



# AIR-TO-AIR HEAT PIPE HEAT EXCHANGER

## Overview

The ACT-Heat Pipe-Air-to-Air Heat Exchanger (ACT-HP-AAHX) system features sensible heat transfer. Typical installations are placed across the supply and exhaust airstreams. ACT heat pipe technology allows passive bidirectional heat transfer to pre-cool or pre-heat airstreams depending upon the season. The system recovers energy in summer or winter passively or can be optimized seasonally by motorized tilting of the ACT-HP-AAHX. The system is capable of heat transfer efficiencies of up to 85% effectiveness. Static pressure drop is typically under 0.75 IWG. The intake and exhaust airstreams are completely sealed preventing the possibility of cross contamination.

## Benefits

- Energy payback periods in under 18-24 months
- No moving parts
- No cross-contamination of airstreams
- Captures building's energy for pre-cooling or pre-heating in a counter flow or split designs
- Sizes can match all existing coils
- ASHRAE Standard 62-2010 ventilation for acceptable indoor quality
- Conforms to UL Standard 207 for heat pipe based HVAC system

## Ideal Applications

Dedicated outside air facilities following ASHRAE 90.1 installation recommendations, such as:

- Hospitals & Healthcare Facilities
- Government Facilities Labs
- Theaters
- Fitness Centers
- Universities
- Condos/Hotels
- Food & Restaurant Facilities

## Configurations

- Any height, length or orientation possible
- Splittable exhaust and intake designs
- Sensible only heat transfer
- Exhaust Side and Supply Side can be different lengths and CFM values
- From 2" to 15" in depth, requiring minimal AHU space
- No cross air contamination
- Tilting or pumping options to optimize summer/winter energy capture



## When to Apply AAHX

### Fully Passive ACT-HP-AAHX (Side-by-Side)

- Side-by-side ducting and a level installation will allow for passive summer winter energy capture
- The ACT-HP-AAHX can be seasonally optimized for only one season of energy capture
- Can be installed flat or horizontal
- Vertical installation only captures energy in one season (see pumped loop for all season energy capture)

### Control ACT-HP-AAHX Function by Tilting (Side-by-Side)

- Center tilting will optimize heat transfer operation from summer or winter
- Features included: Steel or stainless steel housings, integrated flex duct, dual contacts, heavy duty actuator, and simple AHU installation
- Tilting can be used as frost control prevention in some climates

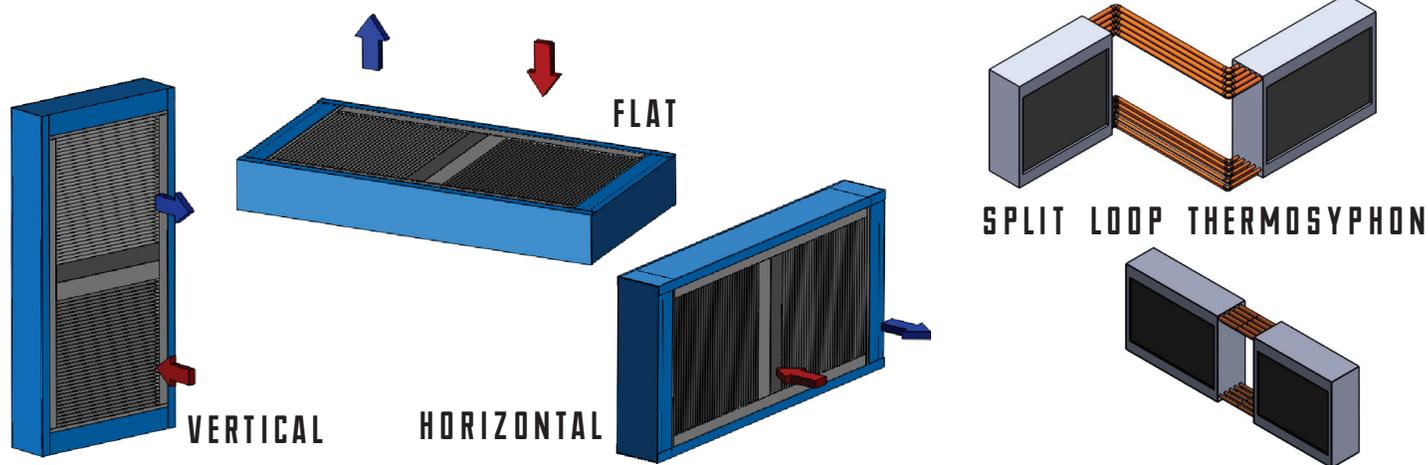
### Energy Recovery Passive - Pumped Loop System for (Over/Under Ducting)

- Summer/Winter Energy Recovery
- Pumped loop is required when the hot airstream is above the cold air stream. This occurs seasonally so that the system can operate passively a majority of the year
- Sizes up to 25,000 CFM+

### Split Loop Passive Energy Recovery (Ducting is not Side-by-Side or 100% isolation of airstreams is required)

- Summer/Winter Energy Recovery possible
- Intake and exhaust airstreams can be multiple feet apart
- ACT-SLTS-AAHX can be retrofitted or built in new AHU system
- ACT-SLTS-AAHX can be built as large as coils can be constructed

## AAHX Installation Options



## HVAC Online Selection Tool: Air-to-Air Heat Pipe Heat Exchanger

Our Online Selection Tool will assist the HVAC design engineer with the proper selection of an AAHX and provide energy savings estimates. The tool provides the designer with the capability to perform a preliminary design selection and to evaluate the AAHX performance at design point and part load conditions. It is also intended to be used as a tool to communicate project requirements to ACT for additional evaluation. Check out the ACT HVAC Online Selection Tool for AAHX systems at [1-ACT.com/HVAC/AAHX/](http://1-ACT.com/HVAC/AAHX/).