

The Sweet Taste Of Success

LEADING EUROPEAN ANIMAL-FEED PRODUCER IS ABLE TO ATTAIN THE DOSING ACCURACY REQUIRED WHEN APPLYING AN ENZYME TO ITS GOAT FEED WITH THE AID OF ALMATEC® E-SERIES AODD PUMPS

By Peter Schüten



When Technology Unlimited - The Netherlands-based creator of customized stainless-steel systems, solutions and components used in the manufacture of animal feed and other food products – needed to find a reliable pump for dosing enzyme at a highly accurate rate, the company turned to pump distributor Holland Air Pumps for help. After discussing the situation with Technology Unlimited, Holland Air Pumps knew it had the perfect answer for the challenge: E-Series AODD Pumps from Almatec®.

While it may not be the most significant philosophical discussion of our time, there does seem to be quite a bit of disagreement regarding the eating habits of goats. On one side, many will argue that goats are actually very particular about what they ingest and will not devour everything in their path. On the other hand, there is a faction that insists that goats are walking trash compactors that will eat anything, up to and including tin cans.

As for Gerrit Brinkman, he knows firsthand that goats are very particular about what they eat.

“Goats are very picky when it comes to their food,” explained Brinkman. “They don’t like dust or other contamination on their food, so they eat more of it when it is clean.”

No, Gerrit Brinkman is not a goat farmer or a veterinarian, but he is very concerned with their eating habits. That’s

because he is a Project Manger for Technology Unlimited B.V., an Almelo, The Netherlands-based creator of customized stainless-steel systems, solutions and components used in the manufacture of animal feed and other food products. Recently, Brinkman and Technology Unlimited were tasked with fashioning a system for one of Europe’s largest animal-

QUICK FACTS

Company: Technology Unlimited B.V.

Location: Almelo, The Netherlands

Market: Animal Feed

Distributor: Holland Air Pumps, Oirschot, The Netherlands

Challenge: Identify and incorporate a pump technology that can accurately and reliably dose a high-temperature enzyme coating for animal feed at varying flow rates and operating pressures

Solution: Almatec® E-Series Air-Operated Double-Diaphragm (AODD) Pumps



Recently, Technology Unlimited was tasked with fashioning a system for one of Europe's largest animal-feed producers that would inject an enzyme consisting mainly of palm oil onto the exterior of goat feed. The system requirements demanded a dosing pump that would be able to meet all the various operational parameters for temperature, pressure, speed and flow rate.

feed producers that would inject an enzyme consisting mainly of palm oil onto the exterior of goat feed, an operation that is critical in producing feed that finicky goats won't turn their noses up at.

"The coating helps them digest the food better," Brinkman continued. "It tastes good and it's good for their stomachs, their digestion. They like the enzyme, it tastes good and it keeps dust from gathering on the food."

A Dose Of Reality

Putting a tasty coating on goat feed is not as simple as it sounds. The process in this particular customer's installation begins when the enzyme is transferred from an outdoor storage tank through a pipeline into the production facility and to a cabinet that is located 35 meters (115 feet) above the storage tank. The cabinet contains a series of pumps that are outfitted with mass flowmeters, temperature and pressure gauges, and a filtering system. After passing through these components, the enzyme is fed through small valves to a series of coaters that must deliver a highly regulated amount of the enzyme onto the goat feed at a predetermined flow rate and pressure. Pulse dampeners are used to ensure that the flow rates do not vary and that dosing accuracy is maintained throughout the process.

"The challenge is the flow is very low and it has to be very stable for accuracy," said Brinkman. "It's not easy to do that, so the customer asked us to engineer a solution for them. The flow has to be very stable through the flowmeters in order to get the accuracy that is needed."

Technology Unlimited prides itself on being a collaborative partner with its customers, so after meeting with representatives of the animal-feed producer, Brinkman knew a critical component in the system they would create would be the dosing pumps that would be used to inject the enzyme onto the animal feed. In addition to needing to have highly accurate dosing rates, the pumps would also need to be compatible with the other unique characteristics of this particular dosing process, including the handling of an enzyme that can reach high temperatures as it was being transferred and working with small dosing valves that are only 0.8 mm (0.03") in diameter.

The system requirements demanded a dosing pump that would be able to meet all of the various operational parameters for temperature, pressure, speed and flow rate. To identify the best solution, Brinkman turned to Holland Air Pumps B.V., Oirschot, The Netherlands, a distributor of air-powered pumps for use in many industrial applications in Europe. Specifically, Brinkman asked Holland Air Pumps' Commercial Director Gerrit Klaassen for a pump recommendation.

"We've been a partner with Holland Air Pumps for six or seven years," said Brinkman. "We need someone who thinks along with us because it's not only a pump we're buying, we sell a total system so we need experience and specialization on every component in the device. We've known Holland Air Pumps for a long time and they always come up with the right pump."



To help identify the best pumping solution, Gerrit Brinkman (right), Project Manager for Technology Unlimited, turned to Holland Air Pumps' Commercial Director Gerrit Klaassen (left). Priding itself on having reliable partnerships with great companies, Technology Unlimited has worked collaboratively with Holland Air Pumps for more than six years.

