



Product Recovery (Pigging)
Case Study:

Water and Solvent - Based Paint Manufacture

UK

How HPS Fully Automatic Pigging
and Transfer Systems Ensure
Minimal Waste Generation and
Efficient Cleaning

HPS Product Recovery Solutions

www.HPS-Pigging.com



Summary

- HPS designed, supplied, and implemented multiple fully automatic pigging and transfer systems for a leading paint and coatings manufacturer located in the UK.
- The paint manufacturer installed a new production area for water-based and solvent-based paint manufacture and filling. The production plant has a range of mixing, storage, tinting and filling processes.
- The project was a turnkey project. HPS worked in cross-collaboration with partner engineering companies to deliver a complete end-to-end solution.
- As well as pigging and liquid transfer systems, the project involved the installation of tanks, pipework, mixers, fillers, robotics, specialist valves, software and so on.
- HPS technology is helping the paint manufacturer increase product yields, cut waste, and reduce the content of water in the product.
- The HPS solution also reduces product cross-contamination, speeds up changeovers and reduces the amount of biocides that are needed.
- As part of the project HPS developed a new valve, in association with Bardiani Valves.
- By reducing waste, water use, cleaning chemical use and disposal costs, using pigging also helps towards the company's environmental sustainability goals.



About the Customer

The HPS client is a well-known manufacturer of paint and coatings. With more than a century behind them, they have established themselves as a global leader in the field of paints, coatings and materials. They have manufacturing facilities throughout the world including Europe, North America, Latin America, Asia Pacific plus others.

Their key markets include consumer products, industrial, aftermarket, aerospace, other transportation, plus more.

Their paint and coatings products are everywhere, providing protection, decoration, performance and sustainability.

Please note, HPS respects client and commercial confidentiality so we have not named the company in this case study.

Project Background

The paint and coatings company reached out to HPS because they were installing a new fully automatic plant production area. This was for water-based and solvent-based paint manufacture and filling at one of their facilities in the UK.

The processing facility has a range of mixing, storage, tinting and filling processes where efficiency, safety, hygiene, waste reduction, and keeping downtime to a minimum are critical. Therefore, the paint manufacturer wanted to incorporate a full turnkey end-to-end solution to accommodate this requirement.





As well as a comprehensive, fully automatic pigging and liquid product distribution solution, the project involved the installation of pipework, mixers, fillers, robotics, specialist valves, software, controls and more.

It was important that the equipment designed by HPS was hygienic. It was also important that as much water was evacuated from the line as possible. This is to reduce the content of water in the product as well as reduce the amount of biocides that were needed. Biocides are products added to the paint to prevent the water in the paint going stagnant or mould forming during storage.

In addition, there were many different types of paints, coatings, colourants, and resins and multiple points of product input and output. So, it was critical that the HPS equipment was designed with minimal product hold-up pockets to enable simple and efficient cleaning and to avoid cross-contamination.

The UK plant had never used pigging and liquid transfer systems. However, some of the company's other plants had experience with the technology so they were aware of the benefits that installing a pigging and liquid transfer solution could bring to their business.

Why They Chose HPS Product Recovery Solutions

HPS has a strong reputation as the world's leading hygienic and sanitary pigging and liquid transfer systems specialists. HPS also has a long and proven track record of successful projects which deliver a high return on investment (ROI), rapid payback, and that exceed their client's expectations.



HPS were also able to partner with other leading specialist companies to ensure a turnkey, end-to-end solution for the client.

In addition, HPS has worked with a wide variety of companies that manufacture paint and coatings. These include Akzo Nobel, PPG, Kelly-Moore Paints, Benjamin Moore, Ronseal, Crown Paints, Sherwin-Williams plus many more.

So, they knew they could rely on HPS to deliver high-quality, effective, and reliable product recovery (pigging) and liquid product distribution solutions.

The Solution

Working closely with the paint and coatings manufacturer, HPS designed, supplied, implemented, and commissioned multiple automatic tank inlet/outlet select modules and pigging systems.

The HPS equipment was designed and engineered with minimal product hold-up pockets, enabling simple and efficient cleaning, and reducing the risk of product cross-contamination.

