



Turning paper into steel

Case study #4

Progress
Engineering
Limited

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Bespoke machining
and fabrication

PEL's expertise transformed drawings and information into a very large, perfectly scaled, highly functional and hygienically finished reality for the processing of pharmaceutical products.



Kek-Gardner and PEL

Powder processing specialist Kek-Gardner supplies a complete range of mills, sifters, mixers and blenders, primarily meeting the needs of the food, pharmaceutical and chemical industries.

PEL has produced a number of these machines for Kek-Gardner, working to the company's excellent designs and specifications, in which high-quality welding and finishing are essential to hygiene.

The challenge

Often the designs are complex in structure, but in the case described here it was the sheer size that presented a challenge. For a customer in the pharmaceutical sector Kek-Gardner needed a set of mixing equipment that included a 4,200-litre double cone mill blender and a 2,500-litre Y cone. The design of the machinery, which incorporates a single central blade, is relatively simple but very effective.

The solution

PEL's first task was to study the engineering drawing and general assembly information, together with the health and safety requirements of the structure, and create flat-sheet profile drawings that would make the construction a practical possibility in stainless steel.

In machining the smaller components, particular accuracy was needed to ensure correct interaction between the trunnions and drive shafts. Positive tolerance in the gap size was just 0.02 mm, while no negative deviation from the specification could be permitted. The welding and the highly polished internal surfaces had to be totally free of cracks and crevices, to guarantee that not even micron-sized particles could remain as contaminants after flushing.

A go-ahead for the first set was given in September 2009 and the order was delivered within two months. In 2013 a second set was requested, but this time including a pressure sifter as well. Its construction involved machining after fabrication, making effective use of PEL's range of borers as well as similarly high levels of finishing.

"Just wanted to send a quick note of appreciation regarding delivery of successful FAT and shipment of the sifter and blenders to site last week. The double cone and Y cone blenders are now mounted in their new home and, pending qualification, should commence active service in September. Please pass on my thanks to the team at PEL for their concerted efforts in delivering the systems – it has been much appreciated."

From customer to Kek-Gardner

The results

"Ironing out any issues in a project's plan, so that it works in reality as well as on paper, is one of our key services," says PEL Managing Director David Cottam.

Kek-Gardner and PEL are currently working on several similar projects in the food & pharmaceutical sector for 2014.



Above: The scale of the fabrication is clear from this view of the double cone – seen here during production but before finishing.

Above right: Weld quality – butt welds with full dye pen testing were crucial.