



Blackmore Engineering

Productivity gains provided by VERICUT



User Story

With an impressive machine shop that equals many of the motorsport teams that it supplies, Blackmore Precision Engineering has invested in some of the very latest advanced manufacturing equipment to produce complex tight tolerance components of outstanding quality within demanding timescales. Helping the company achieve its promised delivery is VERICUT CNC simulation and optimisation software.

Kidlington-based Blackmore Precision Engineering's 12,000 ft² facility is equipped with a range of 5-axis CNC machining centres. They include three Matsuura MAM 72 machines each with 32 pallet stations, four DMG Mori DMU 50s some of which feature automated pallet changing and a DMU 70 for larger parts. The immaculate machine shop has grown and developed rapidly since Brendan Blackmore started the company back in 2005.



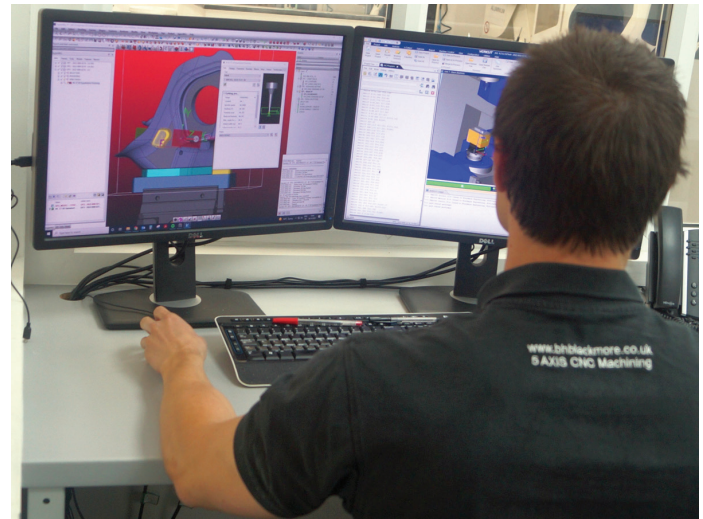
“Back then,” recalls Company Director, Jeremy Gray, “Brendan was based in a small unit where he used a machining centre and CAD/CAM software to successfully produce parts on a quick turnaround for Formula 1 teams and other motorsports customers. Due to high demand, additional staff and machine tools followed with a move to a larger unit before the relocation to our existing site in 2010.”



Bringing his general management experience to the company Jeremy joined Brendan, who still owns the business, in 2008. “Initially it was all about turning parts around very quickly, we were accustomed to having drawings sent to us on a Friday and having to supply parts on the Monday. We still do this today, but in addition we go through the rigorous inspection criteria that is required in every industry sector,” explains Jeremy.

Since the business made the decision to invest in VERICUT simulation and optimisation software from CGTech in early 2021, it has further improved the efficient turnaround of customer parts. Says Jeremy: “We had looked at VERICUT in the past, however when two new team members joined us, both of whom had prior experience with VERICUT we were persuaded that was the way forward.”

“From a business perspective investing in VERICUT has been very impressive right from the start. Obviously having team members who knew how to use VERICUT was a great help, but the whole CGTech team, from sales to training and subsequently holding our hand to really get everything in place very quickly, has been exceptional. Thanks should be given to the technical support as well for getting all our machines modelled and set up in the software.”



Lead CNC Programmer, Jan Plovucha, was a catalyst for the application of VERICUT at Blackmore Precision Engineering. For CAD/CAM the company uses Open Mind's HyperMILL software which has a direct interface with VERICUT to import all of the necessary detail including the Lang high pressure clamping system and zero point plates used across the shopfloor. The goal is to 'hit' the component in one using the experience of the programmers to achieve this.



He says: “We can rely on VERICUT so our prove out time has dropped dramatically. This is vital as we are running small batches of components with complex geometries, and we do not keep parts on file. Each job is treated as a new job, so every part gets the VERICUT treatment each time because it may not be run on the same machine or by the same machinist.”

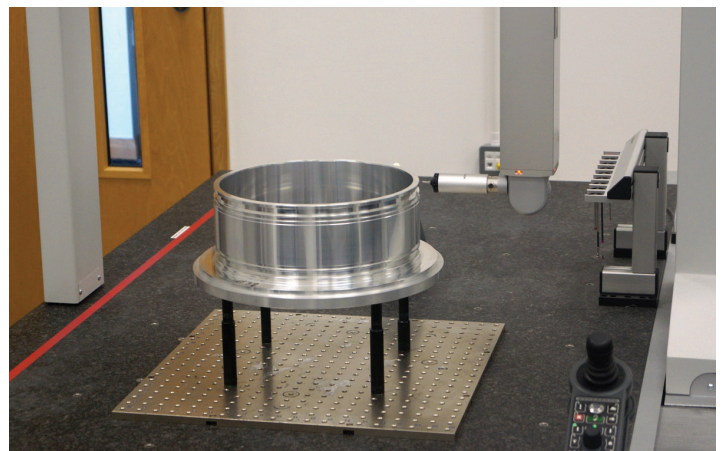
In fact, VERICUT substantiated its value on the very first week the software was in use as one job planned for a DMU 50 machine was highlighted by VERICUT as exceeding the limits of the machine tool. “Previously, the machine would have been set up with the tools and run until it encountered this issue. Then it would need to be broken down and reset on a different machine, losing time and possibly accuracy as we try to match the datum points,” Jan points out.

He continues: “We use the AUTODIFF module to check the parts for excess stock material and to eliminate gouging where the CAM program may want to go through the part stock material. VERICUT is so good we don't think about some of these problems anymore, and the technical support and training provided has been first class.”

At around 25% of the company's annual turnover motorsport is still an important market sector, but the business has broadened its customer base and diversified over the years. Many businesses supplying the various Formula 1 teams in the UK and beyond understand the cyclic nature of the industry, which has fantastic opportunities during the 'car build' that lasts for about 5 or 6 months. However, for the company to remain busy throughout the year requires demand from other industries.

Jeremy states: "We targeted work that matched our capabilities, and we now supply Rolls-Royce Aerospace, Jaguar, Bentley and many Tier 1 automotive companies. We also do a lot of scientific and instrumentation work, based here in Oxfordshire there are many start-up companies that come out of the University."

Metallic materials cut include aluminium, titanium and Inconel as well as mild and stainless steels, while engineering and glass filled plastics are also precision machined. Cycle times vary between 30 minutes for a simpler aluminium part to around 30 hours for a complex casing cut from titanium.



Volumes are never excessive although the automotive batches at up to 100 parts are much higher than those demanded by the motorsport's customers. "We may have suspension parts for Jaguar and they could be batches of around 70, but they also do a lot of special builds and vintage cars and that can be as low as batches of 10 or so. The work is certainly very interesting, and the rising demand of EV will bring lots of challenges but it is a big market going forward with lots of opportunities," Jeremy says.

He concludes: "We are hungry to get bigger and carry on varying the customer base to a level that we can still handle and give the service that people require. To do this we try to organise things really well, so everything is always available, like the consignment tools we hold here in a vending system. If you only have a few days to complete an order you don't want to spend an hour looking for a tool, so that is all part of what we do here. VERICUT has been an important link to allow us to deliver quickly when required, and always reliably. The software certainly has added benefits that we didn't consider beforehand."

<http://www.bhblackmore.co.uk/>

All photos courtesy of Blackmore Engineering