



SHOULDER TO SHOULDER

# Heat better reused via special battery

Brewing and malting require heat. Afterwards, however, residual heat remains. How good would it be to optimally reuse that residual heat and thereby substantially reduce our energy consumption? Together with energy producer RWE, we built a heat battery especially for this purpose. The savings are already above expectations. And there's still more to come.



Marthijn Junggeburth



Jan Eurlings, RWE



Dirk Wenting



Carlo de Best, RWE



Sander Berger





Technologist and specialist in steam and hot water at the brewery: 'In everything we did, we were always looking for the optimum solution in respect of good performance and the greatest possible savings.' There were still some bumps in the road. An error in the software of two boilers, for example, caused lengthy discussions and many recalculations of the data. 'But in the end the story tallied,' Jan says.

### More saved than expected

The result is above expectations. The agreed energy saving of at least 15% has been achieved and we expect it to rise to 20%. Due to COVID-19, the brewery was not always running at maximum power, so there was less residual heat available for the heat pump than anticipated. So the savings could increase even further. 'We still see potential, but we are definitely satisfied with this result,' summarises Carlo de Best, Technologist at RWE. Marthijn: 'This is a hugely important step within our company's energy transition. The creation of a hot water buffer will ensure that fewer sources of heat are needed for our brewing and malting processes and that we will therefore use less fossil fuels.'

### Next step: Eemshaven and Belgium

The key to success? Bringing the best of two worlds together, according to the gents. The good process knowledge of brewing, bottling and malting on the one hand and the knowledge of energy systems on the other. Jan: 'As a power company, we see that there is still a lot of CO<sub>2</sub> profit to be made. By actively supporting it, we show that we have confidence in it and we take away some of the risk.' 'Without the expertise of RWE, we would not have achieved this result,' adds Sander Berger, Engineer and Project Leader at the brewery. 'This journey has also shown us that by working together as a brewery, malting plant and bottling plant, we achieve maximum synergy and savings.'

Now that we are aware that residual heat is a significant source of energy, we are also going to use it in our malting plant in Eemshaven. There we have the ambitious challenge of going off gas completely. For brewery Palm in Steenhuffel, first analyses look very promising. For both projects we are again collaborating with RWE.

**L**et's start with the impressive savings of no less than 15% on our energy consumption. This is approximately 4 million m<sup>3</sup> of natural gas per year, the consumption of around 2,000 households. The innovative system we created for this purpose, uses three heat sources:

1. Residual heat from the cooling installation for the brewery and cooking fumes from the brewery house.
2. Heat from flue gases of the turbine and steam boiler.
3. A large heat pump (which we feed with residual heat from the cooling installation).

All the heat is now stored in one "heat battery", which is a large tank of hot water. This heat can be reused in the brewery, bottling plant and malting plant as soon as the production process requires it. In a very clever way the supply of and demand for heat are now matched to each other. 'This is an important step for our company on the road to full circularity,' says Sustainability

Manager Marthijn Junggeburth. 'And it helps us become one of the most energy-efficient breweries.'

### Together with RWE

Since the beginning of this century, brewery Bavaria has been looking for a new way to emit less CO<sub>2</sub>. Marthijn: 'We did manage to save a few percent a year, but we wanted to have more of an impact.' Energy producer RWE offered to take a look. Jan Eurlings, project developer of new power plants at RWE: 'There's a lot out there, from geothermal to hydrogen, but we were looking for an affordable solution. What we immediately noticed was the amount of residual heat and that it was available at different times. Plus the fact that the malting plant sometimes requires a lot or little heat. We decided to synchronise supply and demand with a buffer.' Then there was the spring water used for our beers. This is pumped cold from the ground and then heated with gas and converted into hot water and steam. It is of course much smarter to use residual heat instead of gas. And now one can. Dirk Wenting,