Experience Shows • Innovation Flows

ASPHALT PUMPING

VIKING PUMP
A UNIT OF IBEX CORPORATION
By working closely with customers, Viking has developed breakthrough products with widespread applications. For instance, the Viking Flow Manager® controls continuous metering or batch delivery for asphalt blending and hot mix applications, without a flow meter. By monitoring asphalt temperature and pump inlet and discharge pressures, it compensates for changes in viscosity and slip to provide the exact rate or volume needed, regardless of changing operating conditions.

Customer input led to another Viking advance. The traditional braided packing seal used in most asphalt pumps necessarily 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 that make leaking seals a thing of the past.

Our customer relationships are true partnerships. By listening and learning while out in the field, we have accomplished more together than we could on our own.

**Service to the Asphalt Industry**

Viking Pump has supplied steam-jacketed pumps to the asphalt industry since 1933. As the industry has evolved, so have our products.

Working with asphalt professionals worldwide, Viking has analyzed how different asphalts — from straight-runs to cutbacks, emulsions, blown, filled, and polymer-modified — affect pump performance. Looking even further, we’ve minimized pumps’ impact on asphalt characteristics and performance. By responding with new designs, sizes, materials, options and operating parameters, we’ve worked to satisfy each unique asphalt application.

**Problem-Solving Innovation**

By working closely with customers, Viking has developed breakthrough products with widespread applications.

For instance, the Viking Flow Manager® controls continuous metering or batch delivery for asphalt blending and hot mix applications, without a flow meter. By monitoring asphalt temperature and pump inlet and discharge pressures, it compensates for changes in viscosity and slip to provide the exact rate or volume needed, regardless of changing operating conditions.

Customer input led to another Viking advance. The traditional braided packing seal used in most asphalt pumps necessarily 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 that make leaking seals a thing of the past.

Our customer relationships are true partnerships. By listening and learning while out in the field, we have accomplished more together than we could on our own.

**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 asphalt residue 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.

**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.

**Viking Flow Manager**

Asphalt Flow Controller
By working closely with customers, Viking has developed breakthrough products with widespread applications. For instance, the Viking Flow Manager® controls continuous metering or batch delivery for asphalt blending and hot mix applications, without a flow meter. By monitoring asphalt temperature and pump inlet and discharge pressures, it compensates for changes in viscosity and slip to provide the exact rate or volume needed, regardless of changing operating conditions.

Customer input led to another Viking advance. The traditional braided packing seal used in most asphalt pumps necessarily 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 that make leaking seals a thing of the past.

Our customer relationships are true partnerships. By listening and learning while out in the field, we have accomplished more together than we could on our own.

Service to the Asphalt Industry

Viking Pump has supplied steam-jacketed pumps to the asphalt industry since 1933. As the industry has evolved, so have our products.

Working with asphalt professionals worldwide, Viking has analyzed how different asphalts — from straight-runs to cutbacks, emulsions, blown, filled, and polymer-modified — affect pump performance. Looking even further, we’ve minimized pumps’ impact on asphalt characteristics and performance. By responding with new designs, sizes, materials, options and operating parameters, we’ve worked to satisfy each unique asphalt application.

Viking’s commitment to customer needs is reflected in our international network of knowledgeable, factory-trained, stocking distributors and Positive Pumpcare™ Certified Service Centers. They provide expertise in selection, installation, commissioning, operation and service. And they’re backed by the extensive technical expertise of Viking’s field sales team and Customer Support Centers.

Problem-Solving Innovation

By working closely with customers, Viking has developed breakthrough products with widespread applications.

For instance, the Viking Flow Manager® controls continuous metering or batch delivery for asphalt blending and hot mix applications, without a flow meter. By monitoring asphalt temperature and pump inlet and discharge pressures, it compensates for changes in viscosity and slip to provide the exact rate or volume needed, regardless of changing operating conditions.

Customer input led to another Viking advance. The traditional braided packing seal used in most asphalt pumps necessarily 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 that make leaking seals a thing of the past.

Our customer relationships are true partnerships. By listening and learning while out in the field, we have accomplished more together than we could on our own.

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 asphalt residue 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.

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.

Viking Flow Manager
Asphalt Flow Controller

Viking Flow Manager
Asphalt Flow Controller
OUR EXPERIENCE SHOWS IN...

