

Masterflex® Pumps vs. Solenoid Pumps: No Contest For Dependable Chemical Feed

Gregg E. Johnson, Cole-Parmer, Barrington, IL, USA.

Solenoid-driven diaphragm metering pumps have long been a standard for chemical feed applications. They're cheap, relatively accurate and essentially disposable.

But let's face it. These little metering pumps can bring big headaches. Their low suction lift often makes them difficult to restart once they lose prime — and they're prone to stuck check valves, leakage, and clogging. In addition, they often become vapor-locked when feeding outgassing chemicals such as sodium hypochlorite (NaOCl).

Solution

Solenoid pumps may be cheap to acquire, but they're often quite expensive in terms of downtime and maintenance. However, the proven peristaltic design of Masterflex pumps provides for incredibly high suction lift — and accurate, reliable performance — without clogging, and without check valves that can jam, cause siphoning, downtime and performance and/or liability issues. Masterflex® pumps are self-priming and they can run dry for extended periods without damage. They can't become vapor-locked, either.



Solenoid-driven diaphragm metering pumps often become vapor-locked from NaOCl outgassing and jammed due to crystallization.

Benefits

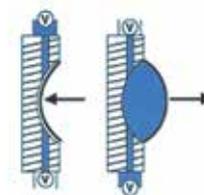
With a well-balanced range of capacities and flexibility, excellent repeatability and optimal chemical resistance, Masterflex pumps provide for precise, highly reliable and long-term operation, regardless of the chemical being pumped. This means the integrity of critical equipment and processes is protected — so you can focus your attention on other concerns besides keeping your pumps running right.

Masterflex Pumps vs. Solenoid Pumps

When solenoid-driven diaphragm metering pumps first came on the market years ago, they quickly gained popularity because they performed much better than what had been available before. But even today these pumps still come with a host of operational and maintenance hassles, due to their inherent design.

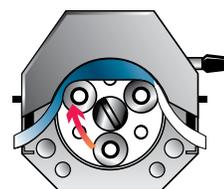
Solenoid pumps pulse a flexible diaphragm to displace liquid with each stroke — typically, the diaphragm acts against a rigid plate. Timing circuitry energizes

an electromagnet that slide the diaphragm into discharge position and a system of check valves helps keep the fluid flow-



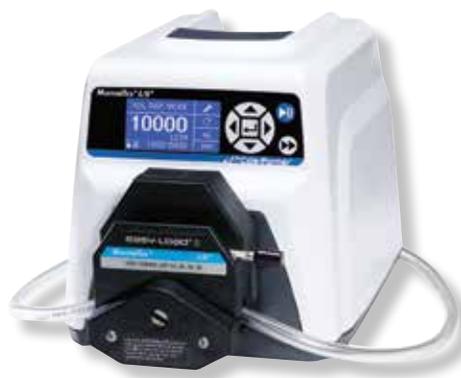
ing in one direction. Due to these check valves, solenoid pumps provide very limited suction

lift, often making them difficult to restart once they lose prime. Plus, these check valves can wear out quickly and are prone to hanging up, allowing siphoning — all adding up to inefficiencies and unscheduled downtime that can seriously compromise the integrity of critical processes and equipment.



Peristaltic Design: A Better Alternative
Masterflex peristaltic pumps

operate on a positive displacement principle that uses rotating



Masterflex pumps avoid chemical attack, abrasive wear and clogging, salt settlement and NaOCl vapor-locking.



Key Words

- Masterflex®
- Peristaltic Pump
- Sodium Hypochlorite
- Solenoid Pump
- Vapor-Lock
- Volumetric Accuracy

rollers to occlude (squeeze) fluid through elastomer tubing.

The fluid being pumped never touches the pump — there are no wetted parts other than inside the tubing, and no valves or seals. Replacing the tubing typically takes just seconds.

