

Our client

Kverneland Group is a leading international company developing, producing and distributing agricultural machinery and services.

Strong focus on innovation allows us to provide a unique and broad product range with high quality. Kverneland Group offers an extensive package aimed at the professional farming community, covering the areas of soil and seeding equipment, forage and bale equipment, spreading, spraying and electronic solutions for agricultural tractors and machinery.

The Group was founded in 1879. Kverneland Group's factories are located in Norway, Denmark, Germany, France, The Netherlands, Italy, Russia and China. The Group has own sales companies in 17 countries and exports to another 60 countries. At the end of 2018, Kverneland Group had 2482 employees.



The Challenge:

A large part of the production process in the factory involves large ovens which are used within the manufacturing of our client's machinery. These ovens produce vast quantities of heat as part of the metal hardening process. This heat was being expelled into the atmosphere. Not great for the environment and a missed opportunity to capitalise on this by-product of the production process.

In addition, the ovens also made the factory uncomfortable for workers close to these machines, leading to a hot and humid atmosphere.





***“I can highly recommend getting exodraft to come out and take a look at things and draw up a system. Heat recovery benefits both the environment as well as your bottom line*”**

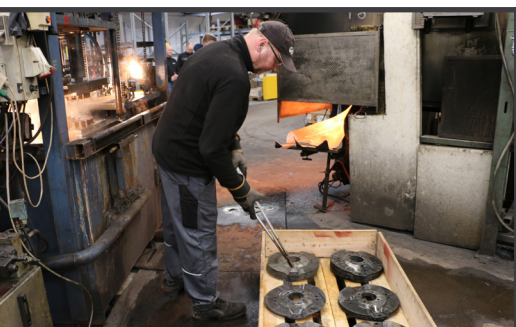
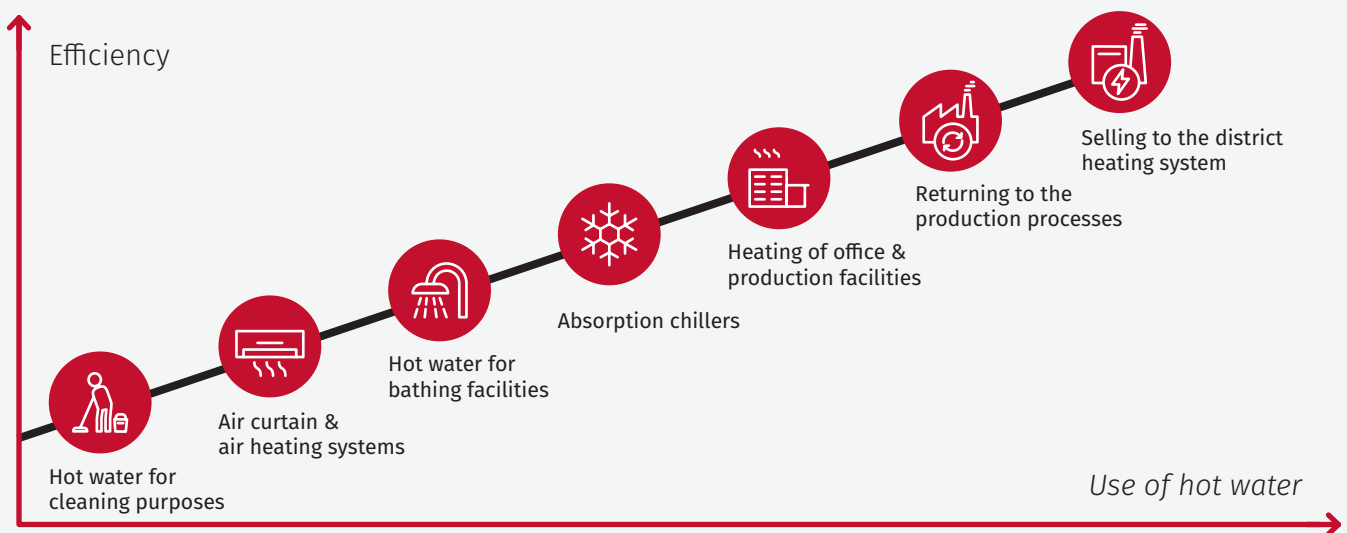
- Jakob Klokke, Assistant Project Manager

Our Solution:

We designed a heat recovery system for Kverneland Group which focussed on heat recovery from metal hardening processes and mechanical draught control. Our engineering solutions are able to improve the draught to enhance heat performance and improve airflow, and to then capture and convert the waste heat into a useable resource.

This useable heat can then be recycled and used to heat the factory, but there is much more heat produced than can be used locally. Excess heat is directed to the district heating system and our client is paid for this. Heat recovery is able to be monitored remotely and online using the **exodraft** trendlog which monitors inputs, outputs and the behaviour of flue gases.

