

Silence Is Golden

BY REPLACING INJECTION-MOLDED PLASTIC AODD PUMPS WITH SOLID-BLOCK ALMATEC® E-SERIES MODELS, LANGGUTH CHEMIE GMBH HAS OPTIMIZED NOISE AND PRODUCTION LEVELS IN ITS FILLING OPERATIONS

By Harald Vogl



After watching a number of plastic AODD pumps fail in its continuous-duty container-filling operations, Langguth Chemie GmbH has found the perfect solution in the E40 Series Air-Operated Double-Diaphragm (AODD) Pump from Almatec.®

The story of Langguth Chemie GmbH, Königsbrunn, Germany, is one of persistence, perseverance and, most importantly, personal pride. Founded in 1963 by Rudolf Langguth, the company slowly but surely built a niche as a leading producer of various types of cleaners, disinfectants and detergents for commercial and industrial applications, as well as personal-care products like soaps, lotions, shower gels and hand sanitizers for personal use. The operation was also nimble enough to create, in addition to its own brands, private-label brands in various volumes for a series of business customers.

The future of Langguth Chemie, however, came into question in 1993 when Rudolf Langguth passed away. Rather than see his father's company also expire, Rudolf's son, Klaus Langguth, stepped in and continued to operate the company in his father's image, with his commitment seen in the impressive growth it has experienced in the ensuing 20 years.

"This company started as a one-man operation, so we had some struggles with my father's illness and death," said Klaus Langguth, who is now CEO and Managing Director of Langguth Chemie. "It was a hard business for a time, but now we're making it work. We develop everything on our own, manufacture everything on our own. We buy only raw materials and develop the product, test the product and sell the product to our distributors and private-label partners."

QUICK FACTS

- Company:** Langguth Chemie GmbH
- Location:** Königsbrunn, Germany
- Market:** Commercial, professional and personal-care cleaners
- Challenge:** Reduce the rate of air consumption while lowering equipment noise in continuous-duty pumping applications
- Solution:** Almatec® E40 Series AODD Pumps

Filled With Frustration

The challenge of carrying on after Rudolf Langguth's death was an obvious one for the company, but Langguth Chemie also faced numerous challenges in attempting to optimize the cost-effectiveness of its production and product-transfer operations. One specific area of concern was the packaging area where finished cleaners, detergents, disinfectants, soaps, lotions, etc., needed to be pumped from 6,000-liter (1,585-gallon) holding tanks into containers – which generally range in size from 5 to 10 liters (1.5 to 2.5 gallons) – before being shipped to the end-user. This is a strict, precise process with the pumps required to transfer exact volumes while also being able to operate reliably in demanding start/stop conditions. In other words, when the employee pushes the button, the pump has to inject the appropriate volume and then stop immediately, which is the pump's main challenge in operations like these.



For years, Langguth Chemie had been using plastic air-operated double-diaphragm (AODD) pump technology. Over time, Langguth and his Technical Engineer, Roland Mordstein, had begun noticing that the pumps weren't living up to expectations in several critical areas – pumping high-viscosity liquids against pressure, air consumption and noise generation.

“We needed a reliable pump system that has high suction capabilities when you pump against pressure with high-viscosity liquids and not get dry when pumping out of containers,” explained Langguth. “We tried other pumps, but the other pumps took too much air in order to work, were too loud, which is very inconvenient, were difficult to maintain and not very reliable.”

In fact, the old pumps need so much compressed air during their operation that Langguth Chemie was actually contemplating the purchase of a new air compressor in



From the time a technician doses the ingredients into a mixing vessel until the end-product is bottled and sent down the packaging line, Langguth Chemie relies on Almatec® E40 Series AODD Pumps to ensure that its manufacturing process is efficient, cost-effective and less noisy.

order to handle the higher air volumes that were required to even operate the pumps. Instead of that drastic measure, however, Langguth chose to search for a different, better technological solution.

A Complete Commitment

That search led Langguth and Mordstein to Almatec® E-Series Air-Operated Double-Diaphragm Pumps, specifically the E40 model. Part of PSG®, a Dover Company, Almatec is a leading brand of AODD pumps that are manufactured in PSG's Kamp-Lintfort, Germany, facility.

The E-Series pumps are a next-generation technology that have replaced Almatec's standard-setting A-Series AODD Pump line. Advancements in the E-Series include a diaphragm-sized ring on each side of the pump that allows a series of housing bolts to be tightened against the housing, resulting in a more even spreading of housing-bolt force; an optimized flow pattern that decreases resistance and increases energy efficiency; and the use of less air to achieve the same level of flow.

