


Industry: Food & Beverage

Amadori Group, GESCO Consorzio Cooperativo

www.amadori.it



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Carlo Caramanico,
Software Support, Cid Engineering

The Ideal Temperature

by Wonderware Italy

Goals:

- Optimize temperature management during the meat processing steps;
- Ensure traceability, with exact temperature data for every step: processing, stocking and preservation;
- Deploy a system that improves plant efficiency.

Challenges:

- Difficulty in software migration from an outdated version to a highly innovative and scalable system;
- Create a temperature control system that adjusts according to the external weather conditions.

Wonderware Solution:

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

Results:

- The Wonderware solution enabled the compliance with government regulations;
- The new system optimized production cycle and energy management;
- The automation of the production cycle helped eliminating manual data entry errors;
- The scalability of the solution, initially only implemented in limited departments, has been subsequently painlessly deployed in all the other processes.

Teramo, Italy - Amadori is one of the market leaders in the food processing industry. Founded in San Vittore di Cesena forty years ago, the Group – with a turnover of over 1 billion euro in 2008 – leads the Italian market with 16 industrial plants and 33 subsidiaries. It employs 6400 people. Amadori has been successful because of its innovation and decision to manage the whole production cycle directly, allowing immediate control over every production step. This includes choice of raw materials, farms, hatcheries, feed mills, processing plants, packaging and distribution.

Tradition and innovation are the Group's hallmarks: it is comprised of a professional team that presents innovative gastronomic solutions and works to deliver fresh and safe products to consumers. In the processing plant in Teramo, where breaded products and the 'Il Campese' line are produced, full temperature control is essential to ensure high product quality. The popularity of the Amadori Group has increased exceedingly in the past few years, thanks to advertisements featuring company testimonials and the 'guaranteed by Francesco Amadori' slogan. By emphasizing the high quality of its poultry products in various versions, the company is sending out a strong and important message.



Figure 1: Packaging Line.

The Ideal Temperature

One of the most important challenges facing industrial plants is guaranteeing a consistently high quality level.

The most sensitive part of production is the correct management of temperature, both in the processing and in the stocking and preservation steps.

Temperature must be kept constant in the cold stores used in the preservation of slaughtered meat, to prevent it from quickly getting spoiled.

It is important to avoid guesswork in the temperature settings during the processing steps: every department is constantly monitored to prevent the modification of temperature metrics.

A high temperature, for example, could favor microorganism growth, risking to affect product quality. On the other hand, if the temperature is too low, the meat would be difficult to bone.

This is strategic in the global operations because difficulties in the separation phase could slow the production process down, affecting the whole supply chain. Moreover, if conditions are not optimized, part of the meat could remain on the bones, causing considerable waste that affects the overall business.

Growing Together

Because of this, Amadori is especially focused on deploying systems that are able to optimize temperature management during the processing and stocking steps. *“That is why – says Carlo Caramanico, software support, Cid Engineering – Amadori has been investing in high performance control solutions, able to support the company’s business and expansion. At end of the past decade, we got in touch with Amadori for the upgrade of existing Wonderware InTouch HMI.”*

This mutual collaboration consolidated during the years, and Cid Engineering has been supporting all Amadori’s upgrades and deployment of new platforms and functionalities. *“In recent years, – says Caramanico – Amadori has always been asking for the most innovative solutions, aware that technological innovation allows us to remain competitive on the market. And this goal has led us to the deployment of Wonderware solutions. This choice has been determined by the fact that, as qualified partners, we are highly*



Figure 2: Aerial view of Cesena plant.

experienced in these applications and that, during the years, Wonderware has been introducing new innovative solutions, able to meet the demands of the highly complex Amadori's business."

Quality and Savings

Temperature management has been accurately studied over the past years, specifically its effect on savings and energy efficiency. The old system was based on simple thermostats, which is characterized by excessively slow response. Wonderware InTouch HMI (Human Machine Interface), on the other hand, allows smart operation. The system is able to manage the activation of the conditioning system according to actual needs. It also establishes the power needed to guarantee the ideal conditions. Aside from temperature values, air quality and humidity must also be taken into account. Humidity, in particular, must be kept within pre-set values, in order to preserve a healthy environment for the operators in the processing plant. The Wonderware InTouch HMI nodes help analyze environmental conditions, helping in the control of the airconditioning system.

It is the ability to operate effectively that allows the system to turn on and off according to the different working cycles, in both the automatic calculations. By evaluating the external conditions, the system determines the time necessary to reach the right temperature according to actual needs. This prevents early cooling of certain environments and eliminates the postponement of processing because optimal conditions are not met.

The History of Temperature

The optimization of environmental metrics has a strong impact on product quality and the working conditions of operators. It also plays a decisive role in precise food traceability. Industry regulations require a trace back of all the operational conditions food has gone under, and the authorities usually check this information. In many cases, big customers want to verify the contractual compliance of the production processes.

In the past, all these values were entered manually by the operators. But this way of working caused considerable problems, both for the need of employing extra operators who manually transcribe information, and for the high risk of human transcription errors. The Wonderware Historian software is specifically designed for the historicization and archiving of process data and helps solve this problem. ActiveFactory software accesses all this information and transforms it into graphics and useful information that allow operators to visualize historical event-related temperature trends intuitively. This feature helps with traceability and it also allows the operators to be immediately informed about abnormal situations. In this way, it is possible to act timely in case of deviations from set values, often before problems occur.

The high scalability of the solution, initially only implemented in limited departments, has been subsequently painlessly deployed in all the other processes, thus ensuring the optimization of the production cycle and energy management in the Teramo plant.

Recently Amadori chose to replace the old S5 PLC with a the newer Siemens S7 PLC. This has been successfully implemented without affecting the Wonderware automation solution. Once the new hardware had been configured, it has been immediately deployed, with no implication on the production cycle.

Thanks to the most innovative and advanced technologies, it is possible to ensure the highest efficiency levels that always ensure high quality products.

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