

Blackmer®



Where Innovation Flows

MAGNES Solves | FLUIDS WITH SOLIDS

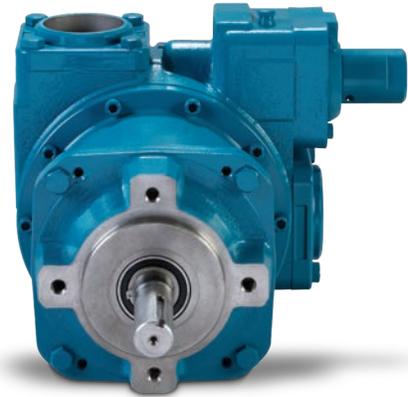
Clogged strainers and contaminated tanks are legitimate threats to most process pumps – and maintenance budgets.

Eventually, all transfer and process pumps are asked to handle some percentage of suspended solids. Examples include weld slag, rust, and sand. In instances where solid-laden liquids are pumped, there are three potential hazards to consider:

- The rotation of a pump's internal components will throw the solids against the pump casing and other internal components as the liquid moves through the pump. Pumps with high internal flow velocities, such as centrifugal, have accelerated wear as particles erode surfaces at exponentially higher speeds. The result can be pitting and premature wear of the pump's casing and internal components.
- Some pumps have contracting flow paths that cause grinding and binding of suspended particulate. Like putting marbles through a paper shredder, a gear pump's meshing teeth quickly wear when solids are introduced, resulting in depreciating performance and eventual failure.
- Suspended solids tend to "clump" together, especially in internal areas with narrow clearances or dead spaces. This can cause the pump to "freeze" and cease operating, with associated costs for repair and system downtime.

Therefore, facility managers who are working with particulate-laden liquids must deploy a pump technology that has reliable solids-handling capabilities lest their operations become compromised by pumps that wear prematurely or stop operating indiscriminately.

A permanent solution: Thanks to low internal flow velocities and wide-open flow paths, positive displacement (PD) sliding vane pumps are well equipped to pump liquids that contain suspended



solids. In particular, the **MAGNES Series Sliding Vane Magnetic Drive Pump** from Blackmer® is the latest offering in this realm. MAGNES is designed to accommodate the transfer of liquids with suspended solids of up to 1/8-inch (3.7 mm) in size in concentrations of upwards of 20%. This ability stems from shear-sensitive open flow paths within the pump chamber and slow internal flow velocities that gently pass solids through the internal flow stages. The particles are not moved violently through the pump casing, as is the case with pump styles that rely on high internal flow velocities to operate effectively.

The MAGNES Series is available in 3- and 4-inch models in either ductile-iron or stainless-steel construction with flow rates up to 520 gpm (1,968 L/min). While operating at a speed of just 400 rpm, MAGNES generates the same pressures and flow rates of other pumps that operate at 3,600 rpm, with no violent movement of suspended particles. As a true self-priming pump, MAGNES is also well-suited for continuous-duty operation, during which it can run dry, pull a vacuum, strip lines and create suction lift that exceeds 25 feet (7.6 meters). The lack of any dynamic seals around the pump's moving parts makes it ideal for use with difficult-to-seal liquids that are too valuable, dangerous or hazardous to leak. **Solve pumping fluids with solids issues, while staying leak-free with the solids handling ability of MAGNES, the Sliding Vane Magnetic Drive Pump.**

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COMPETITION

- Centrifugal Pumps

Require high operational speeds and fast internal velocities, which can cause suspended particles to aggressively wear the pump's inner wall and interior components, resulting in pitting and premature component damage.

- Gear Pumps

Particles that come into contact with the meshing gears can compromise performance due to premature wear and deterioration.

- Screw Pumps

Same as gear pumps, the particles wear down the screws, which affects volumetric consistency and results in premature wear.



Clogged strainers signal suspended solids, which are a legitimate threat to most process pumps – and maintenance budgets.



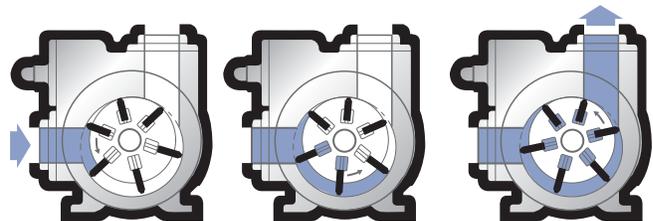
MAGNES Series Sliding Vane Magnetic Drive Pump

GLOSSARY

Magnetic-Drive Pump - a pump that uses a balanced magnetic field to transmit torque from the prime mover to the pump, in lieu of a continuous shaft

Suspended Solid - small particles that remain afloat in a liquid

HOW BLACKMER SLIDING VANE ACTION WORKS



To learn more, visit us at blackmer.com/MAGNES-Solids.

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