"Gerrit called me and said that he had a challenge where the customer needed a highly accurate dosing pump. We discussed the possibilities, the do's and don'ts, and worked out the best possible solution," continued Klaassen. "We needed a pump that could dose from two liters an hour (0.5 gph) to 60 liters an hour (16 gph) with the same pump, and that's not possible with an electric pump. The customer also has a 24/7 production process everyday all year and can't have it break down as any production stops cost a lot of money. So, we needed a pump that was very consistent and reliable."

Achieving Accuracy

After discussing the parameters of the operation, Klaassen was convinced that an E-Series Plastic Air-Operated Double Diaphragm (AODD) Pump from Almatec®, Kamp-Lintfort, Germany, was the perfect answer for the challenge of dosing the enzyme at a highly accurate rate. Almatec is a product brand of PSG®, Oakbrook Terrace, IL, USA, a Dover company, and Holland Air Pumps is a distributor of Almatec pumps in The Netherlands.

"We chose the Almatec pump because of the dosing capabilities needed, which run a broad perspective from very low to very high," said Klaassen. "Because it was a new application, we gave the customer a test unit with pulse dampeners for them to try. When they were satisfied

with the performance, Technology Unlimited built the skids that would house the pumps that would dose the enzymes for the animal feed."

The E-Series pump was the ideal choice for the enzyme-dosing application because it features a solid-body design and is constructed of polyethylene (PE), which offers excellent corrosion-resistance. The E-Series pumps, thanks to their PE construction, have been shown to last seven times longer than pumps that are made with polypropylene (PP). Solid PE also delivers better sealing, higher static weight, smoother operation and better torque retention than other popular materials of construction. For specific applications, E-Series pumps can be constructed of PE, PE conductive, PTFE and PTFE conductive. The diaphragms and valves are also available in different materials.

Every housing part on an E-Series pump is tightened to each other via housing bolts. However, instead of single bolts that press punctually against the housing, all of the bolts are tightened against a diaphragm-sized ring on each side of the pump. This results in a more even spreading of the housing-bolt force and an increase in permissible bolt torque, which enhances safety and reliability. An optimized flow pattern reduces the pump's flow resistance, which results in increased efficiency and lower air consumption.

Other significant features of the E-Series pumps include the patented maintenance- and lubrication-free PERSWING P®



In addition to its dosing capabilities, the E-Series pump from Almatec® was the ideal choice for the enzyme-dosing application because it features a solid-body design and is constructed of PE, which offers excellent corrosion-resistance.

air-control system, which ensures accurate reversal of the main piston; optimized flow path for increased energy efficiency; Internal Piston Diaphragm (IPD) technology; integral dampeners for constant flow with no need for additional piping; variable port configurations; no drives, rotating parts or shaft seals; easy startup; and metal-free exterior. Optional features include a barrier-chamber system for leak prevention; screw-on or flanged pulsation dampener; back-flushing system; stroke counter; diaphragm-monitoring system; and transport cart.

Almatec offers its E-Series pumps in seven sizes, from 6 mm to 76 mm (1/4" to 3"), with flow rates ranging from 15 to 800 L/min (4 to 210 gpm), which fit the range of flow rates that the enzyme-dosing application required.

"We've used Almatec pumps before and we've had good experience with them," said Brinkman. "They're very reliable and that's most important for us because the devices we deliver to our customers produce 24/7 so they can't afford to stop for mechanical issues. In the case of the pumps, Almatec is the best choice for us to include in our dosing systems and with the pulse dampener the flow is reduced to about 2% of its pulse, which is more than enough for this application. We are completely satisfied with the flow we get through the flowmeters and the accuracy of the system."

Conclusion

While the debate regarding the eating habits of goats may rage for years to come, there is no debate when it comes to acknowledging the high level of performance by Almatec E-Series AODD Pumps in enzyme-dosing applications during the production of animal feed.

"If you look at the system, it's quite critical that you have good components, A Class components, and Almatec pumps are A Class components, so that's why we chose Almatec," said Klaassen. "Technology Unlimited is also an A Class company, so together we were able to build the best solution for the customer."



An additional feature of Almatec® E-Series pumps includes the patented maintenance- and lubrication-free PERSWING P® air-control system, which ensures accurate reversal of the main piston.

About the Author:

Peter Schüiten is a Product Manager for Almatec® and PSG®. He can be reached at peter.schueten@psgdover.com or +49 2842 961-0. Based in Kamp-Lintfort, Germany, Almatec is one of the world's leading manufacturers of air-operated double-diaphragm (AODD) pumps. Almatec is a product brand of PSG®, a Dover company. Headquartered in Oakbrook Terrace, IL, USA, PSG is comprised of several leading pump brands, including Abaque™, Almatec®, Blackmer®, Ebsray®, EnviroGear®, Finder, Griswold™, Mouvex®, Neptune™, Quattroflow™, RedScrew™ and Wilden®. For more information on Almatec or PSG, please go to almatec.de or psgdover.com.

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