/1150g
Water heat exchanger	Micro channel	Micro channel	Micro channel	Micro channel	Micro channel	Micro channel
Operating temperature range	-7°C to 45°C	-7°C to 45°C	-7°C to 45°C	-7°C to 45°C	-7°C to 45°C	-7°C to 45°C
No of fan	1	1	1	1	2	2
Fan input power	16W	29W	29w	35 W	35w x 2pcs	35w x 2pcs
Tank						
Tank rated pressure	8 bar	8 bar	8 bar	8 bar	8 bar	8 bar
Water inlet / outlet connection	1/2"	3/4"	3/4"	1"	1"	1"
T/P valve connection	*	3/4"	3/4"	3/4"	3/4"	3/4"
Hot water circulation connection	*	*	*	*	3/4"	3/4"
Condensation water out connection	16mm	16mm	16mm	16mm	16mm	16mm
Drain water connection	*	3/4"	3/4"	3/4"	3/4"	3/4"
Insulation thickness / density	50mm (45kg/m3)	50mm (45 kg/m3)	50mm (45 kg/m3)	50mm (45 kg/m3)	50mm (45 kg/m3)	50mm (45 kg/m3)
Weight	65 kg	102 kg	114 kg	150 kg	192 kg	207 kg
Product size	470x1075 mm	525x1735 mm	525x1955 mm	650x1900 mm	675 x 937 x 1720mm	735 x 1006 x 1720mm
Magnesium anode protection	300g/M2	400g/M2	400g/M2	400g/M2	400g/M2	400g/M2
Water proofing grade	lpx4	IPX4	IPX4	IPX4	IPX4	IPX4

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

*Testing condition: Dry-bulb temperature 20°C, Wet-bulb temperature 15°C, Outlet water temp. 55°C deg.

MFD BY

ISO 9001
ISO 14001



Intertek

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