



WANNER
Hydra-Cell[®]
Seal-less Pump Technology

Case Study

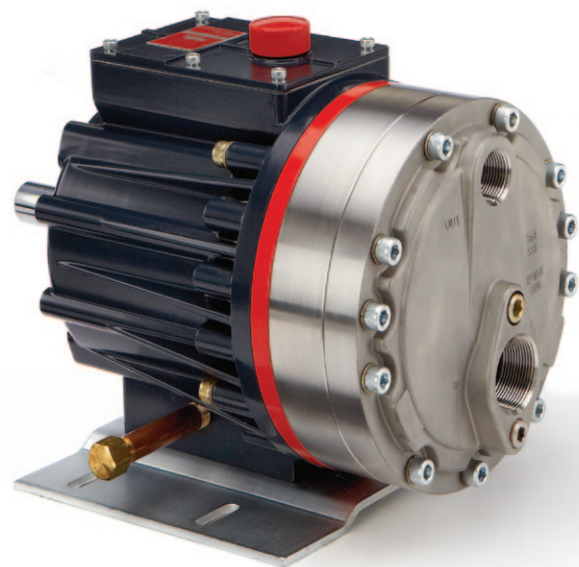
Meeting the latex challenge

Aware of potential problems in metering latex emulsion into a bitumen process, UK manufacturer of road surfacing materials Bituchem Building Products consulted pump specialists Michael Smith Engineers before determining the type of delivery pump that would meet its needs most efficiently.

One definition of emulsions as a mixture of two or more liquids that are normally unblendable hints at the difficulties that can exist in handling them. In this case the particular properties of latex and the strict requirements of the metering operation were additional complications that could disrupt a smooth production operation.

Bituchem's brief and Michael Smith's full understanding of the application requirements - and possible pitfalls if a 'wrong' pump were chosen - led to the selection of Wanner's Hydra-Cell G25 seal-less diaphragm pump to handle the latex emulsion. Twelve months after it was installed in 2013, Bituchem was able to report a highly successful outcome.

Bituchem Building Products is part of the Bituchem Group of companies based in Gloucestershire. Its building division manufactures a range of products which help protect and increase the longevity of highway surfaces.



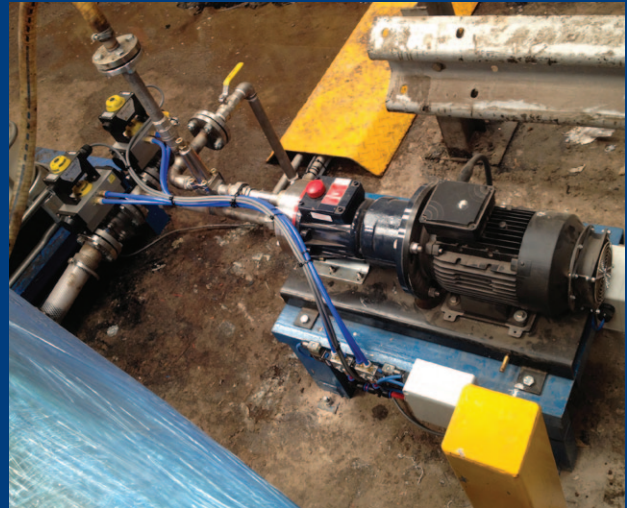
Pump code: G25XKSGHFEHB

Inclusion of latex can enhance both product quality and consistency. The plant has a process whereby it is pumped into the bitumen lines, with the latex metered in proportion to the bitumen flow.

Latex is in the form of a complex but stable emulsion consisting of micro-particles contained in an aqueous medium. It presents two basic challenges to the pumping process. Firstly, latex emulsions are extremely shear sensitive and require pumps that can reliably deliver a low shear rate. Secondly, any contact with air will further polymerise the latex, so it is imperative that the pump is not exposed to the hazards of seal wear.

Customer – Bituchem Building Products

Bituchem is one of the numerous Hydra-Cell customers who have appreciated the benefits of our seal-less pump technology and subsequently shared their experience with us.



The Hydra-Cell is a positive displacement diaphragm pump. It has no dynamic seals or packings in its design. Its leakfree configuration ensures total product containment within a pump head (for this application) of stainless steel.

The design of the wetted path reduces internal friction, enabling the pump to deliver the level of shear-sensitive operation that is so important when working with latex. Positive displacement operation also guarantees that product flow rate will remain volumetrically consistent.

The requirement here was to pump between 2 – 20 l/min of latex solution with a viscosity of around 600 cPs at 10 bar discharge pressure. Latex flow is adjusted using an inverter, with pump speed altered in proportion to the flow through the bitumen pipeline. In practice the pump is operating between 70 and 650 rpm.

Commenting on how the Hydra-Cell pump has performed on this application, John Shirley, engineering manager at Bituchem said,

“We were aware of the problems involved when pumping latex and thanks to Michael Smith Engineers understanding of our requirements and recommending the most suitable type and model of pump, it is working perfectly”.

WANNER
Hydra-Cell[®]
Seal-less Pump Technology



WANNER ENGINEERING - WORLD HEADQUARTERS & MANUFACTURING
Minneapolis USA
t: (612) 332-5681
e: sales@wannereng.com

WANNER ENGINEERING
Latin American Office
t: +55 (11) 3565 4001
e: sales@wannereng.com

WANNER INTERNATIONAL
Hampshire UK
t: +44 (0) 1252 816847
e: sales@wannerint.com

WANNER PUMPS
Shanghai CHINA
t: +86-21-6876 3700
e: sales@wannerpumps.com

WANNER PUMPS
Kowloon HONG KONG
t: +852 3428 6534
e: sales@wannerpumps.com

www.hydra-cell.eu