



heat recovery cores

Recuperation of heat and moisture is the best option (after the first centimeters of insulation) in the built environment (house, office, factory, greenhouse) to save energy, increase comfort and guard the health of its users (people, crop, products).

The demands on air ventilation systems and the available production methods restrict the geometry and material of the optimum recuperator, subject to the physics of heat transfer. The optimum recuperator is produced in plastics (low heat conduction loss in flow direction), has a geometry of parallel small triangular ducts (best ratio of heat transfer capacitance to pressure loss), of which each primary duct is surrounded by three secondary ducts in counter flow, operated in mass balanced flow and a ratio of the heat exchanging capacitance to the heat capacity flow (NTU) larger than 13, leading to an annual effectiveness of 95%.

Moisture recuperation, accounting for an extra 40% energy saving in moderate climates to 45% in warm and humid climates, is realized with the same recuperator at the same effectiveness by periodically interchanging the primary and secondary flows, using four integrated motorized valves, creating the possibility to control the moisture recuperation, facilitating a 100% bypass, allowing for flow reversal and a controllable short cut flow at both sides of the enthalpy recuperator.