



QTH1 Air-to-Water Inverter Scroll Heat Pumps



Electric heating and cooling optimized for efficiency and performance

Air-to-Water Inverter Scroll Heat Pump

QTH10035 to 140

A complete range from 35 Tons up to 140 Tons



- ### Four-pipe benefits and operation
- Full capacity in heating-only or cooling-only mode
 - Simultaneous heating-and-cooling mode using recovered energy
 - Supports balanced or unbalanced loads in simultaneous heating and cooling mode
 - Independent and dynamic control of both hot and chilled water temperatures



Exceeds efficiency standards

The Quantech QTH1 Air-to-Water Inverter Scroll Heat Pump is designed to meet tomorrow's efficiency standards today. Delivering performance beyond typical efficiency levels, this heat pump boasts a part-load IPLV efficiency of up to 20.01 under AHRI conditions. This exceeds stringent regulatory requirements through an optimized combination of efficiency-enhancing technologies from Johnson Controls.

- **Direct current (DC) inverter technology** provides variable capacity control and allows the heat pump compressors to operate more efficiently across all cooling load and ambient temperature conditions versus constant-speed heat pumps that use a step unloading design
- **Electronically commutated (EC) fans** use more efficient motors and better aerodynamics to improve overall system efficiency and sound performance, particularly in part-load conditions. At reduced ambient temperatures, the head pressure control varies fan speeds to optimize the system efficiency and ensure reliable operation. This combination of variable-speed compressor and fans provides a displacement power factor as high as 0.93, lowering electricity costs
- **High-efficiency brazed plate heat exchanger** uses less refrigerant and transfers heat from the liquid to refrigerant more efficiently, providing excellent heat transfer performance in a compact design. This also results in a lower water-side pressure drop, allowing the use of smaller pumps to further minimize building power consumption
- Dual circuit design enables the entire heat transfer surface area to remain active at part load, delivering exceptional performance all year
- Simultaneous heating and cooling version balances heat intelligently through the building, conserving energy and moving it to where it's needed. Excess heat is rejected through the coils when not needed, or captured through them when more heat is required. The setpoints for both loops are controlled at all times for maximum stability and performance

Performance without compromise

The Quantech QTH1 Air-to-Water Inverter Scroll Heat Pump is a no-compromise solution for a variety of climates and locations. Built specifically to deliver better performance through a wider operating envelope, this heat pump can maintain efficiency in a variety of conditions without kits or add-ons – up to 118°F ambient in cooling mode and down to an impressive -13°F ambient in heating mode. The applicability of an air-to-water heat pump is dependent on its ability to deliver sufficient heat output when it's cold outside. The QTH1 excels in this area, offering the widest operating map to deliver as much as 20 percent more heating capacity at low ambient operation.

With the smallest installed footprint across the widest capacity range, this heat pump is also the perfect solution for high performance in smaller spaces. Installation is simplified with a compact size that permits forklift loading, and a modular configuration allows units to be arranged in varying footprints to fit different space requirements. This modularity means capacity can be increased incrementally as buildings are constructed or spaces are occupied. And if maintenance is required, other modules in the system will continue to operate, helping to reduce downtime and loss of capacity.

The coefficient of performance in simultaneous heating-and-cooling mode (COPshc) tells you just how efficient a heat pump can be when the work energy of the cooling process can be recovered and reused for heating.

$$\text{COPshc} = \frac{\text{(Cooling capacity + heating capacity)}}{\text{Electrical power input}}$$

The QTH1 exceeds COPshc 8 – now that's efficient!

We want to ensure our neighbors are comfortable too, even in retrofits. That's why our systems offer three levels of sound performance. If requirements call for sound reduction beyond our standard low-noise levels, an optional Ultra Quiet Kit can further reduce sound power by an impressive 5dBA, providing one of the quietest units available.



The proof is in the numbers.

- IPLV = 20.01
- EER = 10.2
- COPshc = 8.1

The QTH1 is at the top of its class!

Advanced control made easy

Comfort, productivity, and up to half of the energy used in your building – these are all factors affected by how your heat pump operates and how it interacts with other components in your HVAC/R system. To help maximize efficiency and keep you in control, the Quantech QTH1 comes as standard with integrated advanced controls and communication technologies. This technology allows the equipment to connect seamlessly to building controls, such as our world-class Verasys system, where enabled equipment can self-identify and interoperate.

Verasys provides a plug-and-play experience, with no programming or commissioning tools required. Remote access over a secure internet connection and alarm notifications via email or text are possible through Verasys. The user-friendly graphical interface provides easy access to critical equipment and facility information to help minimize the risk of unplanned downtime and costly repairs. Verasys also provides enhanced energy efficiency control.

The key to this efficiency is demand control, where Verasys routes the energy requirements of a room or space to the heating and cooling equipment – matching the demand side and the supply side to provide greater overall energy efficiency.

In addition to Verasys integration capabilities, this model provides added flexibility with standard BACnet MS/TP, Modbus RTU or N2 connectivity for communication with virtually any building management system. This advanced, embedded control capability also allows multiple heat pumps to be connected and monitored through a single controller, which features a touchscreen display that has an easy-to-use, web-style interface, and intuitive navigation for easy access to operational data. Information can be displayed in multiple languages and setup is very easy.

Plug-and-play experience

