

Ebsray®



Where Innovation Flows

Propane Feed for Asphalt Burners

APPLICATION DOCUMENT

Because of its nature, it is imperative that the producers, transporters and users of asphalt identify and implement pumping technologies that can satisfy its many unique handling characteristics. A key piece of equipment in the hot-mix plants that are the foundation of asphalt production is the asphalt burners that enable the mixing of bitumen with aggregate.

Specifically, the burners heat the aggregate as the liquid bitumen is being sprayed on it, which allows it to adhere to the aggregate. Traditionally, the burners can be fired in one of three ways: 1) with fuel oil, though this method is considered archaic; 2) with natural gas, and 3) with liquid propane, with the burner atomizing the propane in order to convert it into a vapor.

Within the asphalt-burner application, a pump that is idled or operating improperly will disrupt asphalt production, which can be a continuous 24/7 process in many plants. Therefore, the pump must maintain a constant flow rate with very little fluctuation since any flow variations can create instability within the flame, which will affect the quality of the asphalt. Also critical is the pressure at which the propane is supplied to the burner, with any changes in pressure capable of causing "freezing" at the nozzle, which will also reduce product quality.

In this application, the best pumping solution can often be the Regenerative Turbine Pump, the design of which allows it to excel at transferring liquids with high pressure, low flow and low viscosity while handling entrained vapors or liquids that are at or near their boiling point, with little risk that cavitation and pulsation will occur. Specifically, Ebsray® Regenerative

Turbine Pumps are designed with a rotating, one-stage, non-contact, freewheeling impeller disc with 60 small cells on its periphery. As liquid enters the suction port, kinetic energy carries it around the narrow hydraulic channel around the

cells, creating the energy and differential pressure that moves the liquid through the pump. Other advantages of Ebsray pumps include a small footprint, high efficiency that requires smaller motors, quiet operation with no vibration and easy maintenance.

Ebsray offers its RC Series Regenerative Turbine Pumps, which are available in three models – RC20, RC25 and RC40 – that deliver flow rates ranging from 48 L/min (12 gpm) to 200 L/min (53 gpm) at differential pressures ranging from 12 bar (175 psi) to 14 bar (200 psi). In cases where underground LPG storage is used and a submersible pump needed, Ebsray has the RX Series with the RX10, RX33 and RX35 models having a flow-rate range of 90 L/min (24 gpm) to 160 L/min (42 gpm) at working pressures from 9 bar (130 psi) to 12 bar (174 psi). Finally, Ebsray has further positioned itself as a go-to provider for the asphalt plant with its new HiFlow Series Regenerative Turbine Pumps. The R80/R82 models, which are used in base-mounted setups, have 3" (75mm) inlet and discharge ports. The R80 pumps can deliver smooth, non-pulsing flow rates up to 500 L/min (132 gpm), while the R82 models deliver flows up to 600 L/min (159 gpm), all at differential pressures up to 14 bar (203 psi). All of these models can be outfitted with a bypass valve that allows the pump to transfer vapor while it is priming.



RC25

Propane Feed for Asphalt Burners

EBSRAY SOLUTIONS

- [RC Series Regenerative Turbine Pumps](#)
- [RX Series Regenerative Turbine Pumps](#)
- [HiFlow Series Regenerative Turbine Pumps](#)

COMPETITION

- **Sliding Vane Pumps**

Can struggle in meeting the high differential pressures that may be needed to move the propane to the nozzle of the asphalt burner, while they are also less well suited for continuous-duty operation.

- **Side-Channel Pumps**

Can achieve high differential pressures, but require a larger physical footprint for installation. This results in higher maintenance costs due to the number of internal components the pump has. Also may need as many as five to seven impeller stages to create high flow rates, compared to just one stage for regenerative turbine pumps.

- **Multi-Stage Centrifugal Pumps**

Like side-channel pumps, more impeller stages require more components, resulting in a larger footprint and higher maintenance costs.

- **Other Regenerative Turbine Pumps**

May need to upsize the pump motor in order to achieve higher flow rates, which reduces their efficiency when compared to Ebsray models that can operate with a smaller motor with less horsepower that requires less electricity and less overall operating costs.



GLOSSARY

Rotodynamic – a type of pumping technology in which energy is continuously imparted to the pumped liquid by means of a rotating impeller, propeller or rotor.

Asphalt – a mixture of dark bituminous pitch – usually made through the distillation of crude oil – with sand, gravel or another aggregate, used for the surfacing of roads, flooring, roofing, etc.

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

EBY-50000-F-01-A4

Copyright 2021 PSG®, a Dover company

Authorized PSG® Partner:

Where Innovation Flows



Ebsray®

PSG Australia
156 South Creek Road
Cromer NSW 2099 Australia
P: (+61 2) 9905 0234 • F: +1 (616) 241-3752
sy.sales@psgdover.com
ebsraypumps.com