



FENCO S.P.A. IMPROVES FILLING MACHINE EFFICIENCY AND REDUCES MAINTENANCE WITH ROSEMOUNT™ MAGNETIC FLOW METER

Application

Fast filling for food and beverage production

Customer

Fenco S.p.A.

Challenge

Fenco S.p.A., founded in 1984 in Lemignano di Collecchio (Italy), is a special focus on the transformation of tomatoes and other vegetables and fruits to juices, concentrated juices, pulps, and sauces. Recently, Fenco developed a new aseptic filling machine to fill 5-liter tropical juice bags. The total fill time was ten seconds, including the time necessary to load the empty bag, fill, and then release the filled bag. With the handling time to load and unload the bag, the filling cycle needed to be shorter than 2.5 seconds. This resulted in a flowrate moving from zero to 7,000 liters/hour almost instantaneously, and dropping back to zero almost instantaneously at the end of the filling cycle – a demanding flow profile for any flow measurement technology.

In addition, cost and space constraints prevented the use of more traditional mass flow meters used in other machines.

Because of these challenges, Fenco needed to identify an alternate flow measurement technology that could accurately handle the quickly changing flow conditions, would maintain and enhance the reliability of the machine, and would be easy to set up, thereby minimizing maintenance costs as different juices were run through the machine.

Use of a traditional mass flow meter would have increased the final cost and size of the machine. Additionally, use of an alternate flow measurement technology created concerns about the ability to collect an accurate, repeatable, and reliable measurement. Low reliability of the machine and fills would have made it challenging for Fenco to promote this new product in the marketplace.

Results

- 100% reliable
- Increased machine availability
- 2-5% improvement of operative efficiency
- Reduction of maintenance requirements

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Can magnetic flow meter guarantee high-accuracy and 100% repeatability to realize a fill of 5 liters in 2.5 seconds? Yes, if the flow meter is made by Rosemount.

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Solution

To solve the challenge of obtaining a cost-effective method of flow measurement for this application with the required accuracy, reliability, and repeatability, Fenco turned to Emerson. Emerson was able to provide a Rosemount magnetic flow meter system with high-speed filling software that delivered accurate and repeatable flow and total measurements over the fill cycle. Additionally, the capability of Rosemount magnetic flow meter transmitters to handle flow disturbances created by the pumps, the actuation of the filling valves, and the rapidly changing flow conditions, allowed Fenco to maintain a high level of fill accuracy. These unique features also ensured that the fill operation would occur within the necessary 2.5 seconds window while providing highly accurate and repeatable fills of the product.

Rosemount magnetic flow meters provide unequalled 100% reliability on all of the various juices this machine is capable of running, a value that allows the Italian company to advertise high reliability of this machine. Additionally, due to the ease of use of the Local Operator Interface (LOI), the operator can easily make any necessary adjustments to the transmitter to adapt to the different types of juices and filling cycles. Furthermore, the Smart Meter Verification (SMV) diagnostic provides insight into the status of the meters without the use of complicated and costly external equipment. The ease of configuration through the LOI along with the use of the SMV diagnostic to periodically check the health of the device has led to increased machine availability and a reduction in operational costs. These benefits have ultimately yielded operational efficiency improvements estimated between 2% and 5%. Because of the success of this machine, Fenco plans to duplicate these results and successes on their next-generation machines by taking advantage of the high-value field instruments provided by Emerson.



With Rosemount flow meters, our machines will guarantee benefits to our customers who will reduce their operative costs and will have the possibility to leverage the uniformity of their production.



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Figure 1. Rosemount magnetic flow meter installed in the new aseptic filling machine developed by Fenco.



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