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Paul Bloemen
IT Manager



Brouwerij Martens Selects Wonderware Production and Performance Management Software Solution to Fully Integrate Its Business and Manufacturing Systems

Bocholt, Belgium - The art of brewing beer is an ancient and revered part of the Belgian national identity, with dozens of breweries and more than 400 different beers on the market. But it's a living art that has evolved over time.

Today the art of producing beer is undergoing another evolution and once again a Belgian brewery is at the forefront of the advancement. Brouwerij Martens, a privately held company in the ancient, picturesque town of Bocholt, is reaping the benefits of introducing the latest production and performance management software tools from Wonderware, a business unit of Invensys, to its production processes.

Founded in 1758, Brouwerij Martens produced more than 2.5 million hectolitres in 2004 for both domestic and export markets, making it the third largest brewery in Belgium — a country boasting more than 400 such businesses.

More than 80% of Brouwerij Martens' business comes out of the private label beer market, a highly competitive, volatile environment, characterized by low margins, high volumes and constantly changing requirements. Martens' strategic focus is on keeping costs down and winning on price.

"To support this lowest cost strategy we needed actual and real time reflections of operational results," said Paul Bloemen, IT Manager, Brouwerij Martens. "This means we needed systems that could model our fully integrated value chain. From the trucks supplying malt to the brewery, to the trucks supplying finished product leaving the warehouse to a customer."

To accomplish this Martens has completely revamped its IT infrastructure with a multiphase project including a new ERP system and technology from Wonderware's Invensys sister company, APV.

High Demand for Martens

Martens has the kind of problem that most companies would love to have — it can sell every dram it can produce. But, the demand for its product exceeded the brewery's production capacity limits.

The Wonderware Advantage

Wonderware's Production and Performance Software Solution for Brouwerij Martens comprises a portfolio of fully integrated software tools that enable highly efficient manufacturing operations and information management. Wonderware software covers a wide range of critical functionalities including batching, tracking, monitoring downtime, quality control and integration to business systems such as ERP and supply-chain planning systems.

At the heart of this portfolio is the Wonderware Industrial Application Server. Built on the industry-leading Arcestra software architecture, the Industrial Application Server is the core application development and supervisory control platform for Wonderware's Production and Performance Management Software Solutions. It provides a unified environment for visualization, plant history, device communication and automation application integration.

The Wonderware Industrial Application Server delivers an infrastructure for simplifying the development, deployment, maintenance and administration of distributed automation applications. For Martens, those applications include a full range of Wonderware production and performance tools including InBatch, InTouch, InControl and IndustrialSQL Server software.

Of particular importance to Martens is Wonderware's InBatch flexible batch management software, which automates production processes and enforces strict adherence to recipes. All the recipes are maintained in the InBatch software, which ensures that the right steps are taken in the right order to deliver consistent product quality from one batch to the next. Moreover, InBatch software simplifies the change from one recipe to the next reducing the amount of time it takes to get back up to full production after a change.

Prior to implementing the Wonderware Production and Performance Management Solution, Martens maintained recipes at the PLC level. This meant that recipe changes required the direct intervention of a programmer — and it took more than a year to get an operator fully trained to use the system. Now all recipes are accessible in a user-friendly application and maintainable by the Brewmaster without the need of specialized programming skills.

"Wonderware's Industrial Application Server is flexible, extensible and can cope with diverse systems," said Bloemen. "This means we can extend it to other production areas of the brewery like fermentation/filtration and the filling and packaging lines, and also implement our standards over there.



Operator on the plant floor using InTouch HMI Software

It was clear to Paul Bloemen that a new production and performance management system would increase productivity and get the maximum number of brews out of the brew house. But he also saw that a new system would help Martens revolutionize the way it operates and lay the groundwork that will help it stay ahead of its competitors for years to come. He spent a lot of time thinking about exactly how he wanted the brewery to operate and what was required of a new system.

Thus, when the search for the right system began, Martens had a very clear vision of what it wanted, and there were many strict requirements that had to be met:

- A seamless, unified IT infrastructure incorporating both business and production systems
- Improved recipe management
- Full lot tracking and tracing to meet the demands of new government regulations
- User-friendliness
- Expandability
- Flexibility
- Open architecture

"Last but not least, the goal of the Brew House project was to increase the output. And indeed we did. We raised the output of the brew house by 2.5 percent, meaning one-to-two extra brews a week," added Bloemen.

