Experience Shows • Innovation Flows

Pumps designed specifically for asphalt applications
Variety of problem-solving sealing options
Quick time to temperature
Variety of jacketing or electric heat options

Pumping Asphalt

VIKING PUMP
A UNIT OF IDEX CORPORATION
OUR EXPERIENCE SHOWS IN...

Service to the Asphalt Industry

Viking Pump has supplied pumps to handle asphalt since 1915. As the industry has evolved, so have our products.

Working with asphalt professionals worldwide, Viking Pump has handled straight-runs, cutbacks, emulsions, blown, filled, and polymer-modified, as well as related products like pitch, tar, and heavy oils. By responding with new designs, sizes, materials, and options, we’ve worked to satisfy each unique application.

Viking’s commitment to customer needs is reflected in our international network of knowledgeable stocking distributors. They provide expertise in selection, installation, start up, operation and service. And they’re backed by the extensive technical expertise of Viking’s field sales team and Customer Support Centers.

The traditional braided packing seal used in most asphalt pumps allows leaks to keep moving parts lubricated. Customers interested in reducing the costs of lost product, downtime and disposal, as well as fugitive emissions, helped Viking develop retrofittable, cartridge-style lip and mechanical seals.

Lip Seal
Low cost seal for all clean asphalts, requires steam or hot oil quench.

Single Mechanical Seal
With hard faces for clean and filled asphalts, requires steam quench.

Double Mechanical Seal
With hard faces for clean and filled asphalts, requires pressurized barrier fluid.
Mechanical Seals Pay Off in New Mexico

Mechanical seals have performed well for over a decade at a New Mexico bulk asphalt storage facility. They have paid for themselves over and over, according to Mitch Taylor of T.P. Pump, the Viking distributor who installed the heavy-duty pumps at the plant.

“This customer was concerned about cleanliness and waste. They did not want any material loss,” he explained.

To meet the challenge, Viking developed a system for directing low pressure steam to the seals. By flushing out residue asphalt there, the mechanical seals don’t crack or break.

“After more than a decade, we’ve had to replace just two of the ten mechanical seals originally installed,” said Taylor.

Problem-Solving Innovation

Electrically heated pumps can be used as an alternative to jacketed pumps that require liquid or steam for heating. Electric heat cartridges on the bracket and head ensure the asphalt is in a liquid state prior to startup.

Electric heating can be a cost effective solution when a steam or heat transfer liquid source is not available, or if the pump is in a remote location which makes long heat pipe runs impractical. It can also help reduce environmental costs associated with the clean-up of hot oil leaks.

Viking’s temperature control system uses a thermocouple to monitor the pump temperature and send a signal back to a controller with adjustable set point. When the pump reaches temperature, the asphalt is liquid and the controller stops heating. Relays can be used to alert the operator or allow the motor to safely begin operation.
Our experience shows in...

Refineries

Viking Pump delivers on the challenges facing today's refiners.

Our cast steel API asphalt pumps withstand extreme temperature changes without damage. Able to manage viscosities from 28 to 2,000,000 SSU, a heavy-duty Viking® pump can handle asphalt or any other hydrocarbon, providing year-round versatility for seasonal asphalt producers.

With flow capabilities up to 365 M³/Hr (1,600 GPM), Viking pumps swiftly move asphalt through processing operations to storage to transport. Along the way, our pumps handle long pipeline head losses, thanks to discharge head capabilities up to 14 BAR (200 PSI) for gear pumps or 28 BAR (400 PSI) for lobe pumps.

Terminals

Speed is critical in terminal operations. Therefore, loading, unloading, and blending equipment all need to function quickly and reliably.

Bi-directional pumps are one way Viking has helped streamline terminal flows. Instead of requiring two sets of pumps, drives and piping, a single pump can change direction to load or unload with equal efficiency. We also speed up asphalt transfer with a powerful suction lift that allows pumps to draw down rapidly from the top ports of barges, railcars or tankers during unloading, cutting investment expense and energy use.

For blending, multiple components can be easily metered into a custom spec mix of any size, eliminating batch storage.

Viking: The Pump of Choice

Viking’s are the preferred pumps in other asphalt applications as well, including:

- **Distributor trucks** for spray injection to fill and coat roadbed aggregate.
- **Pipe lining** where liquid asphalt is used to line sewer pipe in-plant and in-place.
- **Tar kettles** or portable heat-and-spray units, for on-site roofing build-up, foundation-sealing and crack-filling.
- **Asphaltic insulation** in automotive and appliance manufacturing lines for sound deadening.
- **Aluminum refining** for pumping pitch used in anode-production.
Hot Mix Plants

For many hot mix manufacturers, the paving season is short. When demand is high, they need to operate 24/7. Downtime must be kept to a minimum.

