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Based in Wetherby, West Yorkshire the company serves 13 countries across Europe and has over 400 regular customers employing its services. Although recycling is the very basis of its roots, the NTR Team is also a true precision engineering company with decades of experience in new tooling design, prototyping and manufacture.

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New dawn for Sandvik Coromant UK

Steed Webzell reports

Sandvik Coromant is an integral part of the UK's machining and metal-cutting offer. Fitting then, that this prominent cutting tool manufacturer located its latest 'Sandvik Coromant Centre' in Halesowen, the company's long-standing UK home.

To outline the significance of this move it is worthwhile recounting the history of this progressive tooling specialist. The Sweden-headquartered company appointed its first overseas sales agency in 1871, in London, UK. The first subsidiary arrived in 1914 at Easy Row, Birmingham, highlighting company links with the Midlands that extend back over a century. Rapid growth followed through to the establishment of Sandvik Coromant in 1942, heralding the introduction of cemented carbide products to the company's manufacturing programme. In 1958 the business moved to Manor Way, Halesowen, where it remains to this day, albeit in a brand-new structure.

£350m turnover

"Today, Sandvik employs over 1,000 people across 12 sites in the UK, generating a UK group turnover of £350 million," stated David Harbon, sales director UK & Ireland, at the inauguration. "Our Sandvik Coromant Centre in Halesowen is a new milestone in keeping with the company's heritage."

The purpose-built facility includes an 18,015 ft^2 innovation centre that will act as a national hub for metal-cutting expertise. As home to the company's UK headquarters, the site also houses flexible, hot-desking space for 100 office-based workers.

Notably, the build benefitted from the support of a £5 million investment by the West Midlands Combined Authority (WMCA). Although the journey from old building to new did not take long in terms of distance, it has taken time to reach fruition, as Kim Olander, marketing manager UK & Ireland, explained at the event: "The project started in March 2017 and went through a number of viability options, but our heart was always set on remaining in Halesowen and, somehow, at this address. "We gained board approval in November 2018, but didn't break ground until 2021 due to lengthy due diligence and the arrival of the pandemic, which tested the project to its extreme. We began moving to the new building in September 2022 and it has taken until now to get everything complete and stage our inauguration day."

The old buildings next door are in the process of demolition. Once cleared, the land will become part of a housing redevelopment project, subject to planning permission.

OEM mass

Sandvik Coromant Centres are located in places where the company has the biggest concentration of existing and potential business. Surrounded by a mass of OEMs and supply chain firms, the West Midlands is the UK's most active manufacturing cluster, supporting a high percentage of the country's advanced engineering workforce.

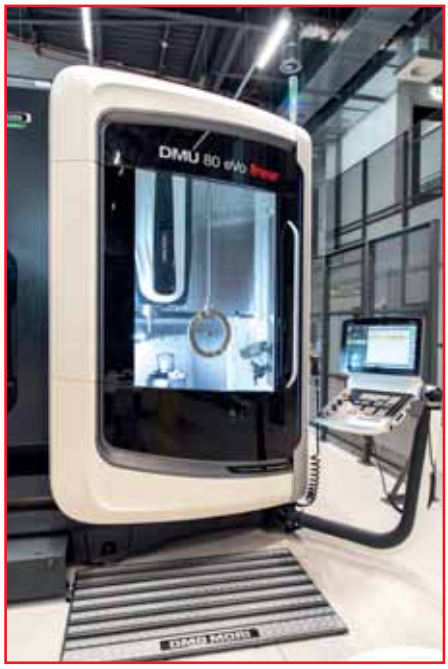
So, what actually goes on at a Sandvik Coromant Centre? Who better to provide the explanation than Michael Eneberg, vice president and head of global sales & marketing, who is responsible for all such facilities around the world. "We conduct a number of activities here," he said, "including the upskilling and training of customers, as well as our own staff. Halesowen also helps tool new machines 'right from the start'. We often work with customers at component design stage so we can begin thinking about tooling solutions that will deliver cost-efficient and effective machining from the outset. This facility will support those projects and verify solution proposals. Furthermore, our new Sandvik Coromant Centre will provide 'total solutions' as we continue expanding into areas where customers need support. Here, our recent acquisitions of partner companies such as Mastercam and CGTech, provide great synergy."