After successfully testing one E40 pump last year, Langguth Chemie now employs eight E40 models in its container-filling operation. Langguth Chemie has made this complete commitment to the Almatec pumps even though they have a higher purchase price than the old pumps that were previously being used. That higher purchase price, however, has been negated via the reduction in air consumption, maintenance and downtime costs that were piling up as a result of broken diaphragms that needed to be replaced on the old pumps.

"The mechanical parts are more stable in the Almatec pumps, they hold the air pressure better and longer so the air consumption is lower," said Mordstein. "It's a theoretical level of 50% less air consumption and I think in practical usage we are receiving, without any effect on flow rates, a 30% to 50% increase in sealability."

"The problem was air, the old pumps needed too much air, about double the amount that the Almatec needs," added Langguth. "That resulted in much higher costs for air and energy. Now, in our system we are pretty safe and have reserves of air capacity. With the old pumps we were probably going to need a new compressor."

In terms of operational characteristics, the E40 pumps feature solid-block polyethylene (PE) construction (as opposed to the molded-plastic construction of the older pumps), have a 38 mm (1.5 inches) port size, have dry-suction lift of up to 4 m (13.1 ft), wet-suction lift to 9.5 m (31.2 ft), maximum operating pressures of 7 bar (100 psig) and can function with fluid temperatures up to 70°C (158°F). Standard diaphragms are PTFE (Teflon®),



Almatec® E40 Series AODD Pumps are the perfect pumping solution for Langguth Chemie because they are able to meet the demands of stop/start continuous-duty pumping applications while consuming less air and generating less noise.

but after several months of use, Langguth Chemie has determined that the same, if not higher, level of pump performance can be achieved with the incorporation of EPDM diaphragms. With that in mind, the company is in the process of changing out the PTFE diaphragms and replacing them with EPDM models.

"When handling soaps and other cleaners, oftentimes the ingredients are surfactants that can crack plastic, which is something we always had to watch out for," said Mordstein. "The EPDM diaphragms are working well so far."

The most noticeable advantage of the E40 pumps is apparent when you enter the filling room – namely that you can hear yourself think or comfortably carry on a conversation.

"If the pumps are loud and you have eight or 10 pieces of equipment running, it is *really* loud, and all of our people are getting mad," said Langguth. "Everyone is happy with the quieter pumps..."

"The noise is 300% less," interjected Mordstein, with a chuckle. "There's about seven pumps running at one time and one of the previous pumps made so much more noise than the seven Almatec's running at once."



In the search for a better pumping solution, Roland Mordstein, right, Technical Engineer for Langguth Chemie GmbH, turned to Harald Vogl, Regional Sales Manager for Almatec® and PSG®, who was quick to recommend Almatec's E40 Series AODD Pump. Since the E40s have been installed, Langguth Chemie has realized increased productivity and cost savings with a decrease in noise generation and costly downtime.

Conclusion

The legacy of Langguth Chemie GmbH is one of trial, tribulation and the need to overcome significant obstacles, including the death of the company's founder. But thanks to the abilities of Rudolf Langguth, and the skills of his son, Klaus, and the staff, Langguth Chemie appears to have confronted and defeated its challenges and now stands as one of the top manufacturers and distributors of high-quality cleaning and personal-care products in Germany.

Helping Langguth Chemie achieve this status have been the Almatec E40 Series AODD Pumps. By replacing an underperforming competitive model with the E40 pumps, Langguth Chemie has been able to realize new levels of operational performance, reliability and cost savings in its container-filling applications.

"I made the choice to go to new pumps because the old pumps were having problems and the Almatec pumps have solved all those problems," said Langguth. "They are much easier to handle and cost less in the long run, that's why I chose them. We wanted to find the best pumps and Almatec pumps are simply the best."

About the Author:

Harald Vogl is a Regional Sales Manager – Germany for Almatec® and PSG®. Mr. Vogl can be reached at harald.vogl@psgdover.com. Almatec is a leading brand of air-operated double-diaphragm (AODD) pumps from PSG®, a Dover Company. Headquartered in Oakbrook Terrace, IL, USA, PSG is comprised of several of the world's leading pump brands, including Abaque®, Almatec®, Blackmer®, Ebsray®, Griswold™, Neptune™, Maag Industrial Pumps, Mouvex®, Quattroflow™, RedScrew™ and Wilden®. For more information on Almatec or PSG, please go to www.almatec.de or www.psgdover.com.

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