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The Secret's In The Sauce

West Coast food processor turns to Mouvex® C-Series Eccentric Disc Pump to eliminate product waste in its packaging operations

By David Kirk

The lobe pumps in this California-based food processing plant were so inconsistent in a sauce-filling application that it was costing the company 15%-20% product loss due to improperly filled pouches. The local Mouvex distributor, Pump Solutions based in Ontario, CA, USA, recommended the use of a C-Series to solve this problem.

Introduction

Proving that even the smallest amounts can add up to make a big difference, a large private-label food processing and packaging facility located in Hayward, California, USA, was experiencing inefficiencies in its operations that were costing it thousands of dollars a day in wasted product. More specifically, the company specializes in custom food manufacturing of more than 100 different sauces, seasonings, dressings, marinades, soups and dry mixes for retail, wholesale,food service and industrial needs.

A crucial stage in its production process occurs in the packaging area. This is where many of it's products are pumped into pouches or packets, which are then sealed and cut into individual pieces. Then the filled pouches are sent to a line where they are weighed. Those that meet the pre-determined weight are packed for shipment to the end-user, while those that are either too far overweight or underweight are rejected and eventually disposed of.

The operational reliability of the pumps determines if the pouches are receiving the proper volume of product, be it sauce or soup. Recently, the facility's operators began to notice that there were just too many instances of over or underweight pouches being produced, leading to an increased amount of waste. This put a dent in the company's bottom line as perfectly good products were unable to be sent to the end-user.

"We were using lobe pumps for filling our six- and nine-ounce pouches and were experiencing a loss of around w15% to 20%, depending on the product, due to the cavitation of the pump," explained the facility's production manager. "With the lobe pumps, we just had too much variation in their operation, and they weren't able to consistently inject the proper amount into the pouches."

Dealing With Waste

Realizing that the packaging operation couldn't continue to tolerate this much waste, the production manager's search for a solution led him to Pat Mooney, Outside Sales Engineer for Pumping Solutions, Ontario, CA, USA, a leading supplier of pumps and related equipment in the western United States, with operations in California, Arizona and northern Mexico.

"The company was having problems with rejection of overweight and underweight packages on its barbeque sauce line, with 300 to 400 pounds of rejected packets on an eight-hour shift," said Mooney. "Four hundred pounds of barbeque sauce in eight hours is a lot of money; that's enough sauce to fill a 55-gallon drum."

After examining the company's packaging operation, Mooney did indeed determine that the fault for the improperly filled packets lay with the lobe pump that was being used.

