



Q: Related to efficiency, in a heating-dominant area (Canada), a heat pipe will be in active-pump mode in the summer when the delta T is already pretty close (90/75F OA, 75/63F RA). Is the energy expended by the active-pump a significant fraction of the energy recovered in these conditions?

A:

First, the active operating mode is determined by which coil is physically below the other coil. When the exhaust coil is located below the elevation of the supply coil then active mode is only required in the summer. If the reverse is true, active mode is required in the winter. Summer energy recovery does tend to be less significant than winter because of the lower temperature gradients.

In mild summer climates like Canada, it may not make a lot of sense to pump in the summer so we often recommend just a winter recovery unit that's completely passive. If active mode is required in the winter, the energy consumption of the pumps is usually insignificant relative to the energy recovery of the system.

Q: How does the efficiency of the Heat Pipe compare to glycol run around at part load conditions? (and does pumped or passive change part load performance?)

A:

The two systems are very similar. Our systems utilize multiple parallel circuits by tying every two rows of each coil together. As an example, we have 4 independent loops in an 8-row coil. The loops are plumbed so that a counterflow arrangement is always maintained, this allows us to achieve the maximum temperature difference between coils. To that end, our systems can operate more efficiently at part load, but every energy recovery product is ultimately governed by the maximum available temperature difference and how much of it you can retain. At part load, the temperature differentials are often low, and so the overall effectiveness will suffer in any system.



Q: How does the air side pressure drop of the heat pipe compare to a wheel or glycol loop? 2) Are there any concerns about refrigerant leaks? 3) Can the heat pipes be applied with a corrosive air stream?

A:

Often times our heat pipe products have less pressure drop than glycol systems because we require less rows.

Q: Many times, there are multiple exhaust coil locations and just one supply air handling unit, which glycol loops can address. Can a heat pipe system handle multiple exhaust locations, or must it be one exhaust and one supply?

A:

We can handle multiple exhaust coils. Depending on the application, we may need to installed multiple coils in the supply AHU to service the various exhaust coils, but it is possible. Fully pumped systems can operate in identical configurations to glycol run-around loops.