What hot mixers need is simple, dependable pump operation, even after sitting dormant all winter. Our internal gear design uses just two moving parts for reliable operation and easy maintenance.

And when the paving season is on, hot mixers can rely upon Viking’s vast stocking distributor network to provide fast and knowledgeable service — whether it’s repairs, replacement parts or complete pumps.

Roofing Plants

Asphalt used for roofing products is another breed. With crushed limestone and other abrasive agents, filled asphalt takes on the texture of liquid sandpaper. That’s why hardened, heavy-duty Viking pumps are such a sound investment. Specially designed for roofing applications, they feature tungsten carbide parts in key areas and a variety of sealing options. With pumps designed to last, Viking can help cut life-cycle costs dramatically.

Asphalt fumes can be unpleasant for indoor plant workers as well. With the option of single or double mechanical seals, Viking can virtually eliminate fugitive emissions from asphalt pumps.
General Purpose Asphalt Pumps

For low pressure transfer of clean blended or cutback asphalts, Viking offers jacketed General Purpose asphalt pumps. The “floating” rotor on these pumps is a simple, economical design. Options include:

- Packed, lip seal or mechanical seals.
- Cast iron construction.
- Steel fitted for high viscosities.

Solutions Tailored To Your Needs

For each unique type of asphalt, Viking has a unique pumping solution. Viking’s knowledge base provides field-tested operating speeds, clearances, materials and options that ensure your success.
Heavy Duty Asphalt Pumps

For emulsions, filled asphalts, high pressure and refinery applications, the cast iron Universal Seal pump is commonly used for asphalt applications. It can be heated by utilizing jacketing for steam/hot oil or built-in electric heat cartridges. It also features a thrust bearing that fixes the rotor position in the casing, so users can set precise clearances and compensate for wear over time. These durable pumps also include:

- Universal Seal pumps with three year warranty
- Offers the ability to change from packing to cartridge seals in the field
- Hardened parts options available to extend pump life

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<th>Model No. (Cast Iron)</th>
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* AH / EH designation is for high flow pump.

Service and Retrofits

Want to upgrade your existing pumps?
Consider:

- Hardened parts (bushings, pins) to eliminate excessive wear.
- Temperature monitoring using thermowell on bracket.
- Mechanical seals to replace packing.

For information, contact your local authorized Viking Pump Distributor.
Innovation and Experience
Viking Pump has been a pump industry leader and innovator since its founding in 1911. We continue to build on our ever growing experience delivering innovative new pumping solutions, including custom designs, to thousands of customers who use Viking® pumps in some of the world’s toughest applications.

Broad Performance Range
**Capacity:**
0.5 to 360 M³/Hr (0.1 to 1,600 GPM)

**Pressure:**
0 to 172 Bar (0 to 2,500 PSI)

**Temperature:**
-84°C to 370°C (-120°F to 700°F)

**Viscosity:**
0.5 to 1,000,000 cSt (28 to 4,500,000 SSU)

Ultimate in Sealing Solutions
Viking’s offering of packing, component mechanical seals, cartridge seals and sealless Mag Drive technology provides the best choices for sealing flexibility needed to provide your application a customized sealing solution every time - saving you money, time and unplanned downtime.

Material Options Matched to Application
Viking’s dedicated iron and alloys foundries provide pump construction materials from cast iron to Alloy C. Application-specific materials of construction extend a pump's life significantly, while reducing maintenance and unplanned downtime, enabling increased production and a better bottom line.

Liquid Integrity Protection
Viking has developed multiple positive displacement pump principles to protect shear-sensitive liquids, and low-shear options to prevent damage to fibers, polymers and solids. Full-jacketing options provide precise temperature control throughout the pump. The Viking Mag Drive® and other seal options prevent fluid contact with air, assuring liquid integrity.

Local Applications and Engineering Support
Over 245 Authorized Viking Pump Distributors in 68 countries provide local application support and service. They are backed by Viking Application Engineers and Viking Region Managers strategically located around the world.

Quality Manufacturing
Viking uses ISO9001-2008, Six-Sigma, and Lean/Kaizen in its worldwide manufacturing and assembly processes to remove waste, reduce development costs, and deliver superior products. Dedicated Viking foundries and manufacturing facilities utilize state-of-the-art CNC equipment to assure unmatched quality is built into every pump.

Custom Designed Solutions
Viking has provided custom designed pumps to end-users and OEMs since its first pump in 1911, when Viking invented the gear-within-a-gear pumping principle to remove water from a rock quarry. Today, enabled by Viking’s engineering staff, extensive applications experience and in-house foundries, more than 20% of Viking’s sales are new designs or pump designs derived from one of our 40,000 active configurations. Whether you are an end-user or an OEM, Viking can provide custom designed pumping solutions to meet your specific needs.

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For more information, contact your local Authorized Viking Pump Distributor or contact Viking at:

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