

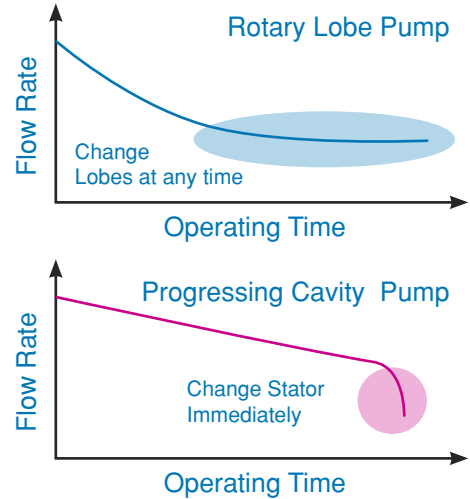
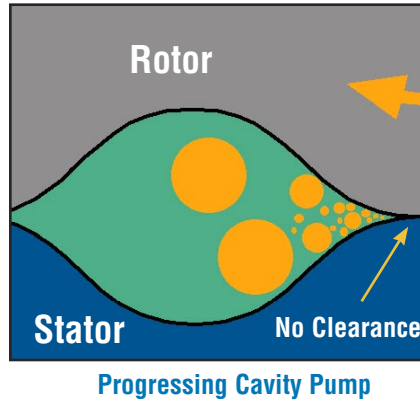
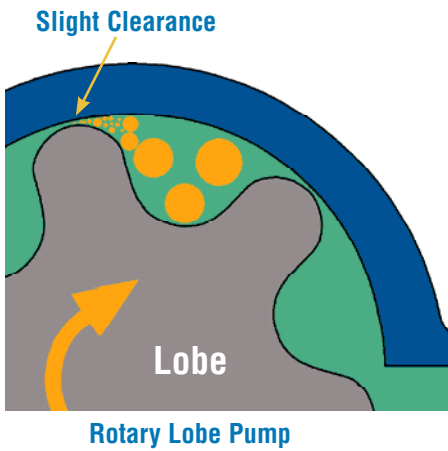
Advantages



VOGELSANG

Sludge Pump Division

Wear by friction in Rotary Lobe Pumps vs. Progressing Cavity Pumps



A slight clearance between the lobe tip and housing segment on a Vogelsang Rotary Lobe Pump allows for longer pump life through reduced wear by friction. No clearance between the rotor and stator in a PC pump results in an abrupt reduction in pump performance as the stator wears.

Tech Tip

Advantages of Vogelsang Rotary Lobe Pumps

Like progressing cavity pumps, rotary lobe pumps belong to the pump type known as positive displacement pumps. Due to its compact design, a rotary lobe pump can be advantageously used even for high discharge rates. In the following the special benefits of rotary pumps are described in comparison to progressing cavity pumps.

In a PC pump, the eccentrically revolving rotor is supported only by touching the stator and would not run properly if this contact would be missing. No clearances are allowed in a PC pump, as the radial guidance would be missing and the bearing would fail. Also, the rotating speeds are limited because the eccentric movement together with an elastic bearing creates an oscillator with a characteristic oscillation frequency. To avoid vibrations maximum speed has to be below this frequency.

Vogelsang HiFlo® Sludge Pump



The tight relationship between rotor and stator is the reason why the eccentric screw pump are able to run at low speed and still maintain good volumetric efficiency. This tight relationship of the pumping elements, brings a large design disadvantage, when using this style of pump in abrasive applications.

The abrasive particles are squeezed in the gaps between rotor and stator which causes wear by friction. As the gaps have to remain at zero during the whole life time of the PC Pump, so it will operate, they are permanently running under wear-by-friction conditions. Rotary lobe pumps however are operating in that way only when the particle size exceeds the clearance (shown above), due to their ability to pump with open gaps or clearances between the lobes and housing segments.

Rotary lobe pumps do not have these problems because they are running stable even with a significant amount of lobe wear. Abrasion is actually less in a rotary lobe pump, the longer the pump is operating. This is because the wear is only caused by back-flow velocity not by contact abrasion.

Because of the lack of speed limits the internal leakage caused by wear always can be compensated by increasing speed.

For PC-pumps this is valid only if there isn't excessive wear to the stator. If the stator is completely worn-out so that contact is missing, the pump has to be maintained immediately. Otherwise the pumps performance falls to a point where the pump isn't usable.

For more information, visit our website at www.vogelsangusa.com, to locate a local distributor, or contact Vogelsang direct at 800-984-9400.

Sludge Pumping, Macerating & Distributing Products

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