The liquid product recovery (pigging) systems recover the product residue from the main transfer paths which increases product yield and reduces waste.

Due to the large scope of the project, the pigging and liquid transfer equipment was installed in four stages:



Stage One: Tinting Tanks to Fillers

Stage Two: Holding Tanks to Fillers

Stage Three: Holding Tanks to Tinting Tanks

Stage Four: Blending Tanks to Holding Tanks

Like most HPS pigging and liquid transfer solutions, the system is fully automatic, meaning the HPS pig and equipment uses HMI/PLC control.

The pigging and liquid transfer equipment includes specialist valves. These are an innovative design which ensure minimal product hold up and are new to the market.



HPS developed these new valves in association with Bardiani Valves. This was specifically for this application to meet the needs of the paint manufacturer. However, they are soon to be available commercially.

The equipment also included launch and receive equipment, fully detectable pigs, AccuTect pig detectors, pig housings, valve manifolds plus full engineering drawings, electrical connection diagrams, functional design specifications plus more.

HPS worked in cross-collaboration with partner engineering companies to deliver a turnkey end-to-end solution for the client.

So, as well as pigging and liquid transfer systems, the project involved the installation of tanks, pipework, mixers, fillers, robotics, specialist valves, software and so on.

HPS provided a complete bespoke pigging and liquid transfer solution - from design and supply of a system to implementation, commissioning, and customer support.

When commissioning was complete, HPS engineers ensured employees understood how the system worked and were fully aware on how to operate and maintain the equipment properly and safely.



The Results

The primary aims of the project were to incorporate a complete hygienic end-to-end solution to minimise product waste, maximise yields, reduce product hold-up pockets and minimise the content of water in the product.

The pigging systems recover massive amounts of product residue from the main transfer paths which increases product yields and reduces waste significantly.

In addition, because the HPS equipment has been designed with minimal product hold-up pockets from all branch inputs and outputs, it reduces the chances of product building up and causing cross-contamination issues.

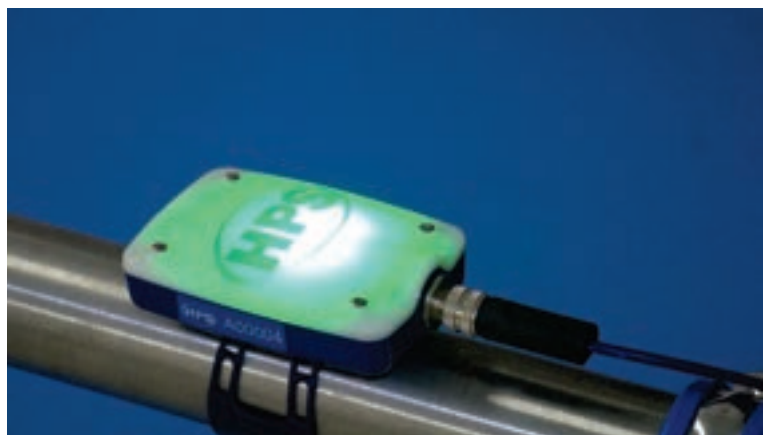
Other benefits of the HPS solution include faster changeovers, decreased water consumption, lower production costs, reduced contamination risks, decreased labour-intensive cleaning processes, less chemical usage, and less waste disposal costs. In this way, the HPS equipment delivers remarkable return on investment and fast payback for paint processing and production.

What's more, because the pigging and liquid transfer equipment includes the specially developed valves which feature minimal dead space and prevent product hold up, this ensures as much water as possible is evacuated from the line following the line rinse/cleaning process. This in turn reduces the content of water in the product and reduces the number of biocides that are needed which also improves their environmental performance.

Because the HPS equipment fully automates source and destination selection, it enhances safety and minimises the likelihood of errors by reducing manual intervention.

By saving water, resources, chemicals, and energy, pigging also helps further towards environmental sustainability.

The HPS Systems are Helping the Paint Manufacturer Minimise Product Waste, Maximise Yields and Decrease the Content of Water in the Product





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