“With the help of Wonderware software, we have become a leading company in time-to-market, on-time performance, meeting customer expectations and cost-base reduction. We win our orders on quality. The level of performance our customers receive from the products leads them to buy from us.”

Roddy Edgar, IS Manager, Gates Power Transmission

Wonderware assists efficient production of automotive and industrial belts
by Wonderware United Kingdom

Goals:
• Create an Enterprise Manufacturing Intelligence system with real-time bi-directional integration from disparate shop floor to Enterprise Resource Planning level.

Challenges:
• The plant had different hardware and software solutions, making it difficult to acquire data from different technologies that are spread across the world.

Wonderware Solution:
• ActiveFactory software;
• InBatch software;
• InTouch HMI;
• QI Analyst software;
• Wonderware Historian;
• Wonderware Manufacturing Execution Module.

Results:
• Real-time bi-directional integration from disparate shop floor Programmable Logic Controller systems right up to Enterprise Resource Planning level;
• Ease of use of Wonderware software solutions and comprehensive training provided by Wonderware United Kingdom enables Gates’ staff to carry out ongoing in-house enhancements to the system;
• Winner of the Best Engineering Plant in the UK accolade at the 2008 Best Factory Awards supported by Cranfield University and Works Management magazine.
Dumfries, Scotland – The Gates Corporation has been recognised as one of the leading manufacturers of automotive power transmission products since its inception in 1911. Gates employs some 38,000 personnel worldwide of which 6,400 are dedicated to Power Transmission.

Gates is a geographically diverse corporation with locations throughout the world. The European HQ for Gates Power Transmission is in Erembodegem, Belgium, and manufacturing sites are located in Dumfries, Scotland; Aachen, Germany; Nevers, France; Balsareny, Spain and Legnica, Poland. Some 390 staff are located in Dumfries, working four shifts round the clock to produce 500,000 belts a week.

The Dumfries facility manufactures synchronous belts and couplings for the automotive and industrial markets. The site produces everything from the small belts found in food mixers to large industrial belts utilised in ski lifts and farm machinery. Gates supplies most of the major automotive customers with OEM (Original Equipment Manufacturer) products and also produces aftermarket spares. The industrial side manufactures belts for everyday equipment such as vacuum cleaners, cash dispensers and automatic doors.

Gates Dumfries facility also produces Poly Chain® polyurethane belts which replace conventional chains on motorbikes for customers such as Yamaha and Kawasaki. Custom belts are also produced for bicycle manufacturers and industrial applications using Gates Poly Chain® GT® Carbon™ high-torque drive systems.

Improving Efficiency of Production Processes with Wonderware

A corporate initiative saw the introduction of InTouch HMI (Human Machine Interface), Wonderware Historian software, QI Analyst software and Wonderware Manufacturing Execution Module in 2000. In 2003, Wonderware Historian was introduced for statistical analysis. In 2004, a new global production system was implemented, the combination with Wonderware technology helped to improve the efficiency of production processes.

“We wanted a window on the manufacturing processes,” says Roddy Edgar, MIS Manager at Dumfries. “There were two sides to this need – we wanted visualisation, to see what was happening and we also wanted history and analysis of data to enable possible improvements in quality. In addition, we obtained traceability and lot control using our MES solution based on the an Wonderware Manufacturing Execution Module software-based MES solution.”
A key issue was the need to acquire data from different technologies. “There were different Programmable Logic Controllers, different Enterprise Resource Planning systems, and different technologies spread across the world,” says Edgar. “For example, we use Allen Bradley systems in the US and Siemens in Europe. We have an IBM mid-range AS400 Enterprise Resource Planning system running in Dumfries.”

The Wonderware solution provided Gates with real-time bi-directional integration from disparate shop floor Programmable Logic Controller systems right up to Enterprise Resource Planning level.

“We are now at the point where users see real benefits from using the systems in their day-to-day work. Enhancements are now pulled by users because their eyes have been opened by the power of the system,” says Edgar.

Against this, there are the European drivers in that sales and marketing, forecasting and budgeting are handled at the European HQ near Brussels. The trends in Dumfries will be comparable to those on similar machines in the different countries in which the company operates.

**Major Benefits**

The Wonderware software solutions involving InTouch HMI, Wonderware Manufacturing Execution Module, Wonderware Historian, QI Analyst software, ActiveFactory software (the front-end system for Wonderware Historian), and InBatch software were provided by Wonderware United Kingdom and Swift Automation.

The ease of use of Wonderware products and comprehensive training provided by Wonderware United Kingdom enables Gates’ staff to carry out ongoing in-house enhancements to the system. Dumfries also utilises InBatch software to control a batch process producing water-based adhesives used...
in the production process. InBatch software controls the entire batch process providing full traceability of recipes, equipment and materials.

**Key Achievements**

Gates Production Systems have evolved over time, and indeed are continually evolving. “We utilise a cell manufacturing process, so we can commission Wonderware on one cell and then later, start on another cell,” says Edgar. “There is great flexibility with Wonderware, we can install different products at different times but still integrate everything together creating a total solution.”

Introducing the Gates Production System in 2004 has resulted in more efficient operations. Improvements to material flow have added further savings. At the start of 2006, Gates operated with 3.5 days inventory – it is now down to 15 hours and other improvements have reduced the need for working capital. As a result of the new system, unit costs have fallen 3.5 per cent.

“We use Wonderware for improving the quality of our products and also for error proofing the manufacturing process”, says Edgar. “The system gives visibility on the process at all levels in the organisation. This enables people to make faster decisions and improve the quality of the process”.

That Gates Power Transmission has made great strides in its work at Dumfries can be proven through its winning the Best Engineering Plant in the UK accolade at the 2008 Best Factory Awards supported by Cranfield University and Works Management magazine, and being Highly Commended in the Supply Chain award, sponsored by Toyota.

---

This document was realized thanks to the support of: Gates Power Transmission.