

Heat Pump Air Conditioning and Modular Construction

This unit was built to meet several unique job requirements. First, the customer wanted to use heat pumps to provide winter heating and summer cooling and reheat. XeteX was able to provide all the necessary components—including DX and Hot Gas Reheat coils, compressors, and valves, as well as all plumbing, wiring, and controls—and build them all into one, packaged unit. But in order to fit the unit into an existing indoor mechanical room, the customer also required that it be delivered in separate modules for final assembly on-site. To keep the modules within the specified dimensions, XeteX built the unit in five separate sections, even though this required splitting the heat pump circuit between two modules. When put together with its Series-R heat wheel module, this unit shows that there's always room for total energy recovery.



Modular construction with five sections

Performance Specification

Model:	AHR-1750-CD-HP
Supply cfm:	7,020
Exhaust cfm:	6,320
Built:	February, 2008
Dimensions:	78" H, 156" L, 76" W
Weight:	4,300 lbs
Energy Recovered:	462 MBH (Winter) 295 MBH (Summer)
Design Conditions:	-10 °F / 100% RH (Winter) 95 °F / 45% RH (Summer)



From left: The end section contains the OA damper; the next section contains the exhaust blower (top) and OA filter rack (bottom); the middle section houses the heat wheel; the next section contains the DX and Hot Gas Reheat coils (bottom) and two compressors (top); and the last section houses the twin supply blowers (bottom) and another two compressors (top).

Unit Features

- A Series-R Rotary Heat Exchanger operates at 74% effectiveness under Winter Design Conditions and at 65% effectiveness in Summer.
- The Double Wall cabinet has an 18 gauge Galvanealed Steel Exterior, 22 gauge Galvanized Interior, and 2" thick Fiberglass Insulation. Frame is Welded Structural Steel. Cabinet features modular construction for final assembly on-site.
- FC DWDI Blowers (10" twin supply, 15" exhaust) are belt driven by Premium Efficiency, NEMA Frame, ODP, motors (7.5 hp supply, 5 hp exhaust). The blowers are mounted on common frames and have 1" Spring isolators and Flexible Duct Connections.
- A packaged Heat Pump provides 303 MBH cooling and 175 MBH Hot-Gas Reheat. In winter, this system provides 285 MBH of heating.
- Unit includes OA and EA dampers and full controls for all unit components and systems.