DLM

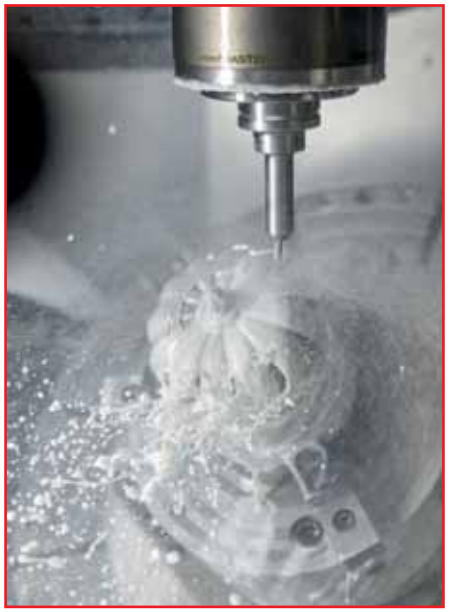
Among the notable capabilities of the new Halesowen facility is Digital Live Machining (DLM).

"DLM provides the ability to broadcast training or a customer project live to viewers wherever they are around the world," explained Paul Campbell, who is both training manager and overall manager of the Sandvik Coromant Centre in Halesowen. "Online participants see live images from inside the machine, showing metal cutting in real time. We also have external cameras so those online can engage in live dialogue with our team. Additionally, we can ask global Sandvik Coromant specialists from around the world to join DLM. It's a very powerful offer."

At the official opening, the company staged an impressive demonstration of DLM using a DMG MORI DMU 80 eVo Linear 5-axis simultaneous machining centre. The machine was in cutting action producing an ornate crown from solid stainless steel in tribute to



the recent coronation of King Charles III. Screens across the Sandvik Coromant Centre shared what was taking place in the cutting zone.



Another impressive machine tool, a Mazak Integrex i-200S AG hybrid multi-tasking machine, was busy producing a complex shaft component for an aerospace project. Both machines, known as education stations, are equipped for tooling demonstrations, applications training and engineering projects.

Fast pace

Magnus Ekbäck, vice president strategy & business development, was keen to point out that manufacturing is currently a fast-moving environment due to emerging factors such as digitalisation, automation, sustainability, demographic changes and eco-systems: "Today, digitalisation is underpinning a lot of activities, including the emergence of a digital-twin environment, where customers at design stage can visualise, estimate and predict the performance of a component," he said. "There's also a link between digitalisation and automation because one of the principles of Industry 4.0 is the automation of data within system platforms. Physical automation is growing too. We see all the major machine tool builders developing new solutions and concepts to eliminate operators through automatic workpiece handling and tool-change solutions, for example."

Sandvik Coromant also has sustainability as part of its core business strategy and is whole-heartedly committed to the UN's Sustainable Development Goals. In addition, the company has joined the Science-Based Targets initiative and is a firm exponent of economic circularity.

"We continue to develop solutions for customers that help them understand their carbon footprint and reduce it," said Magnus Ekbäck. "We also work to improve our own operations. This year we reached more than 80 percent circularity in production, supporting a reduction in CO_2 emissions of 50 percent since 2019."

The new Sandvik Coromant Centre at Halesowen follows suite with its eco-conscious design. Key features include solar panels, a rainwater harvesting system and 26 Electric Vehicle (EV) charging points, leading to sustainability credentials that include BREEAM 'Very Good' and an EPC A-rating.

Skills gap

Regarding demographic changes, Magnus Ekbäck said that customers and partners are constantly expressing difficulty in recruiting skilled personnel: "The post-war generation has retired and we haven't attracted enough young people to replace them," he stated. "It's a big issue, but also an opportunity. At Sandvik Coromant we inherently have incredibly rich machining knowledge. We can help plug the skills gap if we can develop and find additional ways and channels to impart the information."

His final point centred on eco-systems: "It's becoming very evident today that tooling and machining data is no longer enough for many customers, they want total solutions," he said. "As a result, we have to find partners and interface with their technologies so we can give customers more holistic and comprehensive solutions. That is part of the future we are heading towards and I'm sure our new Sandvik Coromant Center at Halesowen will see many collaborative projects moving forward."

