

'MANUFACTURERS NEED TO KNOW HOW THEY CAN BE MADE SMARTER'

CNC Robotics managing director Philippa Glover is not only leading the company, she is working closely with Made Smarter, Make UK and leading the drive for more manufacturers to automate their processes



SIMON KEEGAN

CNC Robotics is based in Aintree, within the Liverpool City Region, and specialises in customising robots that can then be used for cutting processes.

The method is a kind of reverse 3D printing – instead of scanning an image and then building a copy of it from nothing, it is 'subtractive' – it starts with the material and then cuts bits away. If 3D printing can be compared with an artist working with clay, then subtractive work is closer to a sculpture chiselling a shape into a raw block.

And that's how the company began, with the need to create artistic products. In 2008 Jason Barker was looking for a low-cost way to machine parts for the theatre and film industry. He already had a company that was making sets, based on his background as a trained classical sculptor/artist.

According to managing director Philippa Glover, Barker was "an engineer by mind" so he started looking at whether he could use a robot to machine those parts.

She explains: "He bought a robot, put a high-speed spindle on it, and started to do some experiments to see if you could turn a robot into a milling machine. He was

doing that in addition to his business, to prove it was a concept that worked, then decided he really enjoyed it. He sold his previous business and CNC [Computer Numerical Control] Robotics was born."

Barker worked with a number of different robot manufacturers ➤



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to prove out the concept before forming a key relationship with Kuka.

Computer numerical control (CNC) machining is a manufacturing process in which pre-programmed computer software dictates the movement of factory tools and machinery. Glover says: "Working with Kuka we were selling systems. We found early on there was quite a lot of demand overseas. The UK may not have been ready."

Ten years ago, the number of robots deployed was significantly lower than where we are today. Glover says: "I joined the business in 2018 and wanted to focus on the UK market and say 'what we are really good at is designing and building robotic systems for advanced machining applications and we are going to build a solid foundation in the UK and focus on the UK market and educate people on the benefits of robotic machining'."

In the early days there wasn't any software that allowed you to drive robots for machining. "A bit like teaming up with the robot manufacturers, Jason started working with a software manufacturer," Glover says.

She explains: "We worked with a company called Delcam which is now Autodesk, which developed a software called Powermill – it's used in the majority of machines we design and develop. That derives the tool paths. It will tell the robot and spindle where it's going."

So if, for example, Tesla approached CNC Robotics and said "we have a new spoiler that we'd like to machine" how would CNC approach the challenge?

Glover says: "We provide turnkey solutions. So in that example, Tesla would

come to us with a challenge. They might say we are trying to make this part. We wouldn't necessarily say this is the robot, we will design the whole machine that enables you to produce that part. We'd look at everything from the safety and electricals as well as the robot. We look at the total solution. Yes we are a robotic integrator, but we are a machine builder."

The sky is the limit for CNC Robotics which has already entered the space sector. Glover says: "We are now sector agnostic. We still work in creative arts, education and universities, the defence industry, space, electric vehicles, marine. It's really quite diverse. We provide specialist hardware to the space sector. We have a client in the States we work with on that."

Glover is a chemist by trade, studying at Sheffield University. She developed a taste for manufacturing before she even left school. She recalls: "I had the type of dad that said if you want some money you have to earn it. I was 14, I went to a locally owned SME that tested concrete and another – Croda Chemicals. I did some cleaning and a bit of filing but I got to see the workings of a business."

Now Glover plays a key role in the wider manufacturing community. She says: "We work closely with Liverpool City Region, not only as an SME, but also through some of their support. Madina Barker, who co-owns CNC Robotics with her husband, sits on the Making It board, the advanced manufacturing board, a team of local business owners. We play quite an active role within that."

"We also work with the city region to promote the opportunities that are ➤



One of Kuka's industrial robots

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available. Not only for the business but for the young people who are based here. Last year we received some funding from the Future Innovation Fund project to help us further develop a specific product."

She says the company wants to grow from making individual robots for specific projects to having more "off-the-shelf products".

Glover says: "As a company pretty much everything we do is bespoke. So the challenge is, how do you scale that? Through that innovation funding we were able to create a specific demonstrator and part of our product launch in Q1, as we move more from bespoke to being product-led.

"We also have an installation going in to the Advanced Manufacturing Research Centre [AMRC]."

The Liverpool City Region has a programme called Be a Better Business, a funded support to help companies look at their business strategy and adopt best practice. Glover is hopeful to access this scheme. She says: "We are kicking off a project in Q1 looking at our workshop and warehouse and how to optimise the value and throughput."

This month, a group of manufacturers (see page 20) discussed the problems with attracting the right skills. Is this because manufacturing and academia speak a different language? One from Mars one from Venus?

Glover says: "I would challenge that. In 2021 we became enterprise partners of the University of Liverpool Business School. Yes, it's academia but it's been invaluable to access high-calibre talent at under-graduate and post-doctorate level to undertake research for me. Two individuals in particular did a strategic review on our opportunities. It was really accessible.

"The universities have to do more but SMEs have to do more to find that common ground. I do quite a bit with the Business School and we are working with them again on the We Can Work It Out Challenge. You have a cohort of young people work on a specific business problem for you. They are brilliant. The last time we did it we absolutely loved them and we ended up with two interns working for us. We also work with the universities of Huddersfield and Sheffield."

CNC Robotics is currently a team of 20 turning over £2m. Glover says it is on the cusp of further growth. She adds: "Our



"We have to go into schools and tell them why it's so bloody cool to work in manufacturing."

market is growing. It is driven by the use of composite materials. As manufacturers look at how we make products more sustainable, they are looking at composite materials and light-weighting."

There is "absolutely" going to be more adoption of robotics, explains Glover, therefore it is vital to educate people on "how robotics really are".

"They are not something to be afraid of and are easy to understand," she says. "While also helping those using new materials understand how they can use them in the smartest manner – sustainable and efficient.

"The robots can be used with 3D printers so instead of having a spindle on the end of the robot you would have a 3D printing head. We are currently working with a company in Lancashire that's a distributor for a Spanish brand of 3D printer. We export to the States. I've just taken part in a DIT event linked to India. There are manufacturers over there that specifically wanted to speak to CNC Robotics."

Barry Leahey, managing director of Playdale playgrounds, and Glover have just become vice-chair and chair of Make UK's advisory board in the North West.

She says: "Over the course of the next few months we are really going to be working with manufacturers in the North West in terms of what the roadmap looks like for the years ahead, and really supporting manufacturers here.

"We joined Make UK as a 12-person SME. We hadn't had any benefit from previous trade associations, but with Make UK, straight away I was networked with a very strong peer group of exceptional leaders."

And what does Glover think manufacturers need to do to progress? "We need to be louder about the activities that happen. Made Smarter is great but a lot of manufacturers still don't know about it."

She says she is also excited about the new AMPI institute in Rochdale. The Advanced Machinery & Productivity Institute is set to arrive in the town after an NPL-led consortium secured £22.6m in funding for a five-year innovation initiative.

Reflecting on her start in the industry and now as a company leader herself, she says: "I was given opportunities, and now I think we have to pay it forward, we have to go into schools and tell them why it's so bloody cool to work in manufacturing." ■