**Refineries**

This is where asphalt production begins, and if it doesn’t move smoothly here, there may be problems down the road — or on the roof. Viking Pump delivers on the challenges facing today’s refiners.

Our cast steel asphalt pumps withstand extreme temperature changes without damage. Able to manage viscosities up 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 1500 gpm (345 m³/hr), Viking pumps swiftly convey asphalt through processing operations to storage to transport, helping to ensure that delivery is on-time and productivity on-target. Along the way, our pumps handle long pipeline head losses, thanks to discharge head capabilities up to 462 feet (200 psi/14 bar).

**Terminals**

Speed is critical in terminal operations. So loading, unloading, and blending equipment all needs 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.

Viking’s Flow Manager can help reduce the need for multiple tanks with premixed asphalt grades and cutbacks, too. With this tool, terminals can use fewer base materials and mix on-demand, cutting investment expense and energy use.

**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 — year in and year out. Even after sitting dormant all winter. Our internal gear design uses just two moving parts for reliable operation and easy maintenance.

And when paving season is on and demand is high, 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 cast steel housings and tungsten carbide bushings and seals. With pumps durable enough to last years instead of months, 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.

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

- **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 to mix with bauxite.

**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.
OUR EXPERIENCE SHOWS IN...

Refineries

This is where asphalt production begins, and if it doesn’t move smoothly here, there may be problems down the road — or on the roof. Viking Pump delivers on the challenges facing today’s refiners.

Our cast steel asphalt pumps withstand extreme temperature changes without damage. Able to manage viscosities up 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 1500 gpm (345 m³/hr), Viking pumps swiftly convey asphalt through processing operations to storage to transport, helping to ensure that delivery is on-time and productivity on-target. Along the way, our pumps handle long pipeline head losses, thanks to discharge head capabilities up to 462 feet (200 psi/14 bar).

Terminals

Speed is critical in terminal operations. So loading, unloading, and blending equipment all needs 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.

Viking’s Flow Manager can help reduce the need for multiple tanks with premixed asphalt grades and cutbacks, too. With this tool, terminals can use fewer base materials and mix on-demand, cutting investment expense and energy use.

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 — year in and year out. Even after sitting dormant all winter. Our internal gear design uses just two moving parts for reliable operation and easy maintenance.

And when paving season is on and demand is high, 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 cast steel housings and tungsten carbide bushings and seals. With pumps durable enough to last years instead of months, 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.

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.
- Asphalitic insulation in automotive and appliance manufacturing lines for sound deadening.
- Aluminum refining, for pumping pitch to mix with bauxite.

Viking: The Pump of Choice
**Pump Engineering**

As a leading manufacturer of internal gear, external gear and rotary lobe pumps, Viking knows positive displacement pumps. And we know asphalt. That adds up to engineered solutions that make sense in the field.

The internal gear pumping principle that Viking developed nearly a century ago is still the preferred technology for asphalt pumping today. A simple, two-moving-part design ensures reliable operation. Features and benefits include:

- **Bi-directional flow**, to allow a single pump to load and unload.
- **A single stuffing box and shaft seal**, to hold down maintenance costs.
- **Excellent suction lift for top-of-tank and barge unloading**.
- **Minimal shearing on shear-sensitive emulsions**.

**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.

### 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.

**Heavy Duty Asphalt Pumps**

For emulsions, filled asphalts, high pressure and refinery applications, Viking Heavy Duty jacketed pumps feature a thrust bearing that fixes the rotor position in the head, so users can set precise clearances and compensate for wear over time. Options for these durable pumps include:

- **Universal Seal** design permits switching from packing to component seals or cartridge seals in field.
- **Cartridge triple lip seal**.

