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Case Study
**Taking the Lean Journey -
Inventory reduction with IBC Blending**

Case Study

Taking the Lean Journey



Introduction

This case study looks at how a Lean manufacturing process was implemented using a Matcon IBC system.

Although the customer is a leading provider of speciality powders for the medical industry, the system implemented and the lessons learnt are widely applicable, even across the food sector.

The Inventory trap

At the time of contacting Matcon, the customer was utilising 12 ribbon blenders, ranging in size from 1400kg to 4500kg capacity. These blenders were then coupled (joined up) to feed directly to the packing lines.

They were finding that their product portfolio was increasing, with each product line moving towards smaller order sizes. It was becoming common to have a monthly order requirement, for a given product, of just 700kg or less. But with the existing large blenders they had to process larger quantities, so were building up an excessive amount of expensive finished goods inventory.

To make matters worse

Using this coupled system meant that there was also lots of time wasted in waiting for each step to complete before the next could begin. The main waiting points were:

- Blender loading time – this was labour intensive and averaged 120 minutes per batch.
- Quality Assurance – the blenders had to sit idle with blended material whilst the quality checks were performed, which could take 60-90 minutes each time.
- Packing directly from the blenders – the blenders had to sit inactive whilst material was packed-off down the line. This was another 150 minutes of idle time.
- Blender cleaning – once the whole batch was processed the blenders took a further 180 minutes to be cleaned.

The total cycle time was taking at least 8½ hours.

The Operations Manager sums up their Lean Journey with Matcon as:

'We had a great relationship with Matcon based upon their reliable equipment and top-notch support. The relationship has only strengthened since we implemented their Lean mixing solutions. They have truly helped us to reduce costs, achieve better profile margins and increase the level of customer satisfaction and confidence with our company'

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Decoupling for increased speed

Matcon was originally called in to provide an IBC system for transferring powders from mixing to packing. This decoupling produced a saving of 2½ hours per batch, as there was no more waiting at the mixer for the packing lines to complete their task. An additional benefit of the Matcon IBC System is that the unique Cone Valve technology within each IBC is ideal for coping with the powder itself, which is a dense hygroscopic product with a tendency to compact. The integral cone vibration helps to prevent bridging of material. Material discharge is also automatic and controlled without the risk of rat-holing or segregation of blend.

Improved OEE rates with Matcon IBC Blending

At a later date, the Matcon system was expanded to include IBC Blending. The powders are mixed within the IBC itself which means that there are no contact points on the Blender so changeovers are instantaneous.

As the IBCs are filled, discharged and cleaned 'off-line' it means the Blender can be used batch after batch without stopping, thereby maximising the overall equipment effectiveness (OEE).

The process benefits were substantial:

- Blender loading time was significantly decreased to minutes not hours.
- Actual blending time was quicker.
- Quality Assurance could be done off-line with no delay to blending.
- One IBC Blender replaced six 1400kg ribbon mixers and eliminated the need for the proposed building expansion.
- A second production shift was removed and 5 operators were reallocated to other tasks.
- The biggest benefit was the reduction in finished goods by over 45%.

Produce to order

Matcon has helped to achieve a key goal of Lean manufacturing – *only producing what has been sold*.

The reduction in inventory has improved the company's cash-flow which has meant they are able to invest in other process improvements. A half million dollar (USD) investment immediately resulted in inventory savings closer to a million dollars (USD). Return on investment (ROI) was weeks instead of years.

The problem:

- Inability to make to order, leading to producing extra to compensate
- Cash tied up in Inventory
- Long lead times
- Quality issues less visible
- Extra shifts & more production lines needed
- Increased storage & warehousing needed

The MATCON Solution:

- Make to order a reality
- Quick recipe changeover (SMED) with IBC Blending
- Easy to clean equipment – shorter cycle time
- No over-processing
- Dust containment reduces product waste
- Material handling expertise means no defects
- Less space & equipment & utility cost

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The Rewards: The IBC Blending system has generated an instant return on investment

Specific benefits include:

- ▶ Producing to order, not to stock
- ▶ Reduction in the finished goods by >45%
- ▶ Saving one operator shift per day
- ▶ Quality Assurance testing taken off-line
- ▶ 3 x more efficiency in mixing
- ▶ Improved cash-flow & better ROI