

Digitalizing breweries

GEA helps breweries to harness sustainability KPIs through AI

- New software release tracks sustainability metrics based on energy and CIP consumption for each step of the brewing process
- AI forecasting tools enable breweries to apply condition-based production planning
- Performance improvement pilot projects underway at major breweries

Düsseldorf, Germany, Oktober 17, 2023 – GEA has integrated predictive AI elements into its real-time monitoring solution for breweries to advance the sustainability of brewing processes. Developed in collaboration with project partners, GEA InsightPartner Brewery monitors production performance in real time, anticipates anomalies and suggests improvements. In addition to conventional brewhouse data, the system now analyzes sustainability performance indicators based on energy consumption and heat recovery in the process cycle.

Breaking out of data silos

“The driving force behind this innovation was the desire to control the sustainability of the brewing process from within production,” recalls Dr. Mark Schneeberger, Senior Director Product Development, Design and Research for GEA’s breweries business. “First, we needed to track and correlate events in our real-life environment. Next, we added self-learning AI to the software. This lets breweries better understand and solve problems. Instead of analyzing data, brewmasters can again focus on brewing. GEA InsightPartner Brewery is a tool to manage their sustainability.”

Brewing process efficiency is determined in production by balancing the productivity, quality and sustainability triad. In many cases, brewery operators have to rely on isolated sensors attached to the individual components. Yet temperatures, pressures and flow rates don’t add up to a complete picture, nor do they allow overall system performance to be predicted. The complexity is compounded by fluctuations in input material properties and the fact that breweries often produce many beer varieties at the same time. With the new software release, brewers can break out of the data silos with well-presented analytics that put them firmly in the driver’s seat when it comes to managing their data ecosystem.

The path to the golden batch

GEA InsightPartner achieves this through predictive analytics, combining trend curves and forecasting models to determine performance indicators up front. Instead of waiting for one brew to finish before making adjustments for the next, the process can be improved mid-brew – for instance, by fine-tuning energy recovery as the wort boils, or by correcting imbalances in the energy storage system.

For performance issues that call for operator attention, the system provides predictive focus cards that show potential for improvement on the fly. Rather than signaling process events as with a control system alarm, the focus cards flag undesirable trends that impair productivity, quality or

sustainability. GEA InsightPartner Brewery autonomously detects anomalies and continuously presents them for remote display. On request, GEA’s process engineers will log in and make recommendations. The AI’s predictive capability is refined with each recorded brew. Ultimately, this brings the brewery ever closer to the golden batch – the optimum brew with maximum quality and minimal resource input.

Goodbye recipe-based brewing, hello flexible condition brewing

Field trials at renowned breweries confirm that AI-assisted process optimization enhances brewery performance, bolsters energy efficiency, cuts operating costs and increases safety. “GEA InsightPartner delivers results in an accessible format for all areas of the brewery, where clear, comparable, readily available data was previously lacking,” is how Schneeberger sums it up. “For us, advanced analytics is definitely the right way to fuse sustainability with decision making in daily brewery operations. GEA’s smart technology marks a key milestone for breweries, paving the way to condition-based production – so that brewers can at last stick to the business of brewing once more.”

[Download link to imagery \(expiring in 90 days\)](#)



Fig. 1: Analytics of filtration time shown by GEA InsightPartner dashboard. Source: GEA