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ETG Introduces Axile brand to the UK and Ireland

As a leading UK supplier of high-technology machine tools, the Engineering Technology Group (ETG) has now expanded its portfolio with the addition of the AXILE brand of machine tools. Entering an agreement with AXILE, ETG is now the exclusive UK and Ireland technology partner for the brand that manufactures high-end 5-axis vertical machining centres, mill/turn centres and heavy-duty double-column machining centres covering a large spectrum of sizes going from 200 up to 1,200 mm table diameter.

The AXILE brand is renowned in the industry for its unsurpassed performance levels, robust and rigid build quality, integration with automation solutions and its Industry 4.0 technology. The digital platform from AXILE is undoubtedly a system that demonstrates how technologically advanced the brand is. Its ART™ Monitoring System delivers agile smart machining that enables 24/7 automated production and allows operators and key decision makers to digitally manage processes by monitoring all wear components, energy consumption and fluids such as lubricant and coolant, supplying real-time status updates on the machine and its components. AXILE's ART empowers manufacturers to make informed decisions, optimising operations and greatly improving production efficiency. The ART Interface is available with remote access and usable with any portable devices such as laptop, tablets and mobile phones.

From a machine perspective, ETG will be introducing the AXILE G Series of premium gantry-type vertical machining centres and the DC series of double-column full 5-axis vertical machining centres that demonstrate maximum rigidity for heavy-duty cutting of lengthy workpieces. The G Series is currently available in two models, the G6 and the G8. There is also a complete range of options available for mill/turn machining with the MT versions of the machines.

Commenting upon the introduction of the AXILE brand, ETG's group managing director Martin Doyle says: "The opportunity to represent the AXILE brand in the UK & Ireland will hugely benefit both parties. AXILE will yield greater market exposure through our sales and distribution channels while having confidence that the ETG service network, which is second to none in the UK, will fully support customers. From an ETG perspective, the AXILE brand and its G and DC Series perfectly complement our existing product lines by filling niche areas in our expansive portfolio. The build quality and performance are exemplary and the digitisation technology available through the ART Monitoring System is undoubtedly unique in what it can offer. Our team is excited to embark on this journey with AXILE."

Founder and President of AXILE, Dr Paul Chang, adds: "We are delighted to announce our partnership with the Engineering Technology Group, a renowned machine tool dealer in the UK and Ireland who are renowned for their extensive experience and loyal customer base. The expertise of the Engineering Technology Group in delivering highly knowledgeable and technically competent sales strategies, along with their exceptional aftersales service and support team, played a significant role in our decision to appoint them as our valuable partner.

"Additionally, we are confident that the integration of our Industry 4.0 technology and our strong focus on digitally advanced machine tool configurations will greatly enhance Engineering Technology Group's portfolio, presenting an incredible opportunity for customers to explore how AXILE solutions can assist them in their essential digital transformation efforts, addressing the challenges of ESG sustainability."

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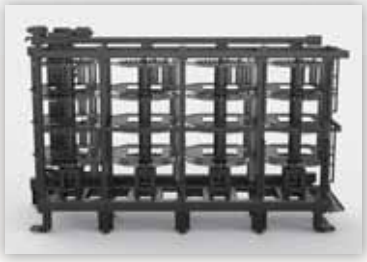

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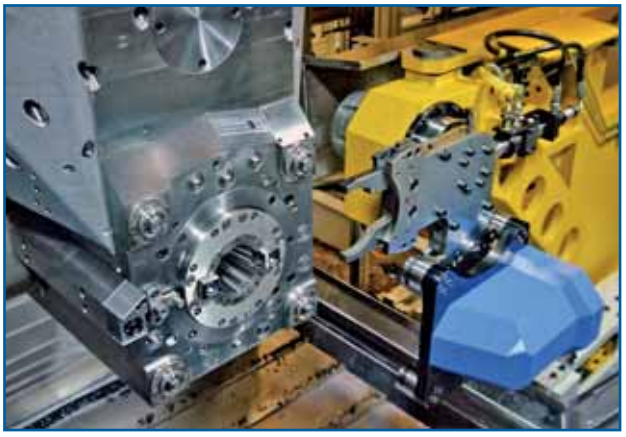
Novel system for heavy-duty mill-turning on multi-tasking machining centres