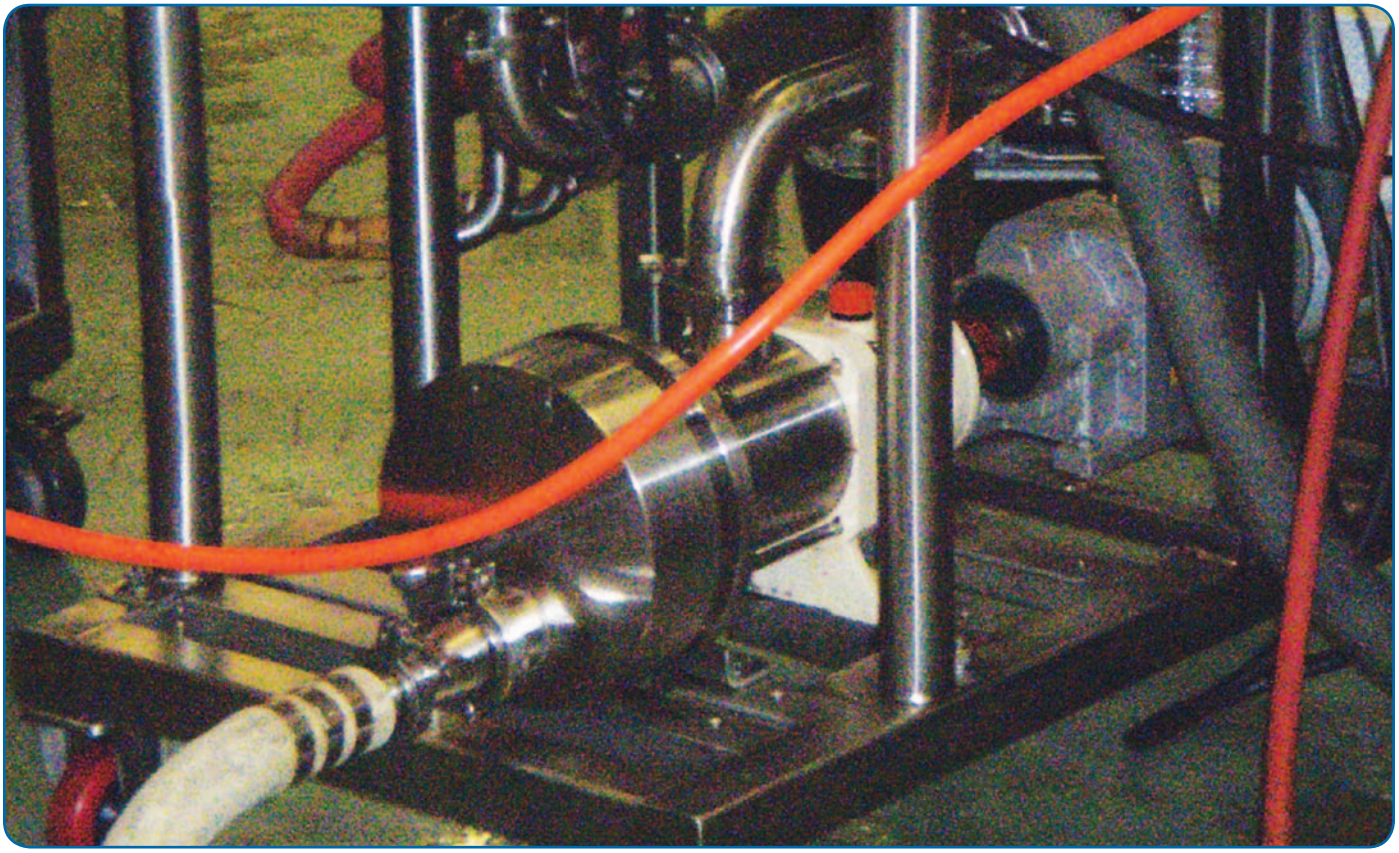
"What was happening with the rotary lobe pump was that when it would wear, they would have to adjust the variable frequency drive to maintain the proper weight that was being dispensed," said Mooney. "But even after adjusting the VFD, as the pumps would continue to wear, they still couldn't maintain the proper weights."

The performance of the lobe pumps had disintegrated so badly that at one point, the rejected packets coming off the filling line were as much as 24 grams over or underweight. This meant that they were more than 8/10ths of an ounce above or below the required six- or nine-ounce volume.

Filling A Need

As a solution to the facility's packaging problems, Mooney recommended a C-Series Eccentric Disc Pump from Mouvex®, Auxerre, France. Mouvex is a member of the Dover Corporation's Pump Solutions Group (PSG™), Downers Grove, IL, USA, a conglomeration of some of the world's leading pump manufacturers. Since Pumping Solutions is a full distributor of all PSG product lines, and having sold Mouvex products since 2009, Mooney was well aware of the benefits that the C-Series pump could offer.

"With the Mouvex pump, you don't need to adjust anything because the pumps are self-compensating so there's no need to adjust the VFD," said Mooney. "Another beautiful thing about the Mouvex C-Series eccentric disc pump technology is that it can go from a 1 cP to 10,000 cP product without needing to adjust the pump speed, while still getting the same flow rate."



