

Micro Motion® Meters Eliminate Product Loss for Cheese Producer

BENEFITS

- 3–5% error in metering final product reduced to 0.15%
- Product shrinkage problem areas identified

APPLICATION

Cheese production.

CUSTOMER

Tom Duquaine is a systems integrator at Process Automation Inc., a leading systems integrator for the dairy industry in the Midwest. Process Automation Inc. provides automated process control systems and process expertise (e.g., process optimization) to dairy plants.

CHALLENGE

A Process Automation customer – a specialty cheese plant – was experiencing product shrinkage. Process Automation worked with the customer to identify areas where product loss was occurring. They installed volume-based flow meters on the raw milk and cream going to pasteurization and fill tanks as well as on cheese going to the production lines. They used the volume-based flow measurement and a fixed density to calculate mass flow for each process area, with the calculation being done by a PLC. Unfortunately, the calculated mass did not match the product shrinkage they were experiencing, even though the customer was compensating for seasonal density changes in milk. They were still experiencing significant product shrinkage and had no way to pinpoint areas of product loss.



“We went from a system with an error of 3–5% to a system that is accurate to within 0.15%”

Tom Duquaine, Systems Integrator

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For more information:
www.EmersonProcess.com/solutions/food_beve
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SOLUTION

The customer tested a Micro Motion® Coriolis meter to measure mass directly on one of the cheese production lines. They compared it to the mass measurement that was calculated in the PLC based on a volumetric flow measurement on the same line and a fixed density. What they discovered was a surprise: the cheese product line had significant density changes that were creating errors in the calculated mass.

Knowing that the fat, protein, and solids content can affect the density of raw milk and cream, the customer decided to try Coriolis technology on the two lines going to pasteurization. As with the cheese line, they discovered the density was changing enough to significantly throw off the calculated mass measurement in the PLC. They realized that using a volume-based measuring system with a fixed density to calculate mass was not accurate enough. They needed direct mass measurements if they wanted to identify areas of product shrinkage.

In the end, they installed a total of seven Micro Motion H-Series hygienic mass flow meters for the raw milk and cream lines, pasteurized lines, and the cheese product lines. “The density changes in the milk, cream, and cheese lines were creating a 3–5% error in the calculated mass flow,” said Tom Duquaine, President of Process Automation Inc. “Now the cheese plant has a direct mass measurement system that is accurate within 0.15%. This provides the plant with the information they need to identify where and how they are losing product, whether line losses from water flushing or from tank spills.” The Micro Motion solution provided the tools to pinpoint areas of product shrinkage.

“We were surprised to find that the density of cheese was changing enough to create that much error.”

Tom Duquaine, Systems Integrator

