



October 2023
COMPARATIVE ANALYSIS

Hot Water Heat Pumps

Hot water and traditional air source heat pumps (ASHP) are both workable options for sustainable heating and cooling systems. This technical article tends to compare two technologies and benefits available.

Hot Water Heat Pumps:

- Utilizes refrigeration cycle to extract heat from the surrounding and directly transfer it to the water within a container.
- Designed primarily for hot water applications.

Pros:

- Requires minimal electricity to run.
- Coefficient of performance (COP) typically exceeding 2.
- Low capital and running cost.
- Compact and time-saver; can be located within a small cupboard.
- Can operate in colder climates, even at sub-zero thanks to the advanced technologies.

Cons:

- Requires ventilation ducts for supply and discharge.
- No space heating function.
- Will not provide higher EPC rating.

Traditional Air Source Heat Pumps (ASHP):

- Utilizes a refrigeration cycle to extract heat-cooled air from the surrounding and transfer it to the running fluid.
- Well suited for larger domestic and commercial heating-cooling applications

Pros:

- Versatile, capable of providing both heating, cooling and hot water.
- Available in wide range of sizes and configurations.
- Proven technology with a long track record.
- Higher coefficient of performance (COP) -over 3.5
- Provides good CO2 saving.

Cons:

- Require additional components- separate water tank, circulating pumps, control valves, closed loop pipes, logic controller.
- High capital cost.
- Spatial constraints.

Finale:

The choice between hot water and traditional air source heat pumps depends on the system design.

Hot water heat pumps excel in providing the energy-efficient hot water with minimal electricity consumption in smaller developments, and by far was the most popular choice for small housing developer in 2023.

Traditional ASHPs offer more versatility on larger developments where heating-cooling demands are high.

The right selection of these equipment is critical, and an early-stage consultation is undoubtedly recommended to determine the most viable options.

*A Repanas
Associate MEP*

