

Devro Tracking Production for Business Benefits

EmsPT Manufacturing

“We had a lot of work to do, but the tools selected did the job. EmsPT gave us very good support, Chris Jackson often providing real-time help from the most unlikely of locations”

Sausage casing manufacture at Devro is a volume business with in the region of 1,000,000 Km of casing produced per year. Many variations are manufactured that have their own technical specifications that have to be rigorously adhered to from a demanding market. Volume manufacture of casings requires constant attention to quality, this includes the specification of the casing itself with parameters such as wall thickness, diameter, tensile strength, elasticity and humidity. A casing must not burst when being filled and the casing has to have the required appearance, and packing and shelf life. Another major concern for quality is that of moving a batch through the production process. As the process is undertaken the casing is concertinaed onto a mandrel for packing, allowing an extremely long casing length to be conveniently placed in a box, each box must have the correct product and that product must be made from the correct ingredient and have undergone the correct processing. Each box has its own unique identity within a uniquely identified trade pack, and in turn as part of a pallet load.

In defining what was needed as part of their renewal programme Devro had to find a solution that would satisfy their own and their many customers' quality standards and take into account new products, new machines and new processes. Devro knew that workflow, tracking and machine utilisation had each to be addressed and they also added KPI's for line efficiency reports, internal reject targets, labelling and measured product length

production of casing. This had to be achieved in an environment of stringent hygiene, ISO 9000 quality standards and new regulations such as EU 178-2002.

Devro needed a solution that could deal with the size and scope of their business and also integrate into their existing business processes.

As is often the case in such projects the initial problem was simply "how do you start?" Devro explored several alternatives, these mainly being characterised as "SQL + Visual basic", the problem was that this would have produced a highly bespoke solution that would inevitably produce support and on-going development issues. As part of this process Devro investigated solutions that had a higher order of application readiness, in particular they investigated Wonderware's manufacturing execution module product from EmsPT. It was demonstrated that the inherent characteristics of this solution were deployable against Devro's known requirements. The other components of Wonderware's solution such as the real-time database Wonderware Historian and the web portal information server were further reasons that this solution came to the foreground.

This was a critical investment decision for Devro and in discussion with EmsPT it was decided to undertake a significant pilot project. This pilot would show that manufacturing execution module was up to the job and also develop experience of deploying the product.

emspt

Enterprise Manufacturing Systems

Client

Devro is a global company with two manufacturing locations in Scotland. The plants are large and produce 1 million km of sausage casings per year.

Industry sector

Manufacturing.

Challenge

As part of a renewal programme Devro sought to track the production process by updating its obsolete data acquisition system to obtain significant benefits through process insight, quality and avoidance of error. It wanted to avoid a bespoke solution that would require ongoing development yet required a system flexible enough to cope with a huge range of quality standards and new product development. The system also had to work with the company's ERP system.

Solution

Wonderware Manufacturing Execution Module software – an application ready system combined with Wonderware Historian real-time database, Quality Control (SPC), MSSQL and InSQL database, InTouch visualisation software providing operator displays and a Report Server providing information over the internet and extranet.

Implementation

EmsPT consultants worked with Devro to initially test the solution through a Pilot Study. The successful Pilot was rolled out and achieved improved quality control, improved labour utilisation, increased production and easier traceability for regulatory compliance. All the data resides on one system providing easier access and greater insight in real-time – the new data acquisition system showed the plant was making more length of product than was believed when using the obsolete data acquisition system.



The pilot project team comprised Devro staff lead by John Watkins, MIS Team Leader, and by Chris Jackson, Senior Application Consultant from EmsPT.

A functional design specification for the pilot was agreed and the team went to work.

The requirements at Devro were multifaceted, but one of the core concepts was delivered by the manufacturing execution module product. This was not to passively track what was happening but to agree the production processes that were required, step by step, and place them at the heart of manufacturing execution module so that automated and manual tasks could be done optimally and without error. This set of rules was accurately flowcharted by manufacturing execution module, tested and implemented. In this way production was to be achieved in an orderly, fail-safe and controlled way.

Information for operators is distributed by terminal services to shop-floor workstations (these in fact are diskless "biscuit box" devices that are physically mounted under benches, flat screens and barcode scanners being connected). The only information on the screen at this level is that which has to be done next, or is in the immediate pipeline. Barcode equipment and label printing is used to correctly track a box, and transport systems, from filling through all other post-processing stages. For example if a trolley of boxes is inadvertently taken by an operator to the wrong place for further operations it will be rejected and re-routed. A simple precaution, but one that avoids human error in the three shift system worked at Devro. Bar-coding and scanning are tightly integrated to the system, ensuring that the correct information is always being used.

Although produced from standard tools, the pilot showed that in no way were the particular requirements of Devro's processes compromised; Wonderware's Production and Performance Management Software delivered an effective set of tools for the job without constraining the design.

The system at the pilot stage proved that the solution was viable for Devro's requirements. The roll-out stage included Quality Control (SPC), MS SQL and In Wonderware Historian databases, InTouch to provide operator displays and a Report Server that provides information over an intranet and extranet. Production data that contains the schedule and detailed product batch information is downloaded from the company's J.D. Edwards ERP system, this populates the production system with jobs.

Automatic Quality Control has been achieved in two stages, at one level for process operators (using the same workstations as above), and another for production analysis.

John Watkins has been involved with the project all the way through. He is keen not to understate the complexity and time that it takes to deploy such a system. However, he says that, "manufacturing execution module and the other FactorySuite modules gave us a running start, we had a lot of work to do, but the tools selected did the job." He also added, "EmsPT gave us very good support, Chris Jackson often providing real-time help from the most unlikely of locations".

Now that the roll-out stage is completed John states that Devro has directly benefited from the investment by tracking the production process. This can be seen in better quality control, improved labour utilisation, increased production and easier regulatory compliance for traceability. Devro can now see how the process is running in real-time; this feature directly contributes to process efficiency as decisions can be made and implemented there and then. This is facilitated by all the data residing on one system with easier access being the main technical benefit.

A notable unplanned benefit that was received is that it has been discovered that the plant was making more product than was believed to be the case when using the obsolete data acquisition system. Although Devro were being paid for this, the KPI on plant efficiency (unit length produced) went up immediately.

Devro managers believe that now that they have overcome and benefited from a learning curve that has placed them further in control of their processes. The Wonderware investment has provided them with a tool to perform whatever analysis they may wish to make in the future, and one that will easily absorb new products as they are developed. The imaginative deployment of Wonderware's manufacturing execution module and FactorySuite A2 has delivered a new and effective production environment for the company.

EmsPT provides MES Solutions for industrial automation environments and has over 20 years of proven and recognised experience in the delivery of manufacturing execution systems (MES). We combine world-class software and hardware technologies with highly skilled people to develop integrated solutions which resolve manufacturing issues in today's competitive climate.

We can help manufacturers to achieve Best Practice through Lean Manufacturing initiatives and the provision of continuous improvement programmes such as Finite Capacity Scheduling, Traceability, Overall Equipment Effectiveness, Manufacturing Quality, ERP integration and Business Continuity. Our aim is to enable our customers to gain a business advantage.

SolutionsPT is a leading supplier of manufacturing solutions to major companies across the UK and Ireland. Using world class industry expertise, quality training and support facilities and a proven range of software and hardware products, SolutionsPT specialises in building manufacturing management solutions that can increase productivity and supply corporate management with the information they need to make sound business decisions.