- *Self-priming to more than 26 feet dry lift*, providing better performance and operating flexibility.
- Peristaltic design means *no valves, glands, or seals to wear out*.
- Superior performance in corrosive, viscous and abrasive handling applications.
- *Pump acts as its own check valve* — when the pump stops, the occluded portion of the tube stays shut.
- New formulations in elastomer materials provide for tubing life in excess of 10,000 hours.
- Requires very little maintenance to keep in peak operating condition.

“No Hassle” Alternative

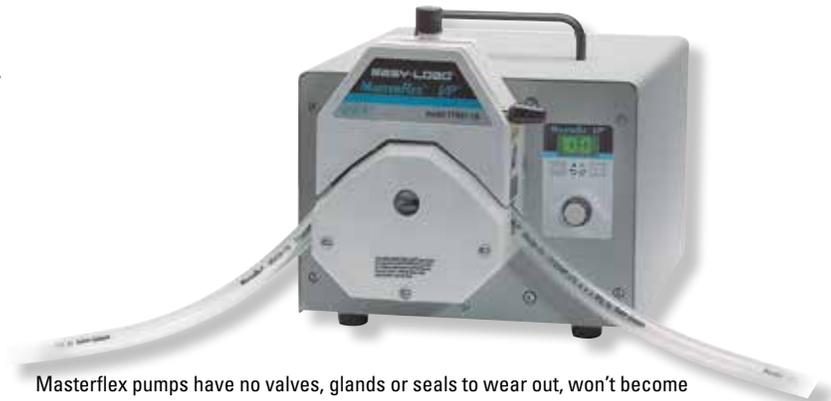
The squeezing action of the Masterflex pump’s flexible tubing generates a powerful vacuum that allows the pump to be self-priming to more than 26 feet dry lift, compared to typically less than two feet with a dry solenoid pump. When the pump stops, the occluded portion of the tube stays shut, preventing any potential for siphoning, that could threaten critical processes.

The only wetted part is the inside bore of the tube, thereby eliminating pump erosion and corrosion. This, along with its low shear and high volumetric accuracy, makes Masterflex a highly flexible choice for most all chemical feed and fluid

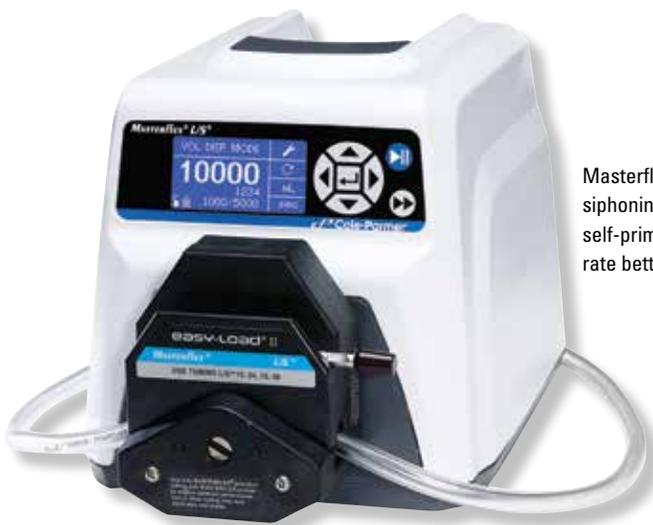
handling chores, including highly viscous and semisolid applications. The only regular maintenance is tube replacement, and new formulations provide for tubing life in excess of 10,000 hours.

Masterflex Wins

In the contest to determine what pump provides the most performance, maintenance, and materials handling advantages while protecting key equipment and processes, Masterflex pumps win hands down. It’s the most highly reliable option for liquid chemical feed today.



Masterflex pumps have no valves, glands or seals to wear out, won’t become vapor-locked, and provide superior performance in corrosive, viscous and abrasive handling applications.



Masterflex pumps produce no siphoning effect when stopped, are self-priming, and have an accuracy rate better than 1 percent.

MASTERFLEX®

Metrohm Nederland
www.masterflex.nl

 **Cole-Parmer®**

3936_0103APEN

©2014 Cole-Parmer Instrument Company. All rights reserved.