German manufacturer develops ingenious method for relieving the spindle bearings from radial and axial forces when turning operations are in progress on its machining centres. The system provides further spindle protection by supporting heavy driven tools

During metalcutting, the bearings in a machining centre spindle are subjected to a load from the side and another along the spindle axis, as well as resonance from the cutting process. While the spindle is rotating, the effects of these loads are dissipated across each ball or roller bearing within the spindle assembly. However, when the spindle is static, for example when it is holding a turning tool, the loads and vibrations can cause premature wear and eventually lead to expensive repair or replacement.

Mindful of this, Burkhardt + Weber (B+W) has introduced a hydraulically-actuated, four-point clamping system on the spindle head of its heavy-duty, multi-tasking machines for use during turning operations. It eliminates both the radial and axial forces on the spindle, the former being particularly damaging and prevalent during facing operations or when grooving or profiling a bore. The result is minimal spindle wear during high accuracy mill-turning of components in a single setup.

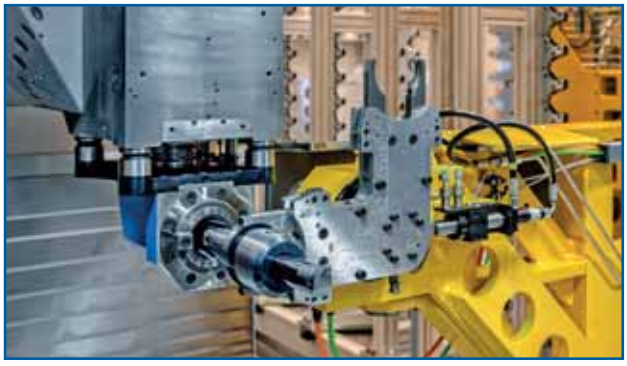
The sole sales and service agent for B+W machines in Britain, Ireland and the Gulf, Kingsbury, has put together a PowerPoint presentation outlining how the system works, a copy of which is available on request. Meanwhile, a video is available to view at: ***www.kingsburyuk.com/video/burkhardtweber-mct-1000***. The content is based on a 5-axis, twin-pallet MCT1000 horizontal-spindle, universal machining centre with 2,200 x 1,400 x 1,800 mm working volume. The fourth CNC axis is an infinitely-adjustable, ± 225° swivelling head rotating about a 45° plane and containing a 41 kW/8,000 rpm/1,400 Nm spindle, while a 300 rpm torque table provides the fifth CNC axis.



Multi-tasking on a milling/drilling centre by turning a component on the rotary table with a static turning tool clamped in the spindle in a single setup is commonplace, but most configurations on the market tend to be based on light- to medium-sized platforms. With the B+W solution, similar technology is available to address one-hit production applications involving much more rigorous machining of larger components made of tougher materials.

Before the turning element of a machining cycle commences, a customisable tool holder plate with a large, 160 mm diameter contact area is transported by the Automatic Tool Changer (ATC) to the four-point clamping system on the front of the spindle head, where the holder is hydraulically retained. The coupling area is thoroughly cleaned with coolant and air before final engagement. As the entire process is autonomous, there is no operator intervention or interruption to the production cycle.

Manufactured in-house at the machine tool manufacturer's Reutlingen factory, the rigid holder provides full support of static turning tools, absorbing the radial and axial machining loads that would normally be placed on the spindle bearings and transmitting them into the much more robust spindle head structure. Turning cutters are exchanged automatically from the magazine into the adapter in the holder plate using the same ATC, as the identical HSK-A100, SK50 or CAT50 back-end is used for the turning toolholders as for prismatic machining. Even when clamping very long turning tools, the holder plate ensures a rigid tool interface. All operations are fully integrated into the Siemens Sinumerik 840D sl control.



Alternatively, an adapter plate may be similarly delivered by the ATC and clamped hydraulically to the spindle head using the same four-point mechanism.