Beer brewing starts with malt, which is crushed, mixed with water and cooked. The batch is then filtered and hops are added, giving the brew its flavour. Then the brew is allowed to ferment for a week and mature for two more weeks. Finally, the batches are filtered and transferred to the filling and packaging lines.

Ultimately, we will incorporate the complete plant into one unified infrastructure. The ability to re-use engineering efforts inherent in the Arcestra architecture will greatly simplify this process."

Another critical element for Martens was implementing industry standards, including the ISA-88 Batch Systems standard and the ANSI-95 Enterprise Control System Integration standard, which requires simplified communications between production and business systems. The Arcestra architecture fully supports these standards — more commonly known as S88 and S95 — enabling real-time, reliable and accurate data sharing between front and back offices.

Along with the Industrial Application Server and InBatch software, Brouwerij Martens deployed Wonderware's IndustrialSQL Server historian, a comprehensive data repository that gives plant decision-makers immediate access to detailed, real-time plant information and unprecedented access to the information they need to make critical decisions every day. The IndustrialSQL Server software delivers the data — both current and historical — that enables the detailed analysis and trending that provides so much of the solution's value.

Wonderware's InTouch HMI software enables users to visualize that information and use it to control industrial processes. In addition, InTrack manufacturing execution management software maintains a complete genealogy of each batch and works with the business-layer systems to notify the extended value chain of the brewery's needs in real time.

The final steps of the overhaul called for the replacement of the existing PLCs with Wonderware's "soft PLC" solution featuring InControl real-time control software and the addition of S88 and S95 connectors. "All of these ingredients were tied together by APV, an Invensys sister company and the system integrator for this project, as well as the S88/S95 consultants from Telerex, the Wonderware Distributor covering Belgium, the Netherlands and Luxembourg.

According to Bloemen, the benefits have been many and significant. "We now have more critical production information, like consumed raw materials, produced beer and quality characteristics, than ever before. All this information is communicated automatically to the ERP level, which means we also have easy access to accurate, real-time, complete information for inventory management, lot tracing and tracking, and production costing.

"With the InTouch and InBatch software, we have a user-friendly system for the operators. With the previous system it took more than a year to train an operator. Today, with the new Wonderware system, all the knowledge, and the intelligence, is in the system. The operators are guided through the brewing process, which means less training."



One of Brouwerij Martens Packaging Lines

Future Plans

So far, the Wonderware Production and Performance Management Solution has only been rolled out in the Brew House, but Brouwerij Martens is already working on bringing the filtration area under the umbrella of the new system. In the coming months, the existing filtration control systems will be replaced with InTouch, InBatch, IndustrialSQL Server and Industrial Application Server software, says Bloemen. Moreover, the remaining production areas — Fermentation/Maturation and Filling and Packaging — will follow until the entire brewery is reaping the same rewards from Wonderware that the brew house enjoys.

"We also plan to integrate the Industrial Application Server with our maintenance management system from Avantis, which is another Invensys company," added Bloemen. "Using the Industrial Application Server as our real-time health monitoring system will enable us to trigger preventive and predictive maintenance jobs more easily. This will reduce maintenance costs and reduce downtime of brewing equipment and packaging and filling lines."

Wonderware - A Key Ingredient

"Wonderware software is open, flexible and very good at pulling together and analyzing production data and turning it into the actionable data we need to improve our production processes," said Bloemen. "Without these capabilities, it would have been impossible to realize our sensor-to-boardroom concept."

The art of brewing beer has come a long, long way since those ninth century Brabant monks first added hops to the recipe, but Belgium continues to be a source of innovation for this ancient art form.

The success of Martens' Brew House project is an essential ingredient in the company's quest to be the lowest-cost beer producer in the European private label market. Armed with the real-time data at every stage of the brewing process delivered by its Wonderware Production and Performance Management Software Solution, Brouwerij Martens is able to produce more beer than ever before — and satisfy thousands of thirsty customers with its refreshing drink.

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