

Jewel in the crown

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A split filling process on Crown Paints' new filling line helps to increase throughput compared to its old process.

Crown Paints' new high speed filling line is a source of pride and productivity finds Jane Gray

In November 2013, after an extensive technology scoping and selection process Crown Paints' Hull factory finally received its new high speed filling line, complemented by a fresh automated palletising cell and new pipes and pumps to hook the line into the paint manufacturing process.

Since then, crown has been processing short runs of paint on the line, testing it for quirks and faults and settling the ergonomics for production, change overs and maintenance.

Above and beyond

The £1.1m investment in the new high speed filling line at Crown has not been without its downsides from an employee perspective.

The significant consolidation of previous manufacturing capability in tandem with the automation of manual tasks on the filling line meant that Crown cut 60 jobs at the plant.

“Those job losses were very regrettable. Crown prides itself on its strong workforce retention and many instances of long service. We've got people who have worked here for 40 years – I've been here for 14 years so I'm merely an apprentice by company standards,” says Dave McCombe.

“Luckily we were able to deal with most of the redundancies through a very generous voluntary package. The handful compulsory redundancies were a handful too many, but it wasn’t as bad as it could have been.”

Remembering the management process for dealing with this unpleasant element of an investment which was otherwise all about optimism and ambition for the future, Mr McCombe says. “It was dealt with with great respect.

“After the initial investment and strategy announcement in December 2012 there was a 90 day consultation process and we met with trade union representative to meticulously explain the necessity of the investment.

“We also ran a number of fairly intimate meetings with the workforce – groups of 10 or 15 people where employees would not be so worried about putting their hand up to question an element of the strategy.”

This sensitive approach to the changes the new line was bringing on the business has paid off better than Crown could ever have hoped according to McCombe.

“I have been truly humbled by the response of the workforce to this project,” he says.

“We put the first batch through the line on 28th December last year. It was a really euphoric, air punching moment for everyone who had been working on the line,” McCombe reminisces.

“But what was even more amazing were all the people peering over the fence from other lines to see what was going on. Even the people who were due to leave the business were really interested,”

And since that first test batch, throughout the engineering and ergonomic tweaks made to the line to make work more comfortable, facilitate change overs and smooth out health and safety concerns, McCombe says that interest has only grown.

“People have responded positively because they really understand what this investment means for the future of the business. They understand that although they are losing their jobs, the investment will protect the business and the jobs of those who remain.”

“I never expected that,” admits McCombe. “I thought there would be an acceptance, but not an active interest. Once again, I have to say I have been humbled.”

Now, with the line fully operational, the firm is keen to shout about the benefits it is bringing, pay tribute to the hard work of the employees who have made that happen and explain how the investment plays to the purpose of Crown’s wider business and manufacturing strategy.

“We knew we needed to invest in new equipment to become more competitive and reduce our cost base while preparing to sell more paint in the future,” says manufacturing director Dave McCombe.

“It’s easy to just throw more volume into a plant and hope that will let you keep up with demand but we’ve got to look at our cost per litre at the same time.

“We also had an ageing plant and knew we wanted to replace a couple of lines that had come to the end of their natural life,” he continues.

“We could have replaced those lines like-for-like with modern equivalents of the same technology, but we decided it was the right moment to take a rationalised look at what good really looks like today – what technology is out there for our sector? How could we really push the envelope to find efficiencies and competitive advantage?”

Selection

Once this decision was made, Mr McCombe eagerly gathered a project team to review the technology landscape for filling, robotic palletising, conveying systems and paint transfer technology.

After an intensive search, Crown settled on three technology partners to supply different elements of the new system.

The first was **De Vree**, a Belgium filling technology specialist. The next was **Packland**, a Dutch robotics company who supplied the integrated palletising and weighing system and the third partner was **Zetes** which provided an inline pallet labelling and tracking system to aid further efficiencies downstream in distribution.

With these suppliers identified a volunteer team of engineers and employees was amassed to work on the project of developing a bespoke filling line.

Members of this team, including shop floor employees, travelled to supplier’ sites to test the feasibility of different technology elements in the line, checking for ergonomics and using their knowledge of Crown’s process quirks to ensure the kit would be appropriate, effective and efficient from both a product, space and worker perspective.

Benefits and bedding in

The line was brought into the factory in November 2013 and despite McCombe’s self-confessed fear that there had been a miscalculation in the size of the line compared to the dimensions of the Hull site, the line has freed up floor space and fits neatly in alongside the remaining older lines.

“When we went to see it set up and complete in Belgium it looked so big I was really worried there had been a miscommunication somewhere down the line,” recalls McCombe. “But in fact there is far more freedom for movement around the line than before and of course, long term, if we make similar space efficiencies with replacements for the other lines, we will be able to fit far more capacity into our current footprint.”

The new line has immediately brought 25% cost reduction for both electrical energy and compressed air and is estimated to have increased overall efficiency by as much as 75%.

A clever piece of automation which unstack paint containers as they enter the line has probably increased throughput by as much as 50% all on its own according to McCombe.

“De-nesting paint containers used to be a really time consuming, fiddly job for an unlucky member of staff,” he says. “De Vree’s automated solution which inverts the stack of containers, orientates the handles and unstacks before flipping the container back upright for the conveyor is a great innovation.

“It’s not only increased the efficiency of the filling line but also freed up a member of staff to do more valuable work – and made their day at work a lot more pleasant,” McCombe sums up.

Other small innovations which stack up to bring big benefits to Crown are the dual filling stations which allow two lines of containers to be filled simultaneously on the same line, and a segmented filling process which splits, for instance, a 10 litre filling process into batches of 3.33 litre fills. This allows for a much faster cycle time overall and also reduces splashing and waste.

There have been some bedding in issues for the line acknowledges McCombe, but he says this was expected and allowed for in a planned phase of fault finding.

One problem we immediately found was that our pallet labelling and tracking system was not working because the labels were falling off the pallets,” he says.

“We investigated whether the adhesive was not strong enough or if there was not enough pressure being applied by the labelling device, but that all seemed to be OK. In the end we found that it was because the pallets were often damp from being stored outside and so the adhesive – while technically suitable – was not working. We’ve switched to a stronger type now which can handle the residual dampness.”

Other issues cropped up as McCombe uncovered differences of opinion and expectation between UK health and safety standards and those of his European suppliers.

“They designed the line with the intention that an operator would have to cross over the conveyor by standing on small built in strips in order to complete their job,” he explains.

As an ex-health and safety manager McCombe states frankly, “I wasn’t at all happy about that. So we had this fabricated.” McCombe gestures to a simple metal walkway with steps, raised high enough to allow a maximum pallet stack to pass underneath.

Employee input has been essential in developing all these solutions and more says McCombe. “It’s those people who are closest to the process, who do the job every day, who will know best how it could be better,” he observes. “Then you just need to get the engineers to work out how to deliver what they want as a permanent solution – not a bodge.”

What’s next?

Now that the line is fully operational, McCombe says Crown will focus on seeking further efficiencies through speeding up change over times.

There are also plans to develop new working processes on the line and McCombe is looking forward to trialling new team structure whereby employees work in small autonomous business cells and are able to manage their own work planning.

As far as future manufacturing strategies and technology goes, McCombe says he has a weather eye on anything which will allow the plant to produce smaller, more flexible batches of colours and volumes. “The future is all about being able to be flexible in responding to more and more specific customer desires,” he concludes.