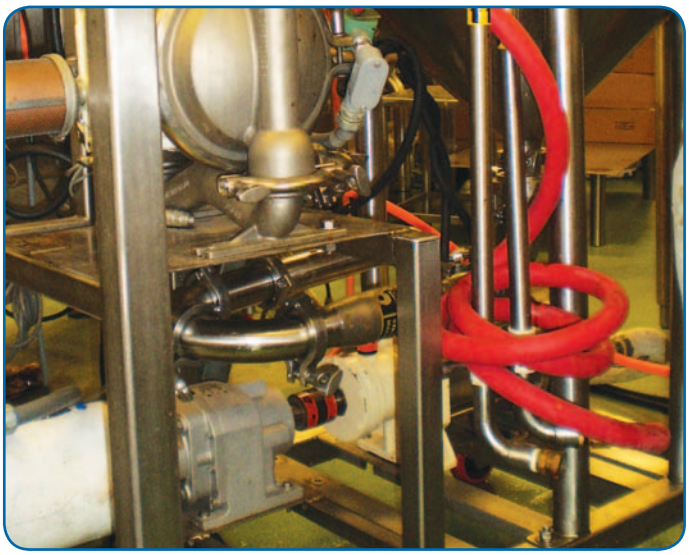
After replacing its failing lobe pump with the Mouvex C-Series pump, this food processor significantly reduced its loss and improved profitability.

"Besides saving money, saving time and reducing the amount of wasted product, I can say I highly recommend the Mouvex C-Series pump. It is better than any other pump we've ever used." Production Manager

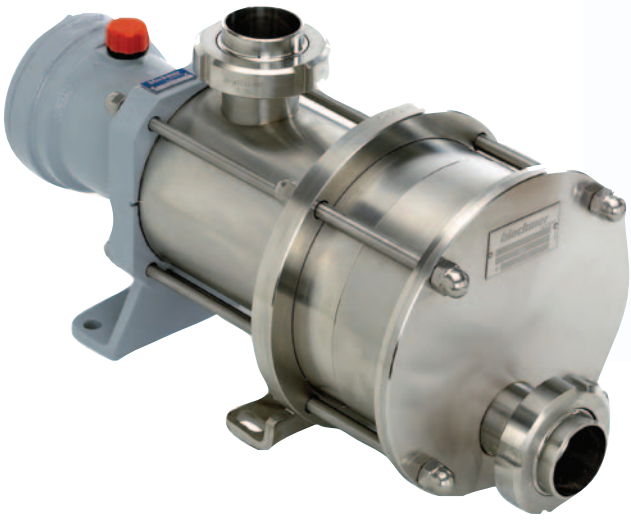
Mouvex C-Series pumps also feature a seal-less design that protects against product losses and leaks. The eccentric movement of the pump makes it highly energy efficient and capable of moving solids up to 1/4" (6.35 mm) in size without the danger of pump damage occurring. The design also ensures constant flow rates and shear-sensitive product handling. All C-Series pumps have a shear rate of sec1=0.9 rpm, a clearance of just 1/16" (.157 cm), the capability of handling viscosities up to 10,000 cP, working pressures to 130 psi (9 bar), flow capacities from less than 1 to 158 gpm (3 to 598 L/min) and the ability to handle operating temperatures up to 212°F (100°C) with a standard model and 302°F (150°C) with a high temperature model.