### Model Specifications

<table>
<thead>
<tr>
<th>Model No. (Cast Iron)</th>
<th>Capacity</th>
<th>Pressure</th>
<th>Ports</th>
</tr>
</thead>
<tbody>
<tr>
<td>gpm m3/h psi</td>
<td><strong>In.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HL24A</td>
<td>15</td>
<td>2.4</td>
<td>100</td>
</tr>
<tr>
<td>HL24A</td>
<td>30</td>
<td>6.0</td>
<td>100</td>
</tr>
<tr>
<td>KK24A</td>
<td>75</td>
<td>17.5</td>
<td>100</td>
</tr>
<tr>
<td>KK24A</td>
<td>100</td>
<td>23</td>
<td>100</td>
</tr>
<tr>
<td>LS24A</td>
<td>125</td>
<td>32</td>
<td>75</td>
</tr>
<tr>
<td>LS24A</td>
<td>140</td>
<td>32</td>
<td>75</td>
</tr>
<tr>
<td>Q24A</td>
<td>150</td>
<td>45</td>
<td>75</td>
</tr>
<tr>
<td>Q24A</td>
<td>200</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>M25S</td>
<td>500</td>
<td>114</td>
<td>75</td>
</tr>
<tr>
<td>N32A</td>
<td>700</td>
<td>175</td>
<td>75</td>
</tr>
<tr>
<td>R32A</td>
<td>900</td>
<td>250</td>
<td>75</td>
</tr>
<tr>
<td>P335</td>
<td>1500</td>
<td>381</td>
<td>75</td>
</tr>
</tbody>
</table>

**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 Positive Pumpcare™ Service Center.

---

**Our Experience Shows In...**

For emulsions, filled asphalts, high pressure and refinery applications, Viking Heavy Duty jacketed pumps feature a thrust bearing that fixes the rotor position in the head, so users can set precise clearances and compensate for wear over time.

Options for these durable pumps include:

- **Universal Seal** design permits switching from packing to component seals or cartridge seals in field.
- **Cartridge triple lip seal**.

---

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.

---

As a leading manufacturer of internal gear, external gear and rotary lobe pumps, Viking knows positive displacement pumps. And we know asphalt. That adds up to engineered solutions that make sense in the field.

The internal gear pumping principle that Viking developed nearly a century ago is still the preferred technology for asphalt pumping today. A simple, two-moving-part design ensures reliable operation. Features and benefits include:

- **Bi-directional flow**, to allow a single pump to load and unload.
- **A single stuffing box and shaft seal**, to hold down maintenance costs.
- **Excellent suction lift for top-of-tank and barge unloading**.
- **Minimal shearing on shear-sensitive emulsions**.

**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.
Pump Engineering

As a leading manufacturer of internal gear, external gear and rotary lobe pumps, Viking knows positive displacement pumps. And we know asphalt. That adds up to engineered solutions that make sense in the field.

The internal gear pumping principle that Viking developed nearly a century ago is still the preferred technology for asphalt pumping today. A simple, two-moving-part design ensures reliable operation. Features and benefits include:

- Bi-directional flow, to allow a single pump to load and unload.
- A single stuffing box and shaft seal, to hold down maintenance costs.
- Excellent suction lift for top-of-tank and barge unloading.
- Minimal shearing on shear-sensitive emulsions.

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.

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.

Heavy Duty Asphalt Pumps

For emulsions, filled asphalts, high pressure and refinery applications, Viking Heavy Duty jacketed pumps feature a thrust bearing that fixes the rotor position in the head, so users can set precise clearances and compensate for wear over time. Options for these durable pumps include:

- Universal Seal pumps with a three year warranty. Allows changing from packing to component seals or cartridge seals in the field.
- Behind-the-rotor seal options.
- Steel, ductile iron or cast iron construction.
- Special bushing materials and hardened parts.

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 Positive Pumpcare™ Service Center.
Viking Pump, worldwide producers of internal gear, external gear, and lobe pump products

Canada
Viking Pump of Canada, Inc.
Windsor, Ontario
Phone: (519) 296-5438
Fax: (519) 296-5070
www.vikingpumpcanada.com

Latin America
Viking Pump (Latin America)
D.F. Mexico C.F.
Phone: +52 (5) 5255-1357
Fax: +52 (5) 5255-1356

Europe
Viking Pump (Europe) Ltd.
Shannon, Ireland
Phone: +353 (61) 471933
Fax: +353 (61) 475046
www.vikingpumpeurope.com

Asia-Pacific
Viking Pump, Inc.
Singapore
Phone: +65 764-2028
Fax: +65 763-3130

Viking Pump, Inc.
Mumbai, India
Phone: +91 (220) 570-3173
Fax: +91 (220) 570-3167

Viking Pump, Inc.
Shanghai, PRC
Phone: +021 63874517
Fax: +021 63851404

Viking Pump, Inc.
Beijing, PRC
Phone: +010 65227527
Fax: +010 65227563