

ARO®

EVO Series™ Competitive Zone vs Lobe Pumps

The EVO Series™ pumps combine with a unique set of features not found in another positive displacement pump technology.

- EVO Series™ is a process ready pump with a unique seal less technology that have changed the competitive landscape by giving the pump the full controllability, as a consequence, giving a full reliability and controllability for the process.
- EVO Series™ is able to configure for a variety of applications and fluids that can be fitted with materials to pump everything from high-solid, abrasive material to highly concentrated caustic chemical like sludge, muds, oils, chemicals, pulp and wastes.



Gives a better process controllability and stability..

Pump is protected from peak pressure caused by inlet valve interruption. The True Deadhead with the closed loop control immediately stops, while holding and maintaining the line pressure.

Connectivity - your pump integrated to any supervisory system thru the factory installed IOT interfaces ready to integrate to PLC or basic pressure/flow devices.

Your process protected with the highest Safety standards - Hazardous duty certifications covering environments with presence of hazardous liquids and gases.

Easy serviceability and pump footprint allow to repair the pump in process.

The EVO Series™ pump can run dry without any damage to hardware.

No need to add any particular fluid to start up the pump as it's a self-priming pump.

No surprises with added costs with lots of accessories - all key components are part of standard package.

High durability - designed to attend up to 20.000 hours in high load conditions using long life diaphragms.

Gives a smooth fluid transfer through the very low pulsation, no need for pulsation dampener.

Eliminates leakage through primary containment to the environment with the exclusive Sealless / Leak Free Design - integrated with a secondary containment for fluid and oil, and a standard automatic leak detection system.

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Target Lobe Pump Applications:

- Solids content fluids
- Abrasive fluids
- Reduced shear effects
- Slurry-laden media
- Medium to high viscosity
- Hazardous applications



Most Favorable



Least Favorable



Acceptable/ Equivalent

EVO Series™

Lobe Pump

	EVO Series™	Lobe Pump
Maintenance Cost	↑	↓
Easy of Service	↑	↓
Chemical Compatibility (including materials vs costs)	↑	↔
Solids / Abrasive Fluids	↑	↔
Stall Capability	↑	↓
Leak Detection	↑	↓
Pulsation and Vibration	↑	↔
Efficiency	↑	↓
Deadhead	↑	↓
Dynamic Seals / Secondary seals	↔	↔
Low fluid shear	↑	↓
Cavitation	↑	↓
Run Dry	↑	↔

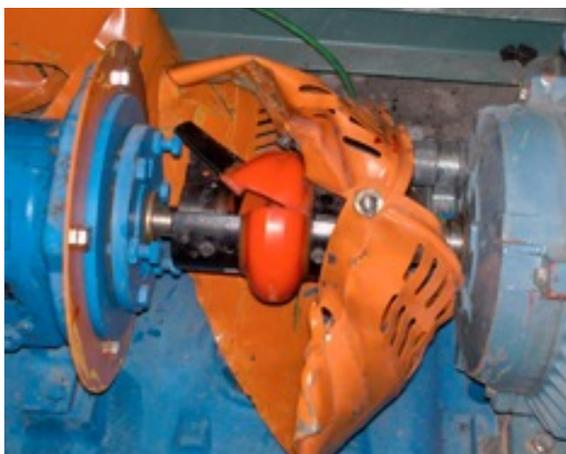
EVO Series™ Pump Competitive Zone vs Lobe Pumps



Potential Customer Lobes Pump Problems:

Lobe pump is a positive displacement pump that uses rotating lobes to direct flow. In lobe pumps, fluid is carried between rotor lobe surfaces and the pump casing from the inlet to the outlet. Each rotor has one or more lobes. The rotors must be timed by separate means.

- One risks with the use of rotary lobe pumps is the unsteady displacement process, which produces pressure pulsations, specifically in long and rigid pipelines and non-compressible liquids. The result is vibration of pump and piping, which increases the risk of cavitation on the suction side.
- Lobe pumps are not well suited for managing higher viscosity fluids as their design can lead to foaming and reduced lift.
- Lobe pumps also may be susceptible to wear, offer high cost, and a complex design. The need of external timing gears, located on the gearbox, become them heavy an additional failures risks.
- Although a lobe pump can run dry for long periods (assuming the pump's seals are lubricated), there is a risk of rapidly overheating.
- Low performance in transporting low viscous liquids because of the lack of contact of the lobes and clearance, also diminishing the loading and suction ability.
- Long time maintenance stops and specialized tools are needed due the quantity and kind of parts that need to be checked and replaced to prevent leakages and misalignment.
- Deadhead or stall can damage the several parts of the pump.
- Abrasion damage is amplified by the size and configuration of opening clearances in the wet-end of the pump. Abrasion can also affect seals. Abrasives get caught between the seal faces, causing a buildup of heat that leads to seal failure.
- Wear by Slippage: Lower viscosity fluids see an increased amount of slip. Higher viscosity fluids see a reduced amount of slip.



Wear by shaft deflection



Abrasion as a function of time

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Expensive Maintenance Cost on Lobe Pumps

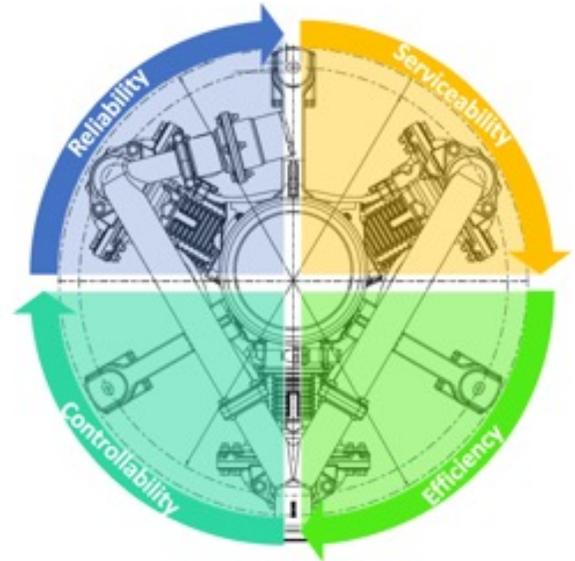
Did you know that a lobe pump transferring 14% of solids from a dry matter content and fiber content under a heavy duty condition needs ~3h of maintenance/week, which is 145 hours/year? The cost of spare parts can achieve up to \$2,000 Euros per intervention. In summary, the cost of production downtime can be estimated at \$1,000 Euros/hour. In this case, the rotating lobes were largely worn out after ~30 days of use (ex. 80 hours of actual use). After that, the rotor was worn out and the required pressure and flow rate were no longer achieved.



Key Tips to EVO Series™ Pump Technology

The Pump Built to Attend the Highest Process Parameters

- ✔ The exclusive multi-layer Diaphragm design protects the pump from premature diaphragm failure
- ✔ The automotive e-coat surface grade prevents the pump from corrosive environments
- ✔ Anodized parts promote no wear from pump handling, installation, and use
- ✔ Lubricated crankcase mechanism to protect hardware from friction and heating
- ✔ Able to communicate with multiple protocol options
- ✔ High spec gear motor with multiple thermal protection system that covers the whole unit (pump, motor and drive)
- ✔ Integrated system with motor, encoder and drive – high data accuracy, no slippage



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