

Case Study

Client - Vitkovice Mechanica, Ostrava, Czech Republic

Project – Building heating and sanitary water

Vitkovice Mechanica are one of the most established companies in the Czech Republic and are a leading manufacturer of heavy engineering products. Crankshafts produced by Vitkovice are used by shipyards and engine manufacturers across the globe.

With vast amounts of surplus heat from their many melting furnaces Vitkovice were keen to find a solution to reduce the costs of the 8 MW of energy required to heat their production buildings.

The waste heat exhaust from the furnaces is notoriously difficult to deal with being highly aggressive to conventional heat exchangers. Econotherm GW heat pipe recuperators were selected because of the advantages offered by the heat pipe technology. In particular the lower pressure drop, low fouling susceptibility, ease of cleaning, high reliability and ability to resist aggressive environments made them an obvious choice for this application.



Image 1 Econotherm GW Recuperator

Once successfully evaluated Vitkovice intend to order multiple units to provide the entire heating requirement of their Ostrava facility.



Image 2 Econotherm GW unit in operation

Technical Data

Exhaust Temp In	450 C
Exhaust Temp Post Recuperator	250 C
Water Temp In	70 C
Water Temp Out	90 C
Exhaust Mass Flow	7,758 Kg/h
Water Mass Flow	24,000 Kg/h
Energy Recovered	563,808 W
Recovered Energy Value	£130K Per Annum
Project Cost	£60K (£19.6K exchanger)
Payback Period	5.53 Months
Price per KW recovered (Exchanger only)	£34.76
Fuel price per Kw/h (Gas)	£0.0165
Exchanger Efficiency (% of available heat recovered)	44.4% (Limited by available water flow)