

Mayonnaise Manufacturer Expands Production Capacity with Oil Delivery System Upgrade

A success story

Japan's leading manufacturer of mayonnaise, salad dressings, sauces, marinades and related products developed a plan to expand sales of their name brand products in the United States. A division of this company that manufactures and private labels these products embarked upon a wide-ranging upgrade project in order to keep up with the production volume increases.

The need

One of the main targets of the plant upgrade was the oil delivery process. Several issues existed with this process, including inconsistency in the amount of oil delivered, problems with maintaining the proper temperature during delivery, the inability to delivery oil to multiple mixers at the same time, and the commingling of different oils.

Since the existing system fed only one mixer line, it could not effectively support the new lines that were added as the plant grew. In fact, the system reached its limit at four lines, and initial

modifications had a negative impact on production capacity, product quality and safety concerns.

While new lines were installed on the plant floor, the manufacturer's range of products also changed over time. Instead of one type of oil, five different types of oil (including organic oil) were now required. Unfortunately, this caused the different oil types to commingle. The plant considered a purging process to remove all of the oil from the pipes each time a different oil was required, but this wasted significant amounts of oil in addition to time.

The solution

Omron supported the customer with the design and implementation of a new oil delivery system with greater throughput, higher accuracy and improved temperature controls. This included a complete redesign of the existing piping as well as the installation of new oil chillers. To meet production demands, new buffer oil tanks were installed to make sure enough chilled oil was available for quick adaptation

Business Need

A division of Japan's leading manufacturer of mayonnaise, salad dressings, sauces, marinades and related products needed to improve its oil delivery process to keep up with production volume increases.

Unique Solution

Omron supported the customer with the design and implementation of a new oil delivery system with greater throughput, higher accuracy and improved temperature controls.

Customer Benefits

The elimination of the wait time for mixer stations needing oil has prompted a significant increase in production output.



to shifting production schedules.

Omron faced the following key challenges:

- Determining how to implement the new system in phases so that the old system could keep running throughout integration;
- Designing a control method to keep the amount of oil delivered accurate, since the system delivers the oil at much faster rate;
- Building the new system upon an upgraded and fully automated mixer station while simultaneously making it work on the older manual stations.

Omron's engineers overcame these challenges with a control system designed on the NJ Sysmac Controller platform that includes an NA Series HMI, a VFD drive for each of the ten pumps, five large buffer tanks and five large chillers to chill oil on a single pass. The five buffer tanks, containing five types of oil, ensure that the oil is always ready for delivery. The system constantly checks the oil's temperature recirculates it to maintain consistency.

The new system can deliver to multiple mixers simultaneously, and it communicates effectively with each mixer station controller. When the automated mixer requests oil, the delivery system checks several status conditions and the VFD adjusts the pump speed accordingly. The control panel displays several status values for each oil including VFD status, pump status, buffer tank fill level and oil temperature.

The outcome

The mayonnaise manufacturer has seen a significant increase in production output after the upgrade, since mixer stations no longer need to wait in a queue to get oil. The accuracy of the delivered oil amount is within two pounds of the target amount. In addition, the flow rate during full-speed oil delivery is so fast that the manufacturer does not notice any decrease in flow rate while another mixer completes its oil delivery.

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.

Learn more at:
automation.omron.com

