

# Air-to-Water Heat Pump System

Sustainable Building Comfort in New and Existing Buildings



An electrified HVAC system is becoming the future for buildings as the energy grid reduces reliance on fossil fuels. Many states and municipalities are pushing electrification further with mandates or incentives for building owners to reduce or eliminate fossil fuel-powered HVAC systems.<sup>1</sup>

Trane® can help you make the switch. Whether to satisfy new regulatory requirements, achieve efficiency certifications or advance net-zero energy consumption goals, our electrified air-to-water heat pump system offers configurations and options to fit a variety of building types so you can reduce or eliminate emissions from your building HVAC system while providing reliable occupant comfort. An air-to-water heat pump system from Trane gets it done.

## Pump up system reliability

Heat pumps are a key enabler for decarbonization. Because they move energy rather than generate it, a heat pump can be up to three times more efficient than other forms of electric heating.

The Trane Comprehensive Air-to-Water Heat Pump System provides controls, equipment and technical knowledge packaged together for system success. The system connects to any hydronic airside system for reusing existing equipment.

Paired with Trane's Hydronic Branch Conductor, heat pump projects can significantly reduce project costs and the complexity of retrofitting spaces from separate boiler / chiller plants to one heat pump system while enhancing overall system efficiency, using the infrastructure that is already in place.

## Year-round comfort

In colder climates the consequences of heating system failure can potentially be significant, making it important to design an HVAC system for the possibility of an extreme weather event. That's why Trane air-to-water heat pump systems are configured to meet the operating envelope and redundancy required for year-round heating and cooling.

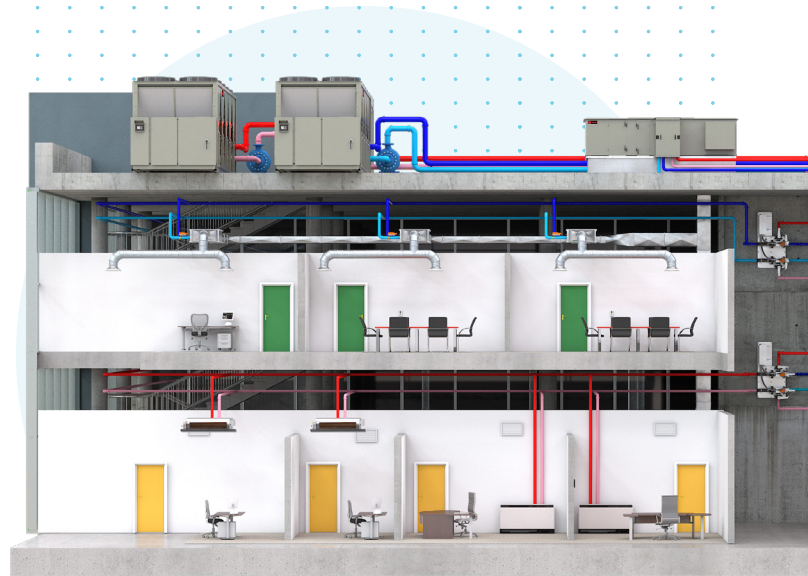
The system has the flexibility to be configured to simultaneously support heating and cooling using multiple heat pump units. One heat pump can be in heating mode while the other is cooling, with the proper system volume to match. Each heat pump uses Symbio® 800 unit controls for efficient and reliable system integration. The use of a buffer tank is recommended; supplemental or dual-fuel heating can also be used as needed.

## Ascend® air-to-water heat pump

The heart of our air-to-water heat pump system is a fully electric Ascend® air-to-water heat pump model ACX. Ascend® ACX helps meet efficiency and sustainability targets with:

- Full and part-load efficiency that meets ASHRAE® 90.1-2019 energy building codes
- Enhanced efficiency with variable speed fans, intermediate discharge valves on compressor, electronically-commutated fan motors and brazed-plate evaporator heat exchangers
- Dual expansion valves - one for heating and one for cooling - for better system control and reliability
- Flexible capacity options from 140 to 230 tons of nominal cooling capacity and 1500 to 2500 MBH heating capacity

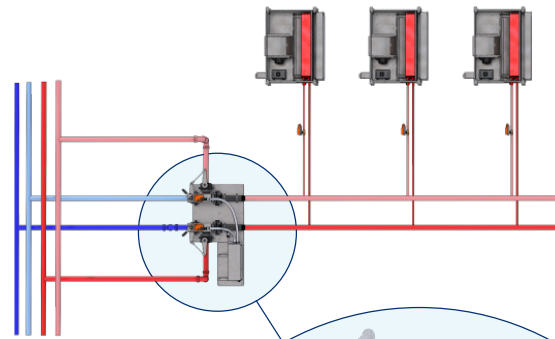
1. Utility Dive, Feb. 2, 2022: "States are accelerating efficiency, electrification efforts ..."



## Hydronic Branch Conductor

Paired with the air-to-water heat pump system, the Hydronic Branch Conductor enables existing buildings with 140 °F (60°C) to 180°F (82°C) hot water to convert to a more energy efficient 105°F (40°C) hot water heating supply, without replacing the existing branch piping. Simple, flexible, and efficient, the Conductor gives you the confidence you need to introduce sustainable heat pump systems in new and existing buildings.

- Simplifies four-pipe heating and cooling projects in buildings with lower-temperature hot water.
- Repurposes high-capacity cold-water piping and a single dual-purpose coil for both heating and cooling, saving money.
- Enhances hydronic heat pump systems with milder hot water temperatures and reduced zone conflicts for greater sustainability.
- Provides precise zoned heating and cooling to improve comfort.



## Systems Knowledge and Expertise

Electrified HVAC may be a new challenge, but Trane® has you covered. Through our consultative services approach, our Trane experts provide industry-based resources and pre-engineered system strategies including buffer tank location and sizing, defrost management, equipment sizing and selections, supplemental heat and location, lower supply hot water temperatures (Ideally less than 105°F (40°C)). You can count on Trane to collaborate with you every step of the way from project initiation to post-installation maintenance to keep your system operating efficiently and reliably.



To learn more, contact your local Trane office or visit [trane.com/chiller-heater-system](https://trane.com/chiller-heater-system) today.



Trane – by Trane Technologies (NYSE: TT), a global climate innovator – creates comfortable, energy efficient indoor environments through a broad portfolio of heating, ventilating and air conditioning systems and controls, services, parts and supply. For more information, please visit [trane.com](https://trane.com) or [tranetechnologies.com](https://tranetechnologies.com).

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SYS-SLB003-EN  
01/28/2025