

Dugard Delivers a 92% Performance Improvement for Merlin Engineering



If they ever decide to introduce an award for 'demonstrating extensive savings by utilising the capabilities of a new machine tool' - then the new Dugard HD1600 VMC installation at Merlin Engineering is likely to prove a prime contender for the Gold medal for delivering a 92% performance improvement!

By way of some background history on Bolton based business Merlin Engineering: it was formed as a family business way back in 1971 and over its subsequent 40 years it coped and adapted itself to its own fair share of industry ups-and-downs - just like everybody else in engineering had to. But even in the difficult economic climate that prevailed, 2010/11 brought about an unprecedented up-turn in fortunes for Merlin with them returning their best ever year. This encouraged them greatly and led to further recruitment and machine tool investment and one 'game-changing' investment in particular - was a new Dugard HD1600 VMC Machining Centre.

Merlin already boasted an extensive machine shop but they'd identified a need to invest in a heavy duty, high performing Machining Centre. The company's existing plant inventory already included an impressive:

- 14 x Vertical Machining Centres
- 5x CNC Lathes
- Guillotines
- Press Brakes
- a fairly unique aluminium welding facility.

As a direct result of the perceived quality of Merlin's service deliverables, Merlin found that demand from their customer base was ever-increasing thanks to their ability to deliver both complete machine builds and spares, successfully, efficiently and cost-effectively.

The major component of Merlin's business are the strategic partnerships it has formed with machinery OEMs. Companies within the UK, selling machines into the industry, utilise the precision engineering skills of Merlin to manufacture machinery to their drawing specification. Merlin supplies a complete solution to their customers; making machinery from start to finish, they source the material, machine all component parts, assemble the finished article and then test.

The machined parts involved in assemblies are mainly aluminium plates and blocks, along with stainless steel shafts - all of which could be catered for using the machine shops existing plant. It was when customers started to present more sizable and complex machine builds that Merlin decided their existing machining capacity, whilst capable, was probably not ideally suited.

Overseeing investment at Merlin Engineering MD, Tony Anderton explains how the New Dugard HD VMC transformed their milling capacity:

"Our machine shop handles most of our machining requirements successfully enough and it was only during a conversation with a Dugard application engineer that it was suggested potential savings could be made on some of our applications. For example, one assemblies main component was machined from flame-cut mild steel and we would typically machine these in batches of 10 for efficiency reasons. Using our existing Machining Centres we would use 4 x boxes of milling inserts to complete all of the machining on just one part and the whole machining process took 75 minutes.

When I was told that a new Dugard HD 1600 machining centre could potentially save 50% of the cycle time and significantly reduce our costs on milling inserts - I could readily see a quick payback on our investment. Additionally, I would gain an extra spindle at the same time that

would swallow up more work as our business continued to grow." The Dugard HD 1600 machine is a 20 tonne Machining Centre and this machine tool positions itself in a market-place with very little competition. With a working envelope of 1300mm in the X axis and 630mm in the Y axis, the machine is built on a cast base with a box guide-way construction. Designed for machining steel, the weight of this machining centre assists by dampening any vibration generated during the machining process which leads to far less wear and tear on the machine and the consumable tooling, in the long term saving time money. "Once the Machining Centre was installed we couldn't believe the difference it made to our production performance. We reduced the cycle time immediately on the flame-cut bodies to 5mins 36secs which represented a saving of almost 70 mins per unit or a 92% performance improvement. Equally impressively, we used less than one box of milling inserts. Needless to say, we are 'over the moon' with the Dugard HD 1600 Machining Centre's capabilities - that particular saving is huge.

Another part we put on the Dugard HD 1600 requires a 3 inch U drilling operation: on our 'old' plant we would suffer vibration under the stress of the cutting conditions whereas on the HD machine - the U drill goes through the steel like the proverbial knife through butter."

MD Tony Anderton concludes: ***"our business needs to respond dynamically to spares requests and new machine build needs from our customers and these requests can arrive at any time of the day or night. With that in mind, we need to ensure that we have invested in the best machinery for the job with a reliable company supporting it and Dugards have never let us down on either front. We have several of their machine tools already and I have no doubt in the future we will be buying more."***