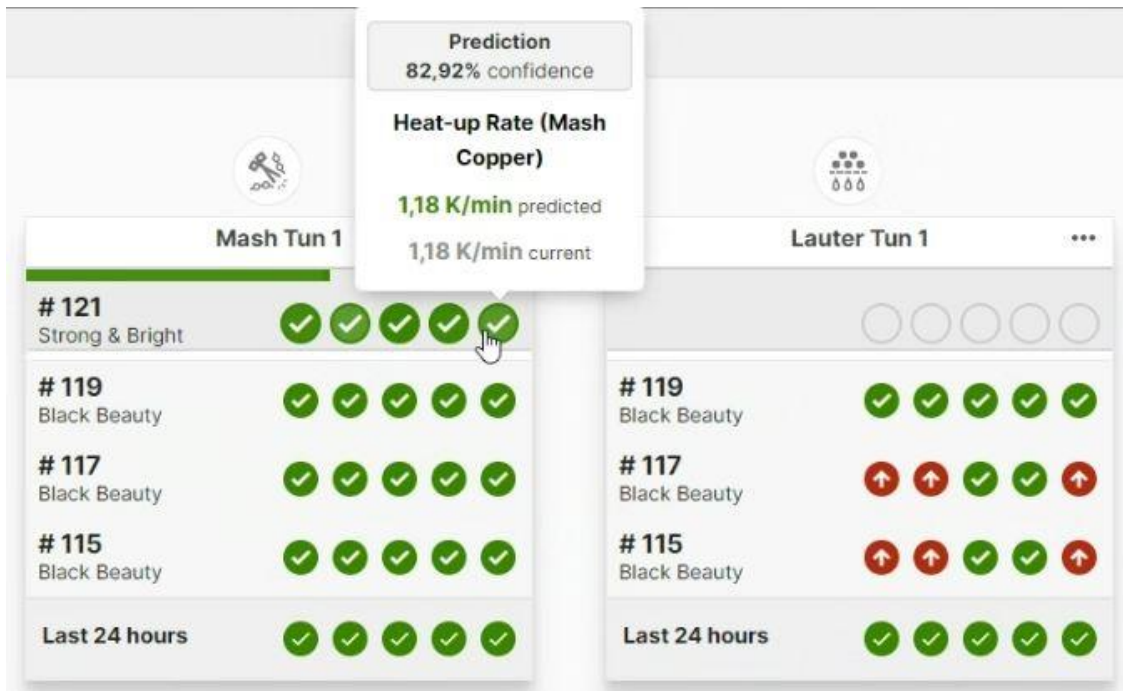


Fig. 2: GEA InsightPartner forecasting models determine performance indicators up front. Source: GEA

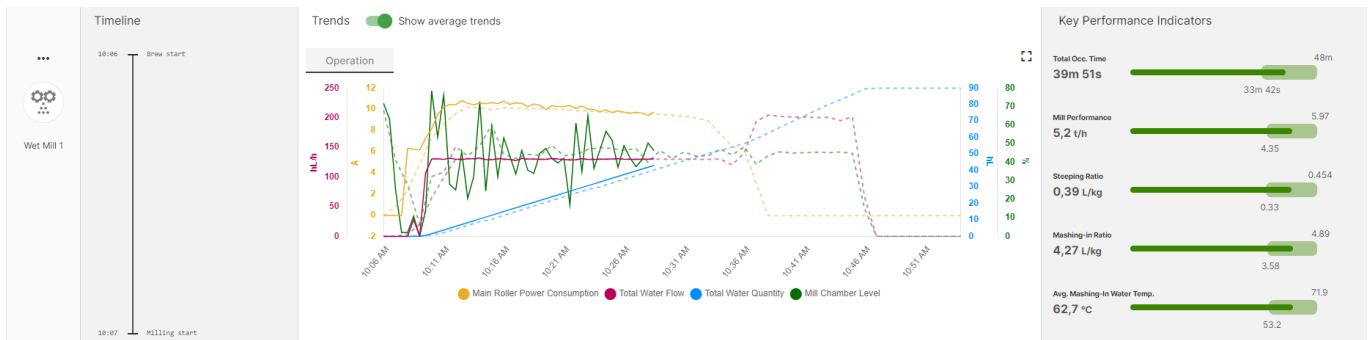


Fig. 3: AI's predictive capability is refined with each recorded brew. This brings the brewery ever closer to the golden batch – the optimum brew with maximum quality and minimal resource input. Source: GEA

NOTES TO THE EDITORS

- On the product: [Monitor your brewery performance with GEA InsightPartner](#)
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About GEA

GEA is one of the world's largest suppliers of systems and components to the food, beverage, and pharmaceutical industries. The international technology group, founded in 1881, focuses on machinery and plants, as well as advanced process technology, components, and comprehensive services. With more than 18,000 employees working across five divisions and 62 countries, the group generated revenues of more than EUR 5.1 billion in fiscal year 2022. GEA plants, processes, components, and services enhance the efficiency and sustainability of production processes across the globe. They contribute significantly to the reduction of CO₂ emissions, plastic usage, and food waste. In doing so, GEA makes a key contribution toward a sustainable future, in line with the company's purpose: "Engineering for a better world".

GEA is listed in the German MDAX and the STOXX® Europe 600 Index and is also among the companies comprising the DAX 50 ESG and MSCI Global Sustainability and the Dow Jones Sustainability Europe Indices.

More information can be found online at [gea.com](https://www.gea.com).

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