COMPANY
Husqvarna
LOCATION
County Durham, UK
SOFTWARE
Autodesk Fusion 360
Autodesk Moldflow
Autodesk Powershape
Autodesk PowerMill

Bringing machining in-house

"We can have total control in-house of that workflow from inquiry right through to production."

Gary Blenkinsopp
Technical & Tooling Manager
Husqvarna

How Cadline helped Husqvarna take control

Husqvarna is a Swedish manufacturer of outdoor power products including chainsaws, trimmers, brush cutters, cultivators, garden tractors, and robotic lawnmowers. Its UK headquarters are in Newton Aycliffe, County Durham. At any given time, Husqvarna has multiple high-value and technically complex projects running all over the world. It is critical, therefore, that it delivers these projects in a timely fashion. If it is late on one project, then there can be a domino effect, with the other projects behind impacted too.

Design and machining tools in place

Husqvarna uses Autodesk® PowerShape® CAD modelling software for manufacture which it also uses for viewing and interrogating the designs. In addition, Husqvarna has in place the full Autodesk® Moldflow® filling analysis for plastic injection moulding. It has also just upgraded and

implemented Autodesk® Fusion 360 with PowerMill® CNC machining software for manufacturing electrodes, turning modifications for manufacturing and engineering jigs and fixtures.

Gary Blenkinsopp, Technical & Tooling Manager at Husqvarna, said: “PowerMill is new for us. It is step on from the old-fashioned way of doing things where you work primarily with 2D drawings. Everything is now in 3D. We have one person who has recently joined the company who is experienced in Powermill and we have trained another two people up. We are keen to give them enough time on the software to become conversant with it.”

Husqvarna chose to work with Autodesk Platinum Partner, Cadline, to support it in using the Autodesk software and to provide training on the software. The challenge for Husqvarna was that historically it outsourced much of its tooling work to third parties, but it was running into delays with timelines not being met and the cost of outsourcing electrodes, including associated transport charges. All this meant Husqvarna was incurring significant expenses on an ongoing basis and the approach was also causing issues with project timelines. To address these concerns, it decided to invest in a Hurco VMX Series- 3 Axis Performance CNC Machine and to bring its tooling capabilities in-house.

Justin Barnes, Head of Digital Advanced Manufacturing at Cadline, said: “These machines cost hundreds of thousands of pounds and Husqvarna has made a sizeable upfront investment, but it knew the benefits of bringing the work inhouse, eliminating the costs of outsourcing and having enhanced control would more than counteract this. It now has design and programming software on site to create the tooling paths to cut these electrodes on its new machine, but it was lacking a post processor.”

“When you've designed your component, and then you've transferred that component into the CAM software, the post processor enables you to create cutter paths or tooling paths to then send to the machine. That’s where you need a post processor, to take the tool paths that you've created in the software and process them to allow you to read them into the machine.”

“But these post processors are complex and you have to write code for them,” added Barnes. “So you have to get the details of the machine, including what kind of controller is on the machine, whether it's a three-axis, three plus two axis or five-axis machine. You have to find out the limits of the machine and then you take all those variables and start creating a post processor from scratch for the machine. That’s the process we went through at Cadline to deliver this capability.”

Cadline visited Husqvarna’s Newton Aycliffe factory, tested and implemented the post processor on the new Husqvarna CNC machine and physically cut a component on it to prove it out and ensure there were no collisions or anomalies to worry about. Cadline also physically machined an electrode for Husqvarna and the whole process worked successfully. Husqvarna now wants to start designing those electrodes in-house with its new machine and will utilise PowerShape for this process.

Gauging the benefits

The use of Autodesk PowerMill itself brings a range of benefits to Husqvarna. The surface finish controls on the software are superb. Also, macros can be written and then batch processed for the components and the different variants of component, and then automated.

But beyond this, what are the benefits of Husqvarna doing a lot of the CNC work itself? According to Blenkinsopp, it comes down to time and cost. “We are limited in size in terms of what we can put on our machine,” he said. “Previously, if we had to send items out to the Midlands or to Yorkshire, for example, to be worked on, there would be a transport cost involved with it and sometimes a delay in getting the transport. This new approach, however, gives us the flexibility to pick and choose what we want to do.”

“If it is a quick turnaround, we can definitely opt to do it ourselves,” added Blenkinsopp. “We can have total control in-house of that workflow from inquiry right through to production. If there is a more complex, longer-term project, we can still subcontract it but that frees up our machine to do other work.”

Cadline’s Barnes added: “Moreover, as Husqvarna is doing much of its work in-house, it can engage with our support and consultancy teams. In other words, if they do have a problem, they can contact our support desk and one of our extended team will help and therefore minimise downtime for the machine.”

There are a range of other benefits. Husqvarna has 24-hour control over any changes it wishes to make. It is not dependent on another partner that might, for example, finish early on a Friday to create the electrodes. It can now produce the data for a solid model and the actual component but actually machine it as well.

The new approach also makes it possible to do offline programming. If Husqvarna has something on the machine it can start programming another electrode in-house – and that’s a great use of engineer time.

Looking ahead, Husqvarna is using Autodesk PowerMill extensively to machine components. It now wants to add to its capability by physically designing electrodes in-house. Today, Husqvarna has invested in the skills of its team through training and is committed to an ongoing programme of skill improvements to help them get the best from their Autodesk software. To further support the development of the team, Husqvarna can draw on the Advanced Manufacturing expertise and support at Cadline to help maximise the return on investment made in new machine tools and so make sure the future continues to look bright.