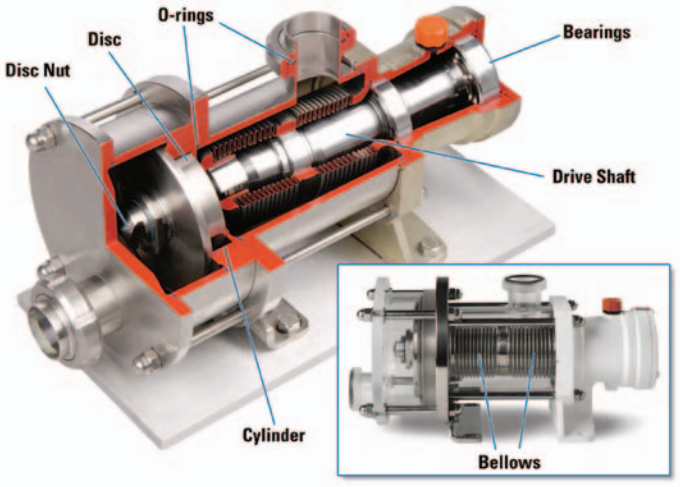
In terms of maintenance, the C-Series pump offers a clean-in-place design with no bypass valve or mechanical seal required – meaning that there is no loss of volumetric performance due to porting, which is a common operational flaw of lobe pumps – and it does not need to be bypassed to clean-in-place. When cleaning in place, pressure is simply introduced to the back of the eccentric disc through the pumping chamber. When the flush pressure overcomes the spring, the disc moves away from the cylinder, allowing the cleaning solution to pass through the pumping chamber. This clean-in-place capability allows the pumps to deliver maximum operational flexibility.

The food processing facility installed its first Mouvex C-Series pump in July 2011 and improved results were experienced immediately.

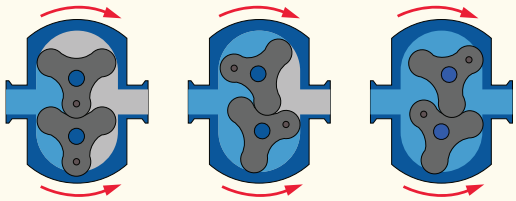


The Mouvex C-Series pump is easy to maintain and can be cleaned in place (CIP).





The Mouvex C-Series pumps are a unique eccentric disc design that provides consistent flow that is not affected by wear.

Comparison of Eccentric Dics Pumps Vs Lobe Pumps	
Eccentric Disc Pumps	**Lobe Pumps**
■ **Superior mechanical performance** ■ **Provide greater energy savings** ■ **30% more efficient than lobe** ■ **Consistent performance over time**	■ **Less mechanically efficient** ■ **Consume more energy than eccentric disc pumps** ■ **Expensive to repair**
	

"As soon as we installed the Mouvex C-Series pump, we were down to under 2% or 3% of product loss for over and underweight pouches during an eight-hour shift," said the production manager. "We don't need to throw away packets anymore."

While there used to be a 24-gram weight fluctuation with the old lobe pump, the production manager noted that the Mouvex pump reduced that by 60%. Now there is no more than eightor nine grams, or less than one-third of an ounce, in weight differential.

"An eight- or nine-gram fluctuation is not a big deal and a tolerance that we can live with," said the production manager."A fluctuation of 22 to 24 grams? That causes us to throwout a lot of sauces that are otherwise perfectly good."

"Upon installation of the Mouvex pump, due to the very accurate pumping it provides, they greatly reduced the amount of rejected packages per an eight-hour shift," added Mooney. "The overriding goal when installing the Mouvex pump was to reduce the number of rejected packages and that's exactly what the pump did."

Conclusion

The production manager has been so pleased with the performance of the Mouvex C-Series pump since its installation that he can't wait to experiment with it when handling products of higher viscosities, while the company has already made preliminary plans to purchase additional C-Series units. In fact, the C-Series pump has performed so well that Skinner is willing to pay it the ultimate compliment.

"Besides saving money, saving time and reducing the amount of wasted product, I can say I highly recommend the Mouvex C-Series pump. It is better than any other pump we've ever used," said the production manager.

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Mouvex® was incorporated in 1906 and invented eccentric disc pump technology. Today, the company is the leading manufacturer of eccentric disc pumps for the food processing industry. For more information on Mouvex, please go to www.mouvex.com. Mouvex is an operating company within Pump Solutions Group (PSG™), Downers Grove, IL, USA.

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