



The Heat Pipe Advantage

ECONOTHERM® heat pipe exchangers offer many distinct advantages over more common technologies.

All ECONOTHERM® heat pipe heat exchangers are made of individual heat pipes filled with a working fluid. They can be used to transfer heat from gas to gas, gas to liquid (or vice versa) or liquid to liquid.

A heat pipe can transfer up to 1000 times more thermal energy, than copper, the best known conductor; that too with less than -17oC per foot temperature drop. One of the amazing features of the heat pipes is that they have no moving parts and hence require minimum maintenance. They are completely silent and reversible in operation and require no external energy other than the thermal energy they transfer. Heat pipes are ruggedly built and can withstand a lot of abuse.

Specific advantages include –

- *Increased life expectancy hence lower lifetime cost*
 - Heat pipes do not rely on thin metal surface for heat transfer and hence can be built out of more robust materials offering increased resistance to erosion
 - Integral design minimizing the adverse effects of metal expansion, heat pipes are free to expand and contract independently of the casing
 - No moving parts for virtually maintenance free operation
 - Isothermal operation eliminates cold condensation spots thus eliminating low temperature corrosion
- *Increased flexibility*
 - Because of their robust and simple construction heat pipe exchangers can be deployed in hitherto “difficult” heat recovery environments unsuitable for conventional exchanger designs
 - Units can be designed for bespoke applications and are very suitable for retrofit
 - The ability to remove or add heat pipes to an operational exchanger allows the system to be fine tuned to ensure optimum heat recovery. This feature is entirely unique to heat pipe recovery units.
- *Increased reliability*
 - Each individual heat pipe operates independently hence a single pipe failure will not incapacitate the system. Any failed heat pipes simply get replaced at the next scheduled maintenance event
 - Zero cross contamination through independent pipe operation
 - Various coatings and construction materials available to protect the units against a variety of exhaust air conditions



- Available in a wide range of custom sizes or bespoke designs
- *Lower operational cost*
 - Reduced pressure drop across exhaust and hence lower parasitic load
 - Good level of sensible effectiveness for rapid payback
 - The unit can be easily cleaned even by removing heat pipes
 - Boiler/furnace efficiency increase by 3 ~ 5%
 - Collection of condensate in the exhaust gases can be arranged
 - Possible to avoid condensation at lower exhaust temperatures and hence remove the need for expensive corrosion resistant materials

Suitable Applications

Industry	Heat Source	Typical Applications
Metal Processing	Melting/holding furnace, smelter, sintering machine	Preheat combustion air; hot water for process, heating or sanitary use
Food Processing	Baking ovens, vacuum pumps	Preheat combustion air; hot water for process, absorption chillers, heating or sanitary use
Chemical	Cracker, thermal oxidiser, fertiliser plant	Pre-heat hot water for process, absorption chillers, heating or sanitary use
Construction Material	Cement, glass furnaces	Preheat combustion air; hot water for process, heating or sanitary use
Power Generation	Turbines, diesel generators	Pre-heat hot water for process, heating or sanitary use; Pre-heat heavy fuel oil
Waste processing	Incinerators	Pre-heat hot water for process, heating or sanitary use
Commercial Buildings	Heating boilers	Pre-heat combustion air or boiler feed water; hot water for process, heating or sanitary use

Econotherm's patented low cost manufacturing process ensures rapid payback to the client.