CASE STUDY

Automation helps Manufacturer increase Production by 35% and Ensure Consistent Quality

A success story

A division of Japan's leading manufacturer of mayonnaise, salad dressings, sauces and related products, needed to improve its current manufacturing process in order to meet the quality standards of the parent company, which is seeking to expand sales in the United States. The United States based facility manufactures and private labels a variety of dressings, marinades and sauces.

The customer identified a number of process improvement areas and created a three-year upgrade plan for the plant. In particular, the customer focused on improving safety, product quality and production efficiency, while eliminating operator errors and reducing waste. The company selected Omron to manage and coordinate these efforts.

The need

When Omron began to work with the plant, the production lines had little to no automation. Operators performed manual inspections of products moving along the conveyors and other manual production tasks such as removing and reconnecting pneumatic hoses on the air valves. These processes caused quality inconsistencies and prompted the customer to seek a solution to protect its brand reputation.

Overall, the customer required a comprehensive solution to improve operating efficiency and quality by modernizing their assets and training their operating personnel on new equipment. Due to the plant's lack of automation, Omron needed to help the operators and maintenance staff learn how to operate the automated equipment and be comfortable using it.

The solution

Omron has completed several stages of the plant improvement project, including the automation of several mixer machines, the raw materials distribution system and a filler machine. All of the existing mixer tank controls have been retrofitted with an NJ Series Controller and an NA Series HMI to enable recipe control and networking with the local server. These technologies will facilitate integration with process management software in the future.

All of the manual valves have been replaced with electronically controlled automated valves, and additional flow control meters were added to the machine. Omron project engineers developed new programs for the controller and HMI for the mixer machines. The mixer controller interfaces with the raw material distribution system's control panel to receive the necessary raw materials, including vinegar, water and five types of oil. It also controls all of the automated valves around the mixer platform for the delivery of finished

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Business Need

A leading manufacturer of sauces and related products saw a need to incorporate more automation into its production lines to replace manual processes that were causing inconsistencies in quality.

Unique Solution

Omron automated several mixer machines and the plant's raw materials distribution system. Mixer tank controls have been retrofitted with an NJ Series Controller and an NA Series HMI to enable recipe control and networking with the local server.

Customer Benefits

The introduction of automated solutions to replace manual ones has resulted in faster production cycle times, consistent quality, decreased downtime and less waste. Overall, the customer saw a 35% increase in throughput.

product to the packaging line.

The HMI was designed to walk operators through the recipes that were stored in the NJ controller. This functionality ensures consistent quality with built-in control of raw material volume, mixing speeds, mixing times, wait times, etc. The raw material distribution control panel and multiple remote I/O sub-control panels were added to control the flow of raw material to all of the mixer machines. These panels were fabricated by an authorized Omron partner and installed at various locations within the facility.

Omron project engineers developed the control program for the raw material distribution controller in order to implement semi-automated operation. This controller is responsible for opening and closing the automated valves to direct raw material to the proper location, eliminating the need for the operators to manually open and close the valves or remove and reconnect the air hoses.

The outcome

The plant has seen a 35% increase in production output after the completion of the mixer automation. The increase in production is a result of decreased errors and the elimination of several manual setup tasks. At this point, the main bottleneck lies in the system's inability to run multiple mixers simultaneously, since only one mixer at a time can receive oil. The next project on the schedule is the upgrade to the oil delivery system, which will significantly increase the plant's total production capacity.

Customer feedback from the plant floor operators and maintenance personnel has been very positive. The machine operators are grateful that they no longer need to manually set up the hand valves and pneumatic hoses, as this was the main cause of errors and waste. The step-by-step flow of the HMI program allows operators to follow a set recipe exactly as developed by the R&D and QC groups. The automated control of the valves, motors and pumps, as well as the automated process control based on stored recipes, has resulted in faster production cycle times, consistent quality, decreased downtime and less waste.

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Omron Automation is a global automation partner that creates, manufactures and services fully integrated automation solutions. We provide controls, vision, safety, motion and robotics for the automotive, semiconductor, food/beverage, packaging, pharmaceutical and infrastructure industries.

For over 80 years, Omron has helped industrial businesses maximize potential by solving problems creatively. Currently headed by President Yoshihito Yamada, our company is 36,000 employees strong—providing products and services in more than 110 countries worldwide.

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