

CASE STUDY

South Dakota cheese company shifts to predictive maintenance with Fluke 3561 FC sensors and eMaint



Customer Since: 2005 | Dairy Products

- Enabled organized, accurate inventory management; reduced unplanned inventory spend
- Aided asset problem solving and solution sharing between sister plants, Hagerstown and Yuba City
- Created custom sign-off form to ensure technician completion of all food safety compliance tasks following maintenance

The small town of Milbank, South Dakota – home to just over 3,000 people – is also the birthplace of 200 million pounds of cheese each year. That's because it's home to Valley Queen Cheese, which makes award-winning cheese, whey and whey protein concentrate (WPC), lactose, and anhydrous milk fat products for some of the largest food companies in the world.

Valley Queen Cheese got its start in 1929 and today employs more than 315 people. It has become an integral partner for national food processors looking for quality cheese and whey products for use in their own products. The company traces its success to a strong alliance with longtime customers and milk producers and its old-world values.

Background

To keep up with growing demand, Valley Queen recently completed a \$50 million expansion that increased its processing capacity by 25%.

"We had a lot more equipment coming in," says Eric Pulling, Valley Queen's manufacturing utility process engineer. "That means we had a lot more needs – not just for vibration monitoring, but [asset condition] monitoring in general."

The Challenge

Among the equipment added in Valley Queen's recent expansion is a large blower. It contains a positive displacement pump that takes in air and pressurizes it to produce airflow to move products through tubes to the packaging room.

"This is an extremely critical part of the production process," Pulling explains. "We need to make sure we maintain a flow of product through the facility. And if there are any problems with the equipment, we want to know right away."

Pulling says part of the challenge is to monitor critical bearings to determine their health and wear. "We just want to make sure that we have an idea of how those are running at all times and not causing too much vibration or heat," he says.

Implementation

Valley Queen has shifted its focus to maximizing equipment uptime and eliminating unscheduled downtime with its expansion now complete. "We're implementing continuous monitoring capabilities on all of our production equipment," says Pulling. "If equipment goes down, production is halted. And if we have cheese in the vats being made at that time, it's a big issue."

He started by installing a series of Fluke 3561 FC Vibration Sensors on the large blower used to move cheese from the production room to the packaging room. These sensors are wireless condition monitoring devices for tracking machine vibrations and surface temperatures. They work hand in hand with eMaint Computerized Maintenance Management System (CMMS) software to help Valley Queen implement advanced maintenance management techniques. "The integration into eMaint was a huge factor in our purchase of the vibration sensors," Pulling says.

So far, Pulling has also installed 3561 FC sensors on auger bearings, an electric motor, and pillow block bearings that connect to the blower's centrifugal fan.



"We have installed three sets of sensors on high-RPM equipment that has not had any failures," he explains. "But when the sensors show vibrations trending upwards, we know we need to schedule service soon."

Pulling has identified other assets where the 3561 FC sensors would work well, including the ammonia compressors used for plant cooling.

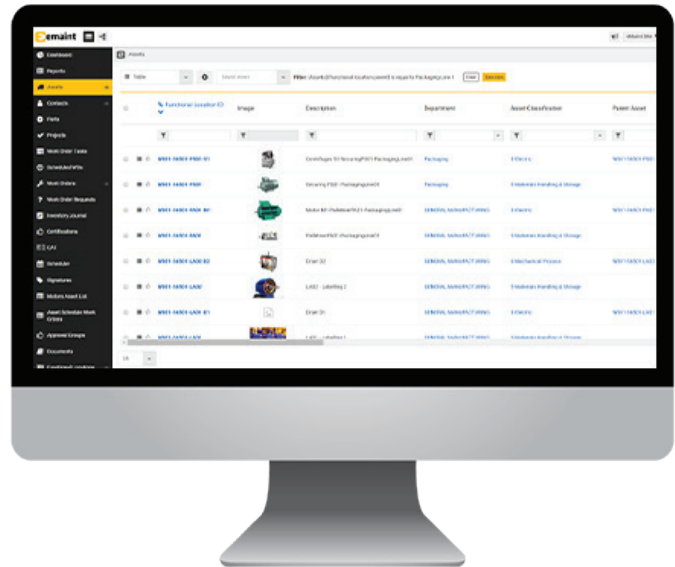
"Eventually, we're going to add these devices to those as well," he continues. "As you can imagine, our cooling system is extremely critical. If that goes down, the whole plant goes down, and production comes to a halt."

Results

"We are currently on a preventive maintenance type of system," Pulling says. "But with the installation of monitoring equipment like the 3561s, combined with eMaint, we can move into predictive maintenance, which is where we want to be."

Pulling sees the vibration sensors as the company's first-line alert. "We're trying to get a good month's baseline to see how they run, kind of the ups and downs. Then I'll start setting alarm levels."

Pulling notes that the 3561 FC sensors are straightforward to use. "They came pre-provisioned by Fluke, so they're very simple to install." Because the sensors are wireless, they provide considerably more flexibility regarding where they can be mounted on a machine.



"We're starting to get more people involved in monitoring the sensors and getting more users to download the Fluke app so they can get alarms and view trends themselves. Once we get more familiar and confident with the equipment, I see us adding more monitoring devices to our critical production equipment."

— Eric Pulling,
Manufacturing Utility Process Engineer,
Valley Queen Cheese

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