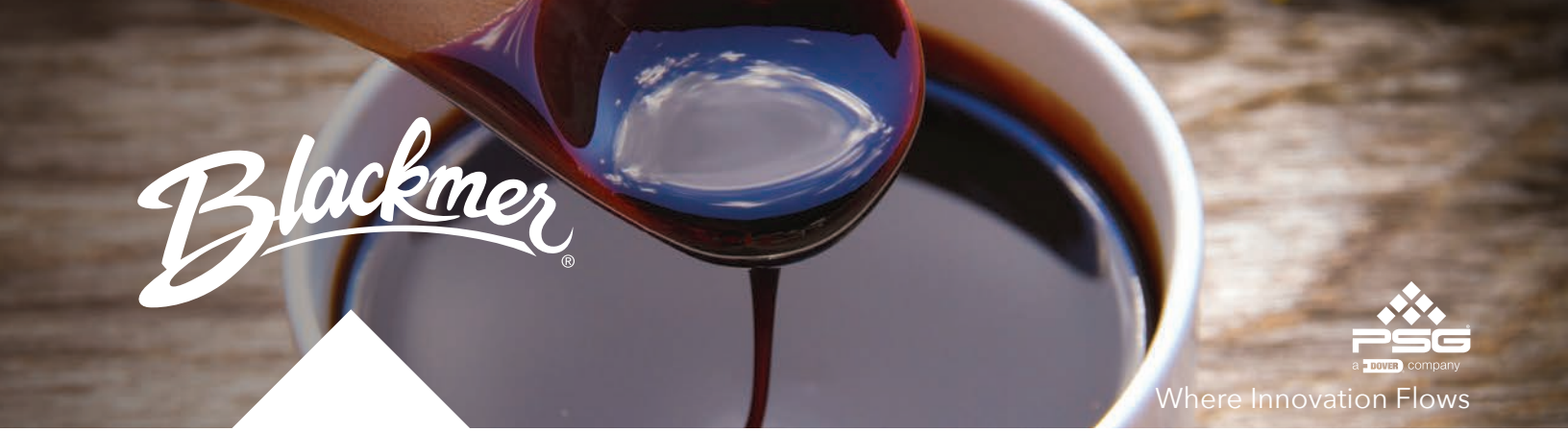


Molasses

APPLICATION DOCUMENT

As sugar cane is refined, a "mother liquor" is created that generally goes through three stages of metamorphosis. The third stage produces an extremely thick liquid that is called blackstrap molasses. Blackstrap molasses has several uses. Most commonly, it is mixed with other materials to produce pet and livestock feed. It can also be used as a raw material in various industrial alcohols.

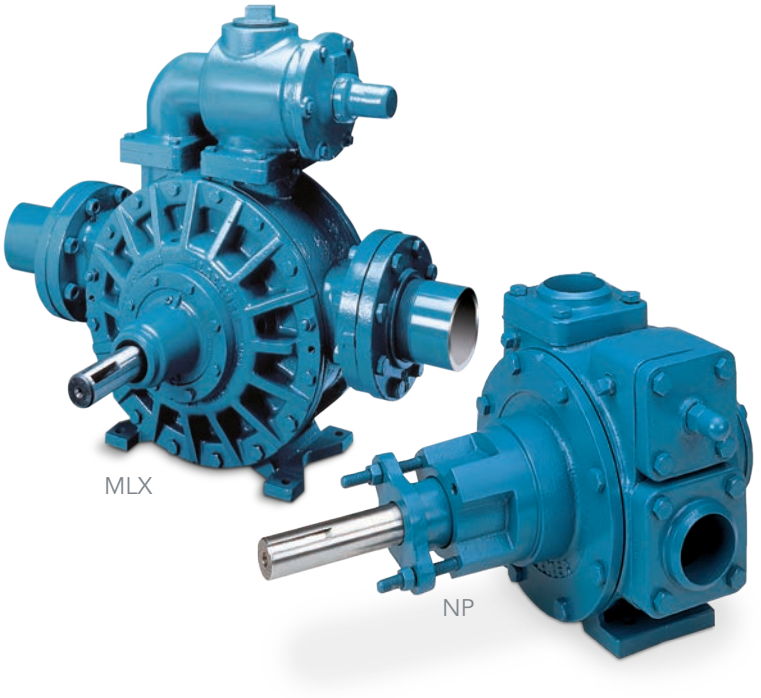
The main challenge in handling blackstrap molasses is its viscosity, which can vary from 500 to 5,000 SSU (104.73 to 1,094.73 cP) at a temperature of 100°F (38°C). Blackstrap molasses also has a specific gravity of 1.45 and a typical differential pressure of 60 psi (4.14 bar), which makes it imperative that any pumps used in its transfer possess good suction-lift capabilities.

