

The image features a large, stylized logo for ECSS SOLUTIONS. The letters 'E', 'C', and 'S' are rendered in a bold, red, sans-serif font. The 'E' is a simple block letter, while the 'C' and 'S' are more rounded and connected. A thick black horizontal line runs through the middle of the letters. Below the letters, the words 'SOLUTIONS INC.' are written in a smaller, black, sans-serif font. The background is a complex, technical illustration of gears, mechanical parts, and a network of nodes and lines, all in shades of gray. The overall design is modern and industrial.

ECSS
SOLUTIONS

ECSS

SOLUTIONS INC.

BOOSTING BATCH PERFORMANCE AT A SALAD DRESSING PLANT

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THE CHALLENGE

A well-known line of salad dressings was recently acquired by a major food manufacturer with the plan to establish a fully automated, paperless manufacturing process for the production. To do this efficiently and cost effectively represented a significant challenge. That challenge was met and surpassed by the ECS approach to boosting batch performance, which focuses upon providing value at every stage of the process system life-cycle. Thus, it was possible to construct a solution that consistently delivered high quality products at the lowest possible cost.



SALAD DRESSING CASE STUDY

THE SOLUTION

ECS automated the new manufacturing process concurrently with the design of the process. Using commercially-off-the-shelf software (Rockwell's FactoryTalk Batch for batch management, FactoryTalkView SE for visualization and operator interface, and FactoryTalk Historian for data collection) and ECS' S88 Builder for control, ECS was able to quickly configure the process as the process was being designed. S88 Builder technology is a ControlLogix program that uses configurable, production-ready models for reliable, flexible operation.

With this model-based approach, the configuration was quickly and easily adapted to account for the changes that arose either during design of the process or during the implementation phases. ECS Solutions was able to make the necessary changes "on the fly" with no impact to the schedule. A simulated production of one of the manufacturer's high volume products was undertaken two weeks prior to the completion of the final P&ID designs. While the process cell or kitchen was being constructed, operators were provided classroom training in a virtual environment using actual production software running in simulation mode. The training was then reinforced during the water runs so the operators were ready to assume control when commissioning was completed.

The ECS control system was integrated with the plant ERP system (both top to bottom and bottom to top) allowing (a) production shop orders to be sent down to the plant floor system for execution, and (b) material usage, lot data, and production totals to be reported back to the plant ERP system. It was stated by the food manufacturer that "ECS effectively created a gateway between our manufacturing floor applications and our legacy ERP system. This allowed transactions between the two systems for real time data either to be sent up for inventory tracking or pushed down for scheduling and production needs."

The production of the iconic salad dressings has some unique features. Even though there are more than 75 different dressings, the number of bulk products available in the facility is limited to a dedicated number of tanks. Minor quantities of ingredients required in a given recipe are “kitted” in advance, i.e., these ingredients are weighed out shortly before scheduled production and stored in a refrigerated area ready for the production run. ECS implemented FactoryTalkBatch to drive production process and developed a database application to handle the “kitting” process, resulting in a major improvement in both consistency and quality of the products.

The kitting process is a manual process. Automating the kitting process involved relaying specific instructions to the operators in a timely manner, substantially reducing the possibility of human error, such as an incorrect weight being used or the omission of an ingredient from a recipe. Bar code scanners and printers were used to track the kits and ingredients throughout production.

The automation solution supported two identical kitchens for production as well as CIP processes. ECS integrated the CIP systems with Factory Talk Batch to simplify the creation, operation, optimization and maintenance of the CIP procedures.

At first glance it appeared the manufacture of the salad dressings could become more complicated after the acquisition, requiring the involvement of significantly more equipment. However, the use of FactoryTalkBatch not only allowed the amount of equipment required to be reduced, it also put the ability to modify recipes into the hands of the plant personnel, without any need for knowledge of controller programming. New recipes, new products, could be evaluated using FactoryTalkBatch, which had simplified the processes occurring in the kitchen.

SALAD DRESSING CASE STUDY

THE RESULT

The completed project was effectively a “proof of concept” and will be a model for future expansion. It provided a flexible, fully automated system and allowed R&D activities and new product development to be incorporated easily.



SALAD DRESSING CASE
STUDY