

New pre treatment system meets environmental pressures and delivers cost savings.

Williams and Oakey Engineering Co. Ltd is a Precision CNC Machining and Powder Coating company, employing over 60 staff. Over recent years they have concentrated on improving their flexibility and increasing their capacity by the introduction of high technology machinery. This includes the introduction and development of a powder coating plant which allows them to continue their high quality process from start to finish on all of their products. They now provide customers with a one stop shop facility, using a combination of top quality craftsmanship with the most sophisticated equipment available.

In their determination to meet the environmental and health and safety demands of today's market they decided to look into the option of providing a chrome free Qualicoat – Approved solution for the pre treatment of Aluminium. Chrome free pre-treatment processes have been around for 20 years, but they wanted to be sure they could maintain the standard and quality of work they have delivered to customers over the last 50 years.

Following much research it was decided they would use Gardobond from chemical suppliers Chemetall as the chromate replacement. This is a state of the art, chrome free, pre-treatment process for aluminium that helps the finishing plant maximise adhesion, and corrosion protection for the components that they treat. As with any process line, rinsing is a key factor. Due to the quality of finish required water quality of $< 50 \mu\text{S}/\text{cm}$ is needed at two of the rinse stages to ensure the treated products are suitably rinsed and ready for the next stage of production.

With this in mind, they approached Environmental Water Systems (UK) (EWS), a



**Rinse Water Recovery
DI Systems**

company they already worked with and had an excellent relationship with to come up with a solution.

“As a current customer of EWS we knew their work to be of a high standard and were confident they would be able to provide us with an excellent solution”. Martin Presley, Materials and IT Manager.

EWS had also been recommended to Williams and Oakey by one of their key suppliers who was aware that they had installed a Deioniser (DI) plant at another customer who had been very pleased with the equipment and service provided.

A number of options were considered to produce the quality of water required including Reverse



The process line at
Williams and Oakey

Making the Final Decision

Osmosis (RO) as well as Dionisation (De-I) plant. Eventually a DI plant was considered to be the best option, because it was the most cost effective, robust solution in a challenging environment. EWS then looked into a number of different DI solutions including an option for water recovery De - I which involved recovering the maximum volume of water, minimising new water costs and water wastage whilst maintaining the production process.

It was decided that a recovery De - I was the best option, offering a reduction in the amount of incoming towns water, minimising waste associated with regeneration, reducing chemical usage, offering the highest level of treated water quality and also providing significant operational cost savings.

Once all the elements of the new process line and water treatment plant had been confirmed, the next task was installing the new equipment with minimum of disruption to production.

A project programme of 8 weeks was decided. During this time chemicals were moved, tanks were replaced and new equipment installed, including the new finishing plant test lab area.

Throughout this operation the existing chrome process remained unaffected. Williams and Oakey Materials and IT Manager, Martin Presley brought the project in 1 week ahead of schedule and with only 5 hours loss of production. The project was a great success and Williams and Oakey now have a Chrome free pre-treatment process which fits with their obligations to environmental improvement and that of their clients.



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