Blackmer offers a number of positive displacement (PD) sliding vane pump models that can be used at the various stages of blackstrap molasses production and transfer. Most blackstrap molasses is initially transported via ship or barge. To load and unload these large vessels, Blackmer offers the HXL Series Sliding Vane Pump, which are part of its Heavy Duty Line. These pumps have been designed for the high-volume transfer of high-viscosity liquids, with bronze vanes and 6-, 8- and 10-inch ANSI-flanged port sizes that can deliver flow rates ranging from 755 to 2,200 gpm (171 to 504 m^3/h). All models are fitted with removable casings, liners and discs that allow easy rebuilding with no need to remove the pump from the piping. Optional bolt-on relief valves protect the pump from excessive or variable pressure spikes.


HXL

For the production of molasses-based end products, the NP and ML Series pumps are a popular choice. The NP pumps, with flow rates of 2 to 525 gpm (8 to 1,985 L/min), are part of the Iron Line and are ideal for applications where high temperature, pressure, viscosity and/or specific shaft-sealing requirements demand the use of a sleeve-bearing pump. With that in mind, the NP pumps feature a unique head and bearing design that results in long bearing life. The ML pumps, part of the Heavy Duty Line, feature PTFE-impregnated shaft packing that makes them ideal for handling highly viscous fluids such as molasses, asphalts, oils and adhesives. For molasses with higher levels of abrasives, the XLW and MLXW models are the best choice. Both are part of the Heavy Duty Line and have been designed with hardened and replaceable wear surfaces (liners and end discs) that allow them to handle liquids with suspended abrasive particles. XLW offers flow rates from 14 to 190 gpm (53 to 719 L/min) and the MLXW has flow rates from 35 to 590 gpm (132 to 2,233 L/min).

Molasses



BLACKMER SOLUTIONS

- HXL Series Sliding Vane Pumps
- NP Series Sliding Vane Pumps
- ML Series Sliding Vane Pumps
  - MLXW
- XLW Series Sliding Vane Pumps

COMPETITION

- **Gear Pumps**

More difficult to seal than standard sliding vane pumps. Also, not as easily rebuildable because they have more wear parts (gears, head, casing, etc.).

- **Lobe Pumps**

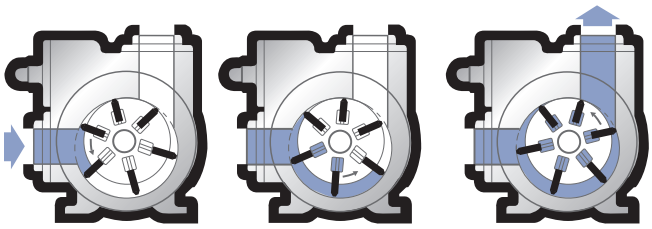
Overall, more expensive and difficult to rebuild than sliding vane pumps, with reduced suction capability and sealing ability.

GLOSSARY

Mother Liquor – A concentrated solution from which a product is obtained by evaporation and/or crystallization.

Blackstrap Molasses – A substance that is yielded during the third boiling of sugar syrup; highly viscous and more bitter than regular molasses, and used in baking products or for producing ethanol, rum, animal feed and fertilizer.

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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