

CASE STUDY:

Recovering excess heat from a food production facility

2024-06-26

EXECUTIVE SUMMARY

- Type: Production unit for food production
- Airflow: 9,7 m³/s
- Air temp: 40°C
- Pollutants: Grease, soot & moisture
- Return: 9,7 m³/s supply air to production facility
- Model: 2 x L50 (1100x1800x900 mm)
- Set temperature: +16°C
- Need: 355 kW
- Operating hours: 20 h/day
- Energy need: 616 600 kWh/year
- Lepido Heat exchange effect: 288 kW
- Energy recovery: 614 900 kWh/year

The recovered excess heat in this project covers 99% of the demand for heat in the production facility.

THE PROJECT

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Background

Food production units often have large air flows with high temperature in the process air. In order not to risk costly downtime due to clogging, recycling and reuse of excess heat in the exhaust air is often not carried out. However, if you succeed in recovering this waste heat, it can be returned as a supplement to ventilation, hot water or other process-specific heat-demanding equipments.

The challenge

Preventing heat waste is a great way to reduce the heating cost and lower CO2 emissions from production facilities in the food industry. But, until now, high concentration of grease, soot and moisture in the excess air has made it impossible, or at least, very expensive.

THE PROJECT

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The solution

Lepido is an industrial heat exchanger, developed and built in Sweden. It can recapture excess heat from the ventilation in industrial processes. The patented set up of coils allows the particles (and the hot air) to pass through the heat exchanger without getting stuck.

Installation

In this project, the Lepido was installed as part of the exhaust air duct, where the air stream is heavily contaminated with soot and grease due to the duct serving the high-intensity production line. The recovered heat is fed back to the supply AHU serving the production line via a run-around heat exchange circuit, which means there is no risk of transfer of odours, or of the heat exchangers clogging up with particles.



PROJECT DATA

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This project was delivered in 2022. Here, the recaptured excess heat is returned to the production facility supply air.

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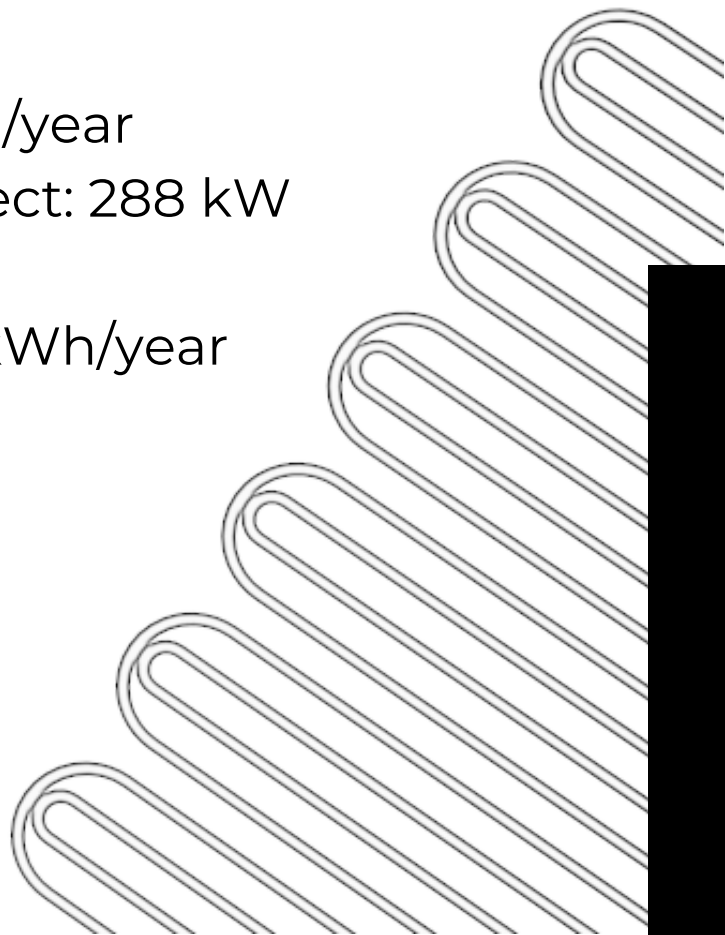
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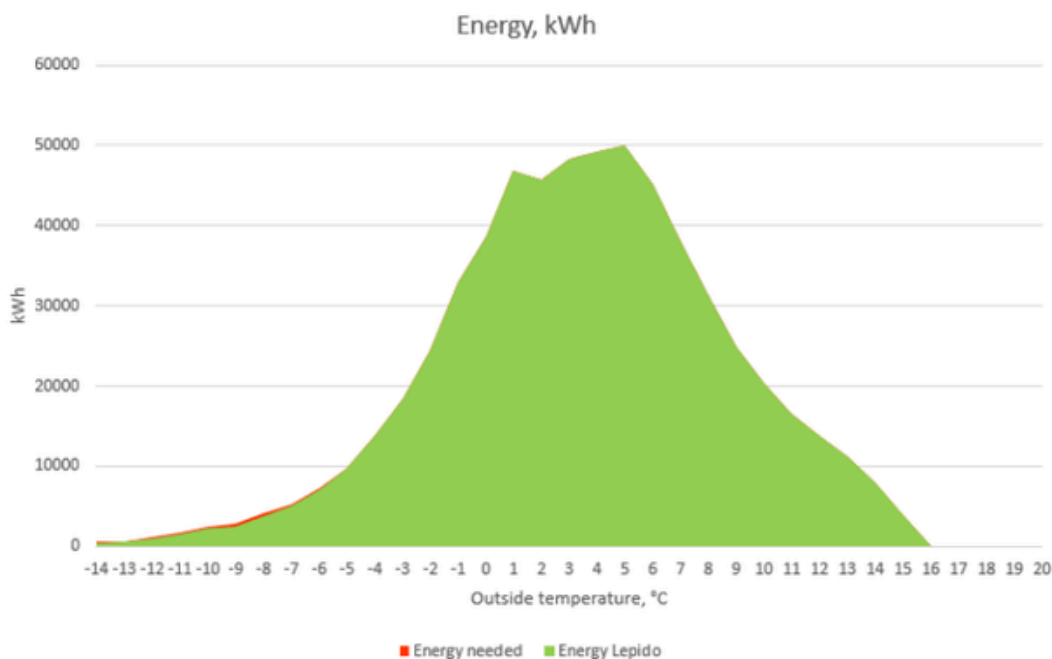
RESULTS

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The recovered excess heat in this project covers 99% of the demand for heat in the production facility. Annual energy savings is 614 900 kWh per year.

The building parameters also allowed the Lepido solution to offer great installation simplifications as the energy recovery functionality could be decentralized from the main technical room – saving vast stretches of both ducting and piping installations.

The possibility to place the Lepido close to the actual production line also greatly simplifies maintenance, reducing time and cost.



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LEPIDO BY ENJAY

Lepido is an Innovated & Made in Sweden air-to-fluid heat exchanger, specially designed to be deployed in polluted air streams. It is developed for mounting in the duct, without any requirement for pre-filtration.

Contrary to a standard heat exchanger, where the natural forces constantly work against keeping the unit clean, the Lepido interior is designed to work with the natural forces. It involves a geometry that is fin-less design and allows for more spacing than a traditional heat exchanger.

For more information about Lepido: [Product Brochure](#)

FIVE GUYS



CWS

WORKWEAR



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