

ACT-HP-WAHX Wrap-Around Heat Pipe Heat Exchanger Series Mechanical Specifications

The ACT Wrap-Around Heat Pipe Heat Exchanger (WAHX) shall be part number series ACT-HP-WAHX as manufactured by Advanced Cooling Technologies, Inc. The WAHX shall provide pre-cooling to the incoming return/direct outside airstreams and wrap-around the cooling coil via interconnected copper tubes to then provide reheat to the entering building air. The WAHX shall be labeled for direction of airflow, noting Pre-Cool air and Re-Heat air entering building air direction. The WAHX shall be a passive device, requiring no other means for heat transfer, and shall be capable of operating at temperatures ranging from -40°F minimum to 120°F maximum.

Wrap-Around Heat Pipe Heat Exchanger coil performance shall be rated in accordance with applicable AHRI testing procedures. Manufacturers of alternate equipment must be approved to bid via addendum, in writing by the specifying engineer, at least two weeks prior to bid time in order for their bid to be accepted by the contractor. If the equipment is not pre-approved then under no circumstances shall the contractor invest time or money in receiving submittals or considering the equipment.

Wrap-Around Heat Pipe Heat Exchanger shall be installed within 1/8 inch level both coil to coil and coil end-to-end.

Costs associated with dimensional, performance, or other deviations from the specified equipment, including engineering costs to evaluate such deviations, shall be paid by the contractor.

The manufacturer must have a quality management system in place, equal to the quality management system in accordance with ISO-9001-2008, for the design, manufacture, and service of heat exchangers. The manufacturer must also have a net worth greater than five times the value of the equipment being bid and must have been a manufacturer of heat pipes and heat pipe assemblies for at least five years prior to bid time. The Wrap-Around Heat Pipe Heat Exchanger System must be manufactured in the United States of America.

DESIGN AND CONSTRUCTION FEATURES

1. Wrap-Around Dehumidification Heat Pipe Heat Exchanger System

Heat pipes shall be 1/2-inch outer diameter, seamless, internally rifled copper tubes. The finned tube coils shall have aluminum fins, .006" minimum thickness, with enhancement (corrugated wave, sine wave, or louvered) to meet the performance and pressure drop requirements. Fin density shall be determined by the required system performance.

ENERGY RECOVERY SYSTEMS

Heat pipes shall be a maximum of 1.250 inches on center in the face and shall be 1.08 inches on center row-to-row. Heat pipes shall be individually processed, individually charged, and hermetically sealed. Wrap-Around Heat Pipe Heat Exchanger System shall be installed as shown on the manufacturer's submittal drawings.

2. Protective Wrap-Around Dehumidification Heat Pipe System Enclosure and Drain Pans. The heat exchanger frame shall be fabricated from minimum 16-gauge galvanized steel. The WAHX shall be supplied with a minimum of 1.50 -inch wide flanges on all sides, both front and back. End cover plates shall be provided to protect the heat pipe ends from installation damage. End plates shall be fabricated from minimum 16-gauge galvanized steel.

Intermediate wrap-around heat pipe supports and lifting points shall be furnished as required. Drain pans are recommended under all coils and are not included with the WAHX.

3. Working Fluid: Wrap-Around Dehumidification Heat Pipe Heat Exchanger System working fluid refrigerant shall be selected on the basis of heat pipe operating temperature and compatibility with heat pipe tube material. Heat pipe heat exchanger refrigerant used shall be classed as Group 1 in the American National Standard Safety Code for Mechanical Refrigeration.

4. Active Re-Heat Circuitry: Some design days may require an active control circuit on the amount of re-heat provided by the heat pipe heat exchanger system. This is accomplished with solenoid valve circuitry which effectively stops the transfer of energy between the heat pipe coils. These active systems are typically controlled by the building automation and control system. ACT will provide individual, normally open, 12V or 24V solenoid circuit control landed to a marshaling cabinet for connection to the AHU local controller or to the building automation & control system.

5. Protective Coating (When Specified): E-Coat to protect against corrosion. Coating to be factory applied as one unit after final fabrication.