

Rotary lobe pump: Improved pump performance thanks to optimized connectors

Case Study - Bioenergie BAGUS GmbH & Co. KG



Problem

High operating costs due to short service time of the central pump unit

Solution

Optimized handling of gas inclusion by means of connector boxes

The customer and the problem

Since May 2011 Bioenergie BAGUS operates a 600 kW biogas plant. The fermentation takes place in a 2,500 m³ digester and a 4,500 m³ post digester that also works as a final storage. About 13 t of liquid manure and about 25 t of solids are added per day. Initially, only corn silage was fed, but over time the corn silage was replaced by whole crop silage, which means up to 40 % of the ratio.

While the plant performed well overall, the operator identified an opportunity for optimization at the central pump. A rotary lobe pump is installed for supplying the fresh liquid manure, transferring biosuspension to the post digester and heating the digesters by means of an external heat exchanger. This runs for an average of 11 hours per day; however, during extreme weather conditions in winter, it sometimes runs 24 hours a day.

The pump was not running smoothly, the delivery rate fluctuated and the rotary lobes needs replacing more often than expected. A trial with a different lobe coating did not show any improvement. On closer examination, the operator noticed that the pump had difficulty in priming the relatively thick material from the digester.

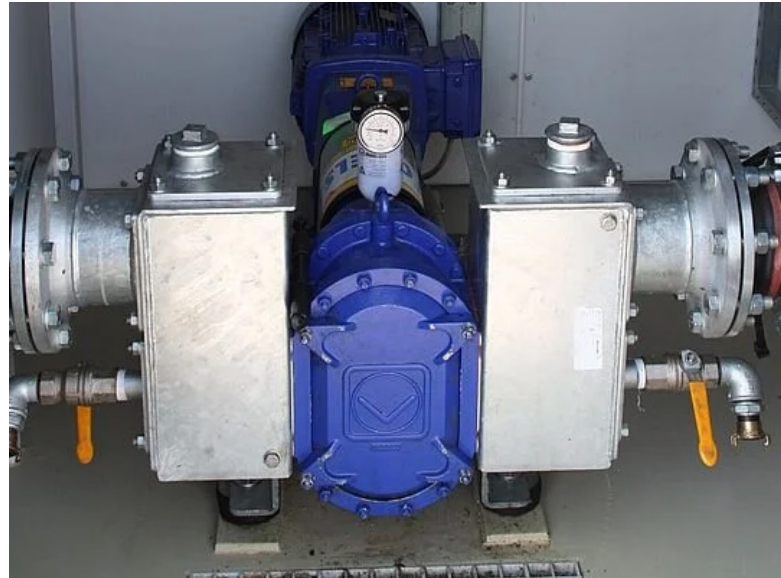


Biogas plant of Bioenergie BAGUS GmbH & Co. KG

The solution

Together with Vogelsang, the biogas plant was closely analyzed and outgassing in the pipeline system was noticed. In order to counteract the resulting problems and to always have liquid in the pump chamber, it was decided to test so-called connector boxes instead of the standard connections. These ensure that gas is kept away from the lobes and that there is always sufficient liquid reservoir at the pump chamber.

When the pump's capacity was no longer sufficient, the pump was equipped with connector boxes instead of replacing the rotary lobes. This little change suddenly increased the pump's capacity and extended the lobes' service time by more than 50%.



Vogelsang rotary lobe pumps with connector boxes

“As a further optimization, we tested other lobes again later. These have now been running for almost twice as long and there are still no signs of significant wear. In total, the pump, and with it the entire system, now runs more evenly and quietly without malfunctions”, Mr Graage sums up his collaboration with Vogelsang.

Advantages of Vogelsang rotary lobe pumps

- Comprehensive range of options
- Many years' experience in biogas applications

Benefits for the user

- Service life of the lobes increased by 50 %
- Higher capacity
- Plant runs more smooth without interruptions

Mentioned Vogelsang product

[The all-round rotary lobe pump for biogas plants](#)



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