Solvent Transfer

APPLICATION DOCUMENT

Millions of workers in the United States handle solvents, either during their manufacture or their transfer, on a daily basis – and all of them are at risk if they are exposed to any that may be toxic. That's why the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) has developed specific standards related to solvent handling and transfer in the general industry, shipyard and construction markets.

The main challenge in transferring solvents is the most obvious one: they must be properly contained so that those tasked with handling them are not exposed to dangerous levels, with excessive exposure capable of resulting in nervous system, reproductive system, and liver and kidney damage, as well as respiratory impairment and some cancers. A second challenge is the low-lubricity nature of solvents, with this lack of lubricity capable of harming the internal pump parts during operation. Also, most solvents are very expensive to produce, meaning that any product that is left in transfer lines must be flushed out, making it non-saleable. Finally, since many solvent producers manufacture various types, product cross-contamination can also be an issue, which again means that the transfer pumps must be capable of performing line-stripping duties.

Positive displacement (PD) sliding vane pumps combat all of these challenges: the design of the pump features few leak points, and when O-rings or seals do break down, they are easily replaced without removing the pump from service; they do not require a self-lubricating fluid, which makes them dry-run capable, even with low-lubricity fluids; and their high suction-lift capability makes them ideal for line-stripping activities.

GNX

The Blackmer GNX Series Sliding Vane Pump, which is a member of the company's Iron Line, is built on the legacy of operational excellence fashioned by the former Blackmer GX model and is the industry's first and only alignment-free, reduced-speed PD pumps. They are suitable for both portable and stationary solvent-transfer applications and feature a commercial-grade, single-stage gearbox. This gearbox fits between the motor and pump and is held in place with a permanent dowelled connection that creates a strong structural link between the high- and low-speed sides of the pumping system. The result is a pump that does not need alignment at installation or realignment after a maintenance procedure or relocation within the production facility. GNX pumps are available in 2-, 2.5-, 3- and 4-inch sizes with 90- (GNX model) and 180-degree (GNXH model) porting orientations and flow rates from 7 to 500 gpm (26 to 1,893 L/min). The GNX pumps can also perform both top and bottom loading and unloading of railcars, trucks and storage tanks.

A second choice for solvent-transfer applications is the X Series Sliding Pumps. Also a member of the Blackmer Iron Line, X Series pumps are available in 2-, 2.5-, 3- and 4-inch flanged sizes with flow rates from 30 to 520 gpm (114 to 1,855 L/min). They are cast-iron construction (except the X4, which is ductile iron) with eternal ball bearings that are isolated from the pumpage by mechanical seals.

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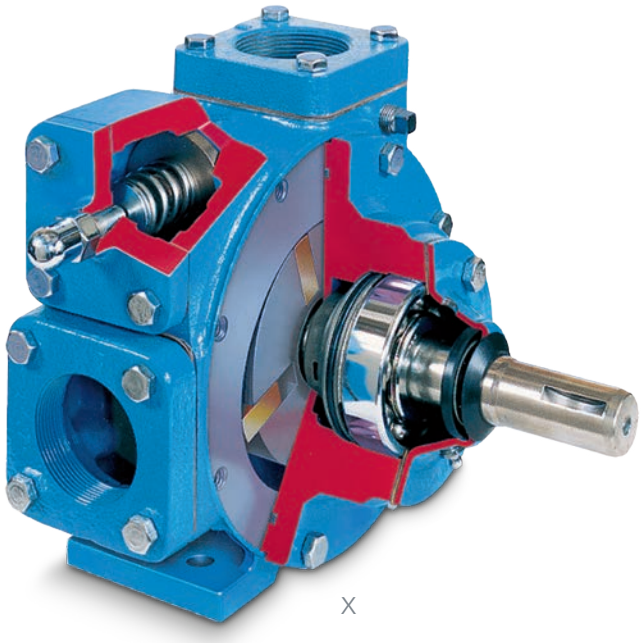


X

BLACKMER SOLUTIONS

- GNX Series Sliding Vane Pumps
- X Series Sliding Vane Pumps

COMPETITION

- **Gear Pumps**

These pumps struggle when pumping thin, non-lubricating liquids, which can result in premature wear. They also do not have good line-stripping capabilities, which can raise cross-contamination concerns.

- **Centrifugal Pumps**

These pumps are incapable of dry-run operation or performing line-stripping duties. They also need to be self-lubricated, which creates cross-contamination concerns if different types of solvents are being produced and transferred.

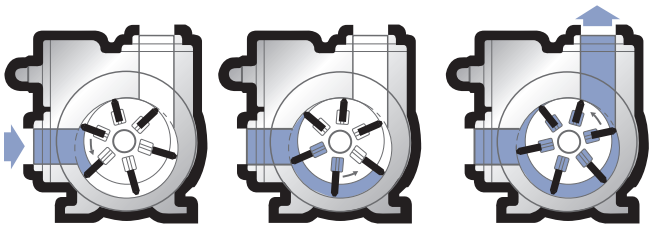
- **Lobe Pumps**

Similar to gear pumps, these pumps have difficulty with thin liquids, leading to premature wear and repair or part-replacement costs.

GLOSSARY

Line Strip – Relates to a pump's capability to remove as much residue from the intake as possible, with higher line-stripping capability resulting in an easier cleaning process and less chance of product cross-contamination.

HOW BLACKMER SLIDING VANE ACTION WORKS



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

Where Innovation Flows

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