Where to use the recovered energy:



“It has worked flawlessly. We have certainly been happy with them, and they are still ready to assist, should the need arise. All we have to do is call them, and they are always quick to respond

- Jakob Klokke, Assistant Project Manager



The Results:

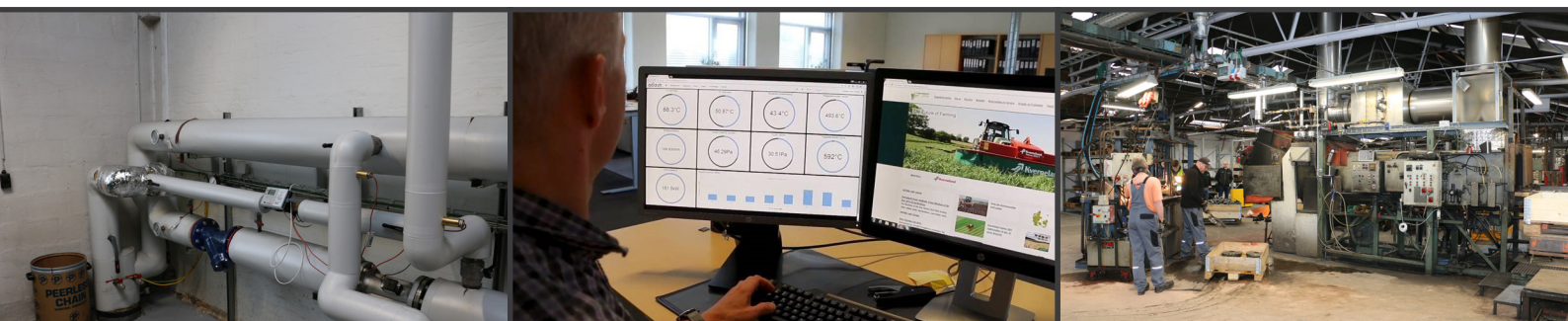
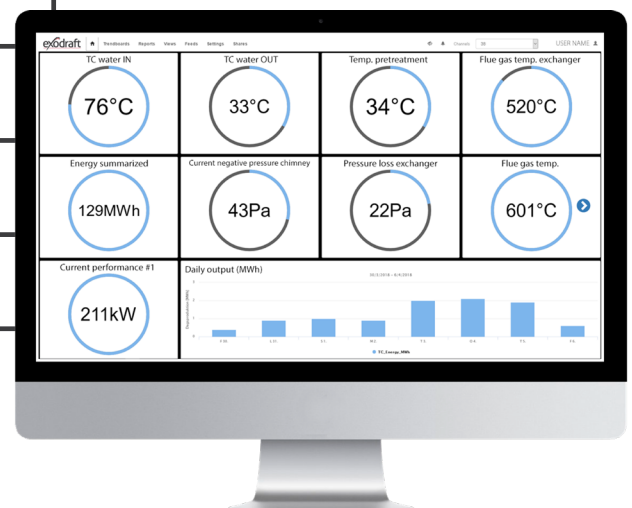
Heat generated in the factory is now used as heating for the manufacturing plant, whilst any additional unused heat is able to be used to generate a new source of revenue for the business.

This is a great incentive to reduce the volume of heat expunged in to the atmosphere, and a reward for improved environmental performance.

In addition, employees now have a better indoor environment as the ovens in the factory are no longer unpleasantly hot to work around. There is also no longer a lingering aroma of diesel which was present previously.

Performance results:

Max. performance:	300kW
Max. Energy per day:	3.7MWh (3,700kWh)
Max. Energy per week:	14.6 MWh (14,600kWh)
Max. Energy per month:	61.7 MWh (61,000kWh)
Expected annual energy:	600MWh (600,000kWh)





About Us:

exodraft is a Danish owned company that has for over 60 years developed, manufactured and sold chimney fans to control chimney draught. With sales in more than 40 countries and the best product range on the market, **exodraft** is the world leader in solutions for mechanical chimney draught and heat recovery from flue gas/process heat.

Our products are built on a comprehensive understanding of the relationship between combustion and chimney draught, and we solve problems with insufficient chimney draught for households and businesses alike.

How it works: Heat Recovery

By using our heat exchanger, up to 90% of heat that would have been lost otherwise can be recycled. The energy lost as flue gas or process heat usually amounts to between 10% and 15%.

The effective use of waste heat coupled with competitive prices means that an investment in heat recovery can be repaid within a few years. Excess heat in steam and flue gas can be recycled using our heat recovery systems, be converted into hot water, or find further use.

At the same time, CO₂ emissions are reduced, benefitting the environment and the company's green accounting.

How it works: Draught Control

The natural draught in a chimney varies over the course of the year along with influencing factors such as temperature, wind and air humidity.

A chimney fan from **exodraft** ensures an always optimal chimney draught, regardless of weather or seasonality.

