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CASE STUDY

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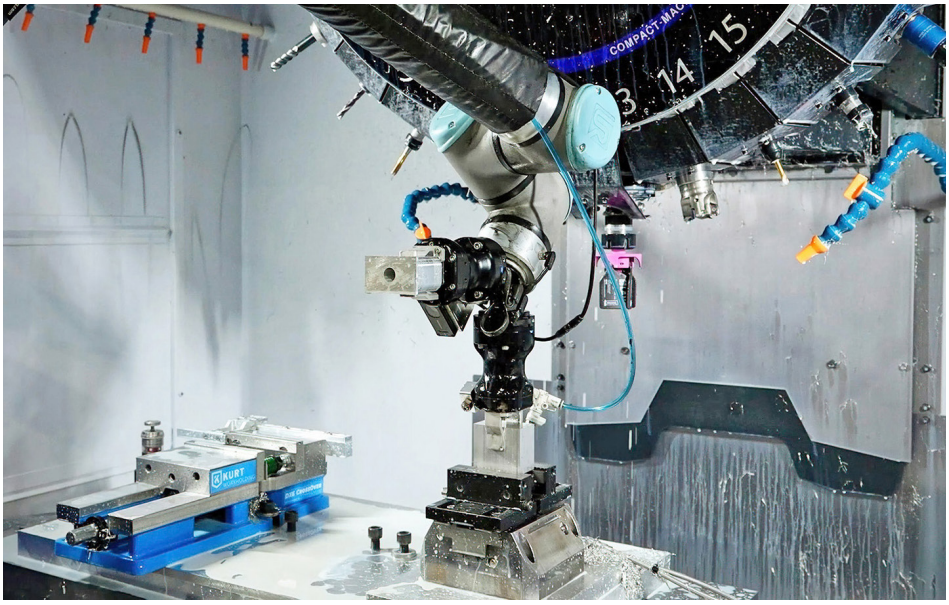
SUBCONTRACTOR INSTALLS LARGE-CAPACITY 30-TAPER MACHINING CENTRE

Contract machining firm ALM Engineering Solutions has strengthened its capacity and expanded its automation-driven production following investment in a Japanese-built Brother Speedio W1000Xd2 machining centre. Supplied by UK and Ireland sales and service agent Whitehouse Machine Tools, the 3-axis machine was installed at the subcontractor's Newton Aycliffe facility at the end of 2025 to enhance the company's production capability, flexibility and lights-out manufacturing.

Established 31 years ago, ALM supplies machined components and assemblies to a broad range of OEM customers. It has built a loyal user base across diverse sectors, including manufacturers of air filtration systems often destined for the medical sector, and producers of nitrogen and hydrogen gas generation equipment, with hydrogen applications currently experiencing strong growth as part of the transition to green energy.

The company's reach also extends into the entertainment industry, supporting large-scale concert infrastructure for global artists such as the Rolling Stones and Lady Gaga; and it also produces its own robotic tooling, assembly-line equipment and architectural hardware.

The decision to invest in the Brother machine was driven primarily by capacity constraints. Managing director Tony Thompson explained: "One of the main attractions of the Speedio was the size of the bed, as



we were previously limited by our existing machines, which have a maximum of 700 mm in the X-axis."

The Speedio's one-metre table has enabled the company to take on larger components and improve throughput, particularly when combined with the machine's wide range of machining capabilities. Despite its large working envelope, the Speedio with its compact footprint fitted neatly into ALM's 14,000 sq ft facility, where space utilisation is important.

The machine has been integrated seamlessly into a densely populated shop floor, supporting a high output of components and efficient material handling using pallet trucks. The company's ability to manufacture tooling in-house has significantly enhanced responsiveness to customer demand by reducing reliance on third-party suppliers.

A key differentiator of ALM's operation is the use of its own collaborative robots, branded Cobots Online. The Speedio is paired with one of the mobile cobots developed in-house, joining a population of seven such cobots deployed across the factory floor. The systems are designed for rapid deployment, with the ability to be moved between machines and set up within minutes.

Featuring quick-change tooling, integrated hydraulics, and simple connectivity via a 13-amp supply, ethernet connection to the machine and an air supply, the cobots can be easily repositioned or removed entirely if manual machining is required. All operators are trained to program and use the systems, eliminating the need for dedicated automation specialists.

The integration of cobot automation with the Speedio has delivered a step-change in productivity: "It's massive really, giving us 24/7 flexibility," said Mr Thompson. "We don't need to ask our staff to work all over the weekends. We have someone come in on Saturday morning and then later in the afternoon and the machine runs unattended all day."

This approach allows the company to scale production up or down rapidly in response to fluctuating demand, moving from a standard two-shift pattern to continuous operation when required. As a result, ALM reports that overall production capacity has increased by nearly 50% over the past two years since the holistic adoption of automation, without any increase in headcount.

The Speedio itself has proven straightforward to use, despite representing a departure from the subcontractor's previous reliance on largely Fanuc-controlled machines. Equipped with Brother's proprietary CNC-D00 control, the latest machine was quickly brought into production following training from Whitehouse Machine Tools. Operators were able to transition rapidly, enabling immediate utilisation, including out-of-hours running.

The machine's performance has been a key factor in maximising profitability in a competitive subcontract market. The BT30 tooling, 16,000 rpm, high-torque, face-and-taper-contact spindle, rapid traverse rates of 56 m/min and cutting speeds up to 30 m/min allow ALM to push productivity

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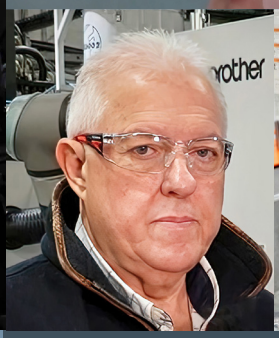

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limits. Recent applications have included tapping M3 blind holes at 4,000 rpm, demonstrating the machine's high speed and precision in demanding tasks.

The flexibility offered by combining a large-bed with automated handling has enabled ALM to accommodate a wide mix of work, from small batches of components to large, more complex parts. This aligns with the company's strategy of offering a comprehensive manufacturing service, including machining, assembly and finishing processes such as powder coating.

Mr Thompson is clear about the impact of automation within his business and the wider SME manufacturing community. When asked whether he would recommend automation, he replied: "Massively. The biggest barrier to automation is that people think it is only for big manufacturing companies producing parts in high volumes.

"However, the reality is that if you have a job that runs for maybe two hours, it makes sense to introduce a cobot to handle it, especially if repeat orders come in regularly, as the program can be reused." He added that even small batch work can benefit, as operators are able to set up automated runs in minutes before moving on to other tasks, essentially doubling machine output, even in single-shift environments.

Looking ahead, the positive experience with both the Speedio and Whitehouse Machine Tools is set to influence future investment decisions. Mr Thompson commented, "I am really happy with the machine and with the service that we've received, as well as the support in getting the machine up and running."

The investment in the Brother Speedio W1000Xd2 highlights how strategic machine tool acquisition, when combined with intelligent automation, can unlock significant gains in productivity, flexibility and competitiveness for modern subcontract manufacturers.

ALM will be showcasing its approach to flexible, automated manufacturing at MACH 2026 in Birmingham, where visitors to its Cobots Online stand, number 20-280, will see a live machining demonstration on a Brother machining centre with integrated cobot technology. It will be displayed alongside robotic welding solutions and autonomous mobile robots designed to streamline factory logistics.

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