

Graco Pump Technology Solves Long-Term Pump Leaking, Dosing Issues

Superior quality pump components and advanced dispense software allow utility instrument manufacturer to dispense highly abrasive bonding material in programmed shot sizes

Bruce Stephan, director of marketing, applied fluid technologies division, Graco Inc.

When trying to find a new bonding material dispense system, one manufacturer tested a series of pumps—all of which leaked due to the abrasiveness of the bonding material. The manufacturer also had been attempting to manage shot size manually with their previous system, and was not able to keep dispense consistent. The company searched for a system that could accurately dispense programmed shot sizes while also eliminating the leaking issues they had experienced with previous pumps. Graco provided a Check-Mate pump with SmartWare software, and the manufacturer is now able to automatically dispense shots of bonding material as small as one ounce without leaks.

Abrasive material leads to leaking pump issues. The manufacturer produces power transmission products for the utility industry and uses its own proprietary material as a bonding agent between different metal components. The material features a high tabular alumina content and is therefore highly abrasive; in the past, it caused a number of piston pumps to leak and fail when their seal kits and throat packings, which are designed to stop pumps from leaking, could not stand up to the abrasive nature of the material.

The manufacturer was also relying on manual shot size measurement to dispense this bonding material, which made it difficult for users to maintain a consistent shot size. The company wanted to find a pump that would be able to withstand the abrasive medium with-



Graco was able to solve their customer's leak problem with a combination of robust seal technology, new software and some engineering adjustments (Photo courtesy Graco).

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out leaking and would also automate shot size, but was unsure whether they would be able to find such a system. They reached out to Graco, from whom they had purchased other pumping equipment in the past, in the hopes that their experts from their Advanced Fluid Solutions (AFS) team would be able to solve the problem.

System designed to eliminate leaks and automate shot size. Graco offered the manufacturer a 30-day trial of the Check-Mate pump to prove that it could stand up to the material. The Check-Mate piston pump features advanced, severe-duty seal kits and throat packings that allow it to handle extremely abrasive materials without leaking. The Graco team also updated the pump size in order to further protect the system from leaks.

“The key in an application like this, with such an abrasive medium, is that engineers with experience in the industry must design the system with the correct-sized pump. All of this customer’s pumps in the past had been undersized and so they had to work very quickly in order to keep up with customer volume demands. That rapid motion contributed to the pumps leaking and failing—often within about two weeks of installation,” said Chris Lewis, Graco area sales manager who worked with this customer. “When we right-sized the pump we reduced the number of cycles-per-minute from about 60 to 20, and in doing so really reduced the wear and tear on the seals. Adding that to the higher-quality seal material used in the Check-Mate pump, we were able to prove to the customer that we could solve their leaking issues. The seal material used in competitive systems just can’t compare.”

After the first 30-day trial, the Graco team returned to the customer and installed *SmartWare* software on the pump. *SmartWare* takes the place of a flowmeter and regulator to measure shot sizes, and allows operators to program up to 100 different shot sizes for automated dispense. The *SmartWare* software package controls the piston in the Check-Mate pump, stopping it anywhere in its cycle, as necessary, to allow for dispense precision.

“The *SmartWare* software turns the Check-Mate pump into a highly precise dosing system, taking all of the guesswork out of dispensing. Whereas before operators were measuring shots by eye, now the operators

just need to select a shot size from the programmed options,” Lewis said. “What’s more, the software compensates for the speed at which the pump can start up and stop, and functions with high accuracy, even though the piston frequently starts and stops partway through its stroke. Finally, the pump gets more accurate as time goes on because the software is continually learning, gathering more data with each dispense and adjusting itself accordingly.”

SmartWare solves customer challenge. As the Graco AFS team predicted, the *SmartWare* software was able to meet even this customer’s demanding application.

“With the equipment we installed, this customer is now able to dispense shots as small as one ounce with an accuracy of about $\pm 2\%$,” Lewis added. “That’s basically unheard of in the industry, especially with this kind of extremely difficult, abrasive medium.”

The *SmartWare* software can be installed in about two hours, and it dramatically increases the precision and accuracy of dispense, as well as the availability of dispense data. The software is user-friendly, with a display panel that shows amount of material being used in each shot, number of shots dispensed over time, and more. With *SmartWare* installed, the Check-Mate pump can be controlled with just a pedal and a button.

The system, which was installed in the summer of 2015, has been running smoothly since its installation.

“The durability and reliability of the Check-Mate pump, paired with the extreme dosing accuracy of our *SmartWare* software, has simplified this customer’s application, reduced waste, and removed the major production headache that pumping had been for them for so long,” Lewis said. **PTE**

For more information:

Stacie Marley
Publicist
McNeil, Gray & Rice Strategic Communications
One Washington Mall
Boston, MA 02108
(617) 367-0100 ext.107
www.mgr1.com

Bruce Stephan is director of marketing, applied fluid technologies division, Graco Inc.