



Sticky pumping problem solved using RLPs

Molasses transshipment company, Odessa, Ukraine

Case story

A Ukrainian molasses transshipment company has solved its molasses handling problem by installing rotary lobe pumps (RLPs) from Alfa Laval. The choice was made after an extensive review of available pumping products and technologies. The final decision was based on life-cycle costs. "The Alfa Laval RLPs are a productive, reliable solution requiring less energy and maintenance than competing pumps," says a spokesman for the company.

Located in Odessa Port, the company's tank terminal handles a range of bulk products, including molasses, produced for export in Russia and Ukraine. Molasses is not only abrasive, different production processes and grades of raw stock mean widely varying product qualities. Winter temperatures contribute to the handling difficulties by increasing the viscosity of the product.

Pressure to increase productivity

Increasing demand for molasses was putting pressure on the company to step up productivity. Operations consist of unloading the product from trailers and rail tank cars, storage and subsequent transferral to ships in the port.



Tank terminals require efficient pumping solutions for unloading and loading products of varying qualities, in all temperatures. The customer, a molasses transshipment company in Odessa (not shown) found Alfa Laval Rotary Lobe Pumps to be the most cost-effective solution.

More efficient pumping systems were needed and the company evaluated a number of technologies, also comparing solutions from different suppliers.

Why rotary lobe technology?

A company specialist relates that progressive cavity pumps, also sometimes referred to as screw pumps, were

rejected due to their large dimensions, high power consumption and excessive wear on moving parts. Gear pumps were rejected because of their high operating speed, continuous gear wear, and low productivity.

The choice was now between rotary lobe and sliding vane technology.

Pump Model	Inlet and Outlet Connection Size (International Standards)	Displacement	Differential Pressure	Maximum Speed	Weight Bare Shaft Pump
	mm	litres/rev.	bar	rev/min.	kg
DRI4/079	80	0.79	15	750	110
DRI4/095	80	0.95	10	750	113
DRI5/168	100	1.68	15	600	170
DRI5/200	100	2.00	10	600	176
DRI6/353	150	3.53	15	500	281
DRI6/420	150	4.20	10	500	289

Alfa Laval Rotary Lobe Pumps

Alfa Laval provides a wide selection of robust rotary lobe pumps. Available in stainless steel or ductile iron, which is suitable for abrasive media, bi-lobe or tri-lobe pumps offer very high efficiency with low energy consumption. They can handle large solids and are capable of pumping very viscous fluids.

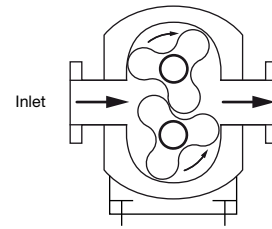
For the sugar and distillery industry the rotary lobe pumps are suitable for a range of products, including milk of lime, syrup, remelt, molasses and massecuite.



Alfa Laval DRI Rotary Lobe Pump for industrial applications

Operation

The positive displacement of the DRI pump is provided by non-contacting, contra rotating tri-lobe or bi-lobe rotors within a fully swept pump chamber. All DRI pumps are capable of bi-rotational flow without modification.



Rotary Lobe Pumps – key benefits

- High efficiency
- Low energy consumption
- Compact size
- Robust construction
- Reversible operation
- Ability to pump abrasive media
- Cost-effective, easy maintenance



According to a customer spokesman, Alfa Laval Rotary Lobe Pumps will move molasses at a temperature 8-10°C lower than comparable pumps from other suppliers.

Rotary lobe pumps have clear advantages. They are more energy efficient, provide greater shaft torque and do not suffer from internal component wear due to metal-to-metal contact.

A frequency converter allows the rotary lobe pump to be started from 0 rpm – important for smooth start-up when pumping cold and viscous molasses.

Rotary lobe pumps can also be operated in reverse mode while maintaining design throughput.

Why Alfa Laval?

When comparing Alfa Laval RLPs with rotary lobe pumps from the other manufacturers, the customer discovered that Alfa Laval pumps have clear advantages.

“For instance, due to their design and operating principle, Alfa Laval RLPs offer clear energy savings,” says a spokesman for the customer. “They also have the capability to pump media at higher viscosities and therefore lower temperatures. This also saves energy since the media does not need to be preheated as much.”

“In winter, the temperature of arriving molasses is around 0°C and it must be pre-heated,” says the spokesman. “Alfa Laval RLPs will move molasses at a temperature 8-10°C lower than competing pumps.”

“In addition, the shaft seal of the Alfa Laval RLP is flushed with water. This increases the seal lifetime and allows

preheating of the working chamber of the pump during the winter season.”

Best choice for life-cycle costs

All-in-all, the customer in Odessa has found Alfa Laval rotary lobe pumps to be a reliable, flexible, productive solution, and the best choice in terms of life-cycle costs. “They have increased our productivity while keeping energy and maintenance costs down. With shorter loading times we have not incurred any penalties from the shipping companies for delayed shipments since the pumps were installed. Alfa Laval has served us well and continues to provide support where required.”

Alfa Laval also offers a wide range of pumps for sanitary applications. Please contact your local Alfa Laval representative for more details.

A unique service

The Rheology Laboratory at Alfa Laval Ltd in Eastbourne, UK played an important role in determining the the best process solution for molasses at the customer's transshipment operation in Odessa. This unique service differentiates Alfa Laval Ltd from its European competitors.