



Blackmer



Where Innovation Flows

Waste Oils

APPLICATION DOCUMENT

The growth over the past three decades of oil-change businesses has resulted in a corresponding increase in the amount of waste oil that has been created, with its disposal a concern for both the business operator and environment. Combine this with the oil that is used to lubricate various forms of machinery in manufacturing processes around the world and waste oil's collection and proper disposal becomes a critical concern.

The overriding challenge for the pumps that are needed for the handling and transfer of waste oils is the amount and size of the wear particulates that are emitted from an engine or motor during their operation, along with any stray dirt and debris that can be found in used oil. Waste oil is usually pumped into holding tanks before it is pumped into railcars or transport trucks and taken to facilities where it is either disposed of or, in some cases, recycled and blended with new oil and marketed as degraded oil that can be used as cutting oil in various industrial processes.

Positive displacement (PD) sliding vane pumps excel in waste oil-handling applications because their self-adjusting vanes allow them to handle liquids of different viscosities and levels of particulates at varying pumping pressures. They are particularly adept at particulate-handling because they have expansive flow paths that allow a large amount of liquids and particulates to enter and exit the pump, but at a low internal flow velocity. So when the particulate-laden liquid enters the pump, it isn't being violently pushed through the casing at extremely



high velocities, such as what you would see with a centrifugal pump. The lower flow velocity prevents the particulates from bouncing off the vanes, casing, etc., which reduces the risk of component damage occurring.

Blackmer XL Series Sliding Vane Pumps, part of the Iron Line, have been specifically built for waste oil-handling applications. They are available in five sizes from 1.25- to 4-inch with flow capacities ranging from 4 to 345 gpm (15 to 1,306 L/min) and temperature limits from -25°F to 240°F (-32°C to 115°C). They are constructed of shock-resistant ductile iron with a range of vane and mechanical seal elastomer options. They offer replaceable vanes, liner, casing and end discs for quick and economical maintenance and repair. The 4-inch XL model is outfitted with a unique Cavitation Suppression Liner that eliminates the implosion of any vapor bubbles in the liquid (known as "chattering") that can lead to premature failures. The Blackmer XLW Series pumps, which are part of the Heavy Duty Line, are also constructed of ductile iron, which makes them ideal for handling liquids with suspended particulates up to 250 microns in size with up to a 25% concentration. The pumps, which are available in 2-, 3- and 4-inch sizes, have flow rates from 14 to 190 gpm (53 to 719 L/min) and temperature limits from -25°F to 300°F (-32°C to 149°C). They feature liners and end discs with hardened surfaces that allow the pump to better handle liquids with abrasive particulates.



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BLACKMER SOLUTIONS

- [XL Series Sliding Vane Pumps](#)
- [XLW Series Sliding Vane Pumps](#)

COMPETITION

- Gear Pumps

Gear pumps are not self-adjusting, which makes it difficult for them to maintain volumetric consistencies when handling high-viscosity materials at varying pressures. The wear particulates, combined with the constant meshing and grinding of the gears, will cause the gears to wear down quicker.

- Air-Operated Double-Diaphragm (AODD) Pumps

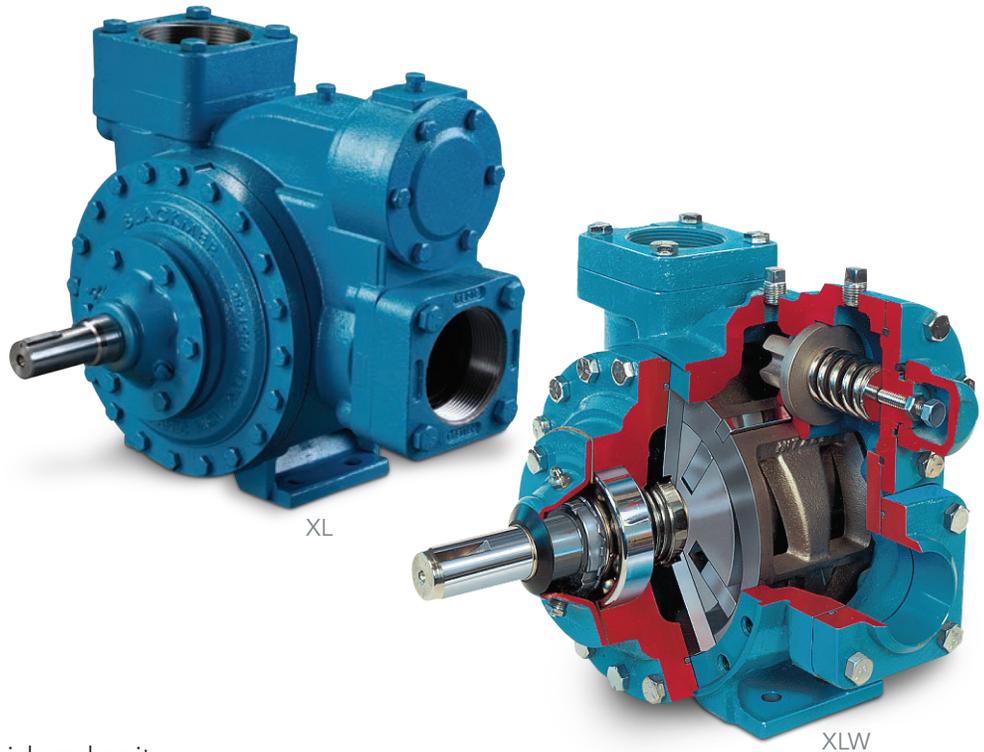
The pump's diaphragms have operational limits that can hamper their ability to handle high-viscosity and particulate-laden liquids.

- Progressive Cavity Pumps

Are expensive to purchase and maintain and may need to be oversized in order to achieve desired flow rates and volumes.

- Centrifugal Pumps

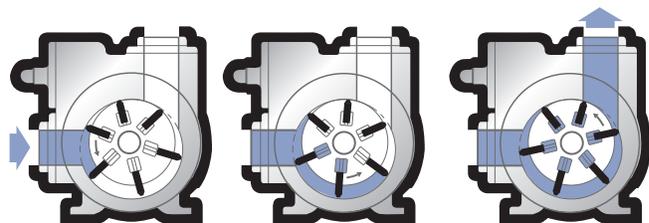
Their method of operation forces liquids to move through the pump at high flow velocities. Therefore, if the liquid is especially particulate-laden, those particulates will bounce violently off the pump's internal components, which can damage them.



GLOSSARY

Particulates - Microscopic particles that are suspended in liquids; high levels and larger particulates can harm the internal components of pumps, leading to compromised operation and breakdown.

HOW BLACKMER SLIDING VANE ACTION WORKS



For more information on these additional solutions, visit us at blackmer.com.



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