

Heat from very corrosive flue gas is successfully recovered with hybrid skid at Sonac, The Netherlands.

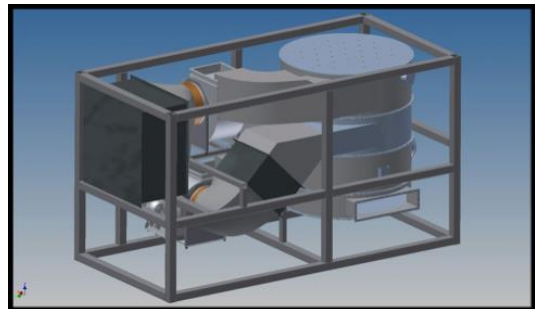
The Sonac site in Burgum, The Netherlands, used to be part of the VION Food Group. Now it is part of the US based company Darling International.

Sonac operates [steam boilers](#) that are fired with, amongst others, animal fat residues. The flue gas contains a high sulphur concentration that has led to severe corrosion problems with conventional metal heat exchangers in the past.

For this turnkey project [HeatMatrix](#) supplied a skid mounted hybrid LUVO heat-exchanger system that cools flue gas from 270 °C to 140 °C without the accompanying corrosion problems. The recovered waste heat is used to heat up the boiler feed water.

The boiler efficiency has increased with approximately 8 %. Besides the increase in boiler efficiency also the emission of 1 million kilogram/year of CO₂ is prevented.

The skid based [HeatMatrix hybrid system](#) includes a LUVO heat-exchanger with 31 polymer bundles, metal heat exchangers, fans, ducting and a PLC with instrumentation. The skid based setup makes it ideally for retrofit installation.



The skid in operation. The design of the skid with 3 heat exchangers.

HYBRID EXCHANGER

For flue gas temperatures above 200°C a combination between a metal and a polymer air preheater combines the best of both worlds

- This hybrid design has the following advantages:
 - Increased heat recovery over a wide temperature range
- The polymer air preheater protects the metal air preheater against low air temperatures that lead to cold spot corrosion problems
- The metal air preheater protects the polymer air preheater against high temperatures

Frequently used steam air preheater for raising the temperature of the combustion air to prevent local cold spots is no longer required with this hybrid air preheater design. A stacked or integrated lay-out reduces plot space and installation cost.