**Information system for optimizing processes, procedures and use of energy**

*by Wonderware Germany*

“With the new information system, we are able to capture and analyze relevant operating data promptly from all areas of the factory. This means, amongst other things, that we can recognize areas where we can save energy costs.”

Robert Englisch,
Head of Technical Services,
König Brewery

**Value Drivers**

**Goals**
- Produce over 2,000,000 hectoliters of König Pilsener and Kelts alcohol-free beer;
- Create a traceability system that meets the IFS (International Food Standard) and EU Directive 178/2002.

**Challenges**
- Capture, store and use the relevant operating data from the beer production;
- Integrate the historian with the SAP system.

**Key Metrics**

**Wonderware Solutions**
- ActiveFactory software;
- InTouch HMI;
- Wonderware Historian.

**Results**
- The effective recording of data, which is now logged every 10 seconds, provides the König brewery with a more precise view of the system;
- Maintenance engineers are now able to dial into the system from anywhere in order to carry out fault analysis.

**Company Overview**

König-Brauerei GmbH – Duisburg, Germany

The König Brewery was established by Theodor König in Beeck in 1858. It was decided at an early stage that the beer would – contrary to the tendency of the time – be brewed using the Pilsener brewing method. The König Pilsener brand was first mentioned in documents in 1911. Today, König produces over 2,000,000 hectoliters of König Pilsener and Kelts alcohol-free beer for consumption at home and abroad at its Duisburg brewery, which employs nearly 400 people.
Requirements

Until the beginning of 2000, König Pilsener used an information system developed in-house which was an isolated application providing operating data as 1-minute values. It was not possible to access the system from all areas of the plant. At the beginning of 2001, a new network structure was created in the brewery, and the old system was replaced. It was decided to use a standard solution. This would collate and provide the necessary data from the plant. The system was to be linked via the H1 bus to the subordinate 16 Simatic PLCs, and data was to be exchanged with the higher-level SAP system.

The production sequence

Malt is produced by germinating barley. After being milled, the malt is mixed in the brewery into what is called “mash” and then heated. In the lauter tun, the fixed components of the mash are separated from the liquid, and the wort, containing its precious ingredients, is forwarded to the brew kettle. Here, the hops – the “soul of the beer”, responsible for its flavor – are added. This wort is then boiled and cooled before the yeast is added. The yeast converts the malt sugar into carbon dioxide and alcohol. After the actual brewing process, the beer is sent firstly to the storage cellars, where it is left in peace to brew to full maturity. In the final filtration process, the last remnants of yeast still floating in the liquid are removed. Only then can the beer be filled; it is then sent to the end user in bottles, cans or barrels/kegs.

Automation solution

After König had made the decision to replace the existing information system, it searched the market for a suitable system. This was done in collaboration with Autec, from Mölln in Schleswig-Holstein. They decided in favor of Wonderware InTouch HMI, Wonderware Historian (formerly known as IndustrialSQL Server) and ActiveFactory software. The reason was that this system was best able to meet the requirements of the König brewery in the simplest possible way. Autec is a Wonderware system integrator and as an industry expert, it operates in a number of breweries. Autec was therefore commissioned to realize the project. The Wonderware Historian is installed on a server and captures the relevant operating data from production via a direct link from the subordinate PLCs. The data is then forwarded via a network to the actual analysis and information system. The information system consists of the InTouch HMI and the analysis tool ActiveFactory software. These are installed on a terminal server farm with Windows 2003 Server as the operating system, which means it is possible to access the data throughout the company.

Traceability

Regulations on food safety have been in force in the European market for several years. In particular, the IFS (International Food Standard) and EU Directive 178/2002 require companies in the food industry to ensure traceability. This also applies for the brewing industry. At König Pilsener, traceability is an integrated component of the current information system.
Customer benefits

In connection with this new information system, the König brewery is now able to capture and analyze relevant operating data using an integrated system throughout the entire factory. This is mainly consumption data and data for quality control, for optimizing processes and for improving operating methods. The energy consumption can be shown, and the data can be processed extremely efficiently. This means that it is possible to find areas where savings can be made on energy costs.

The more effective recording of the data, which is now presented every 10 seconds, means that the König brewery has a much more precise view of the system. By using terminal server technology, central maintenance, administration and repair of the system are now possible.

Another benefit is the fact that maintenance engineers are now able to dial into the system from anywhere (outside the factory too) in order to carry out a fault analysis.

Why Wonderware?

König Pilsener wanted to use a modern information system based on modern standards. A market analysis showed that Wonderware’s software solutions provided the most suitable basis for the system required. In addition, the solution offered with this by Autec was a reasonably priced option for meeting the requirements.

Summary

Pure production data was transformed into useful information using Wonderware tools. This is done as follows:

• Monitoring the most important performance figures;
• Analyzing the process control and quality monitoring data;
• Preparing specially agreed reports;
• Managing product quality data;
• Energy management;
• Optimizing methods.

Wonderware’s Plant Intelligence concept has thus been fully implemented in this project. The aim – ordering and providing data tailored specially for the various decision-makers – was achieved, thus making a major contribution to the overall success of the brewery.

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