It takes all the weight of a heavy angle head, boring bar, NC facing head or other driven tool needed to carry out special machining operations like drilling multiple or awkwardly positioned holes, facing, grooving, profiling features such as a stepped bore, or turning an internal or external taper or sphere. As the spindle is not subject to excessive moments of force by having to support large cutters, the bearings are protected and are subject to less wear. A three-point clamping system is alternatively available if the tools to be supported are lighter.

As an option, a tool extension unit can be automatically exchanged into the spindle to extend the reach of short cutters, minimising the number of long tools in the magazine that may be needed for certain applications.

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Ultra-high surface quality and short cutting cycles secure machining centre sale

Installation of a Roeders 5-axis machining centre at Circle GmbH in Weilmünster, Germany, has transformed the engineering service provider's ability to deliver machined prototypes and small batches of components in short lead times. Roeders machines are available in the UK and Ireland through sole sales and service agent Hurco Europe

Circle started out in 1998 as a design service provider, initially to the automotive industry and subsequently to the medical, aerospace, optical and other industries. Customers asked mainly for 3D-printed samples, which were sourced from third parties that used stereolithography or selective laser sintering.

In 2007, the company's first milling machine was installed for producing subtractively-machined samples of metal parts, mostly of aluminium but also of steel, stainless steel and titanium. This service has been expanded consistently and the company now has three milling centres and four lathes, including a turn-mill centre. In addition, injection moulding machines and equipment for vibratory finishing and shot blasting are in use.

Dipl-Ing Heiko Legner, managing director of Circle comments: "Our speciality is the production of very high quality, complex, demanding turned and milled parts to tight tolerances in quite small quantities.

"Examples are components for luxury cars and aircraft interiors in first-class areas, as well as for medical apparatus and high-end measuring systems."

Engineering expertise is provided by Circle prior to production of a part. Everything is scrutinised, from the computer-aided design file supplied by the customer through workholding and machining strategies to identifying cutters that can be used to achieve a certain surface quality. Circle engineers help to achieve optimal results, technically as well as economically. Customers appreciate the advantages of this overall package.

Many of the products Circle manufactures have to meet exceptionally high demands in terms of surface quality, not only across flat and freeform areas but also at transitions after a tool change or workpiece reclamping. So when the procurement of another machining centre was due in 2021, these criteria figured prominently in the list of requirements.

The visual quality of the surfaces after machining was important, but it was also crucial that no witness marks should be visible after anodising. With the machines in operation at the time at the

Weilmünster factory, it was often necessary to polish for up to three days after completion of milling to ensure acceptable results for a customer.

In its search for a new machining centre, Circle looked at numerous manufacturers. The number of candidates was initially narrowed down to seven and finally to a shortlist of three, including Roeders. All were asked to produce a test part from free issue material to Circle's precise specifications, which included the NC program and tools. For the production of a second workpiece, the machine manufacturers were invited to attempt a fast cycle time and achieve a high-quality result using their own software and tools.

Nikolaj Sterzer, production manager at Circle says: "After Roeders had produced by far the best result in terms of surface quality in these trials, we evaluated the machine's endurance at the manufacturer's premises in Soltau.

"It underwent a period of extremely hard roughing using a 16 mm milling cutter and also passed this test well. At the same time, we were able to establish which of the spindle options best suited our requirements."

The Roeders RXP 601 DSH trunnion-type, 5-axis machining centre has been in operation at the Weilmünster facility since April 2022. Nikolaj Sterzer confirms that installation and training went smoothly and the subsequent telephone hotline support has been exemplary.

He has had no problems with the new control system and found that it offers many interesting options. For example, dripping of coolant from cutters, which can interfere with in-process measurement, may be prevented using specific commands.

Dipl-Ing Heiko Legner summarises: "We have seen cycle time savings of up to 25 percent using the Roeders machining centre and surface quality is so good after milling that manual finishing is greatly reduced. The benefits are most noticeable at transitions and on freeform surfaces. Another important factor is the quality of the machine manufacturer's after-sales service."

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Two new entry-level lathes from DMG MORI

A pair of competitively priced CNC turning centres, T1 and T2, has been launched by DMG MORI aimed at the entry-level market. Both machines have a 12-station turret, with VDI 30 tooling on the smaller lathe and VDI 40 on the larger model. They are available as 2-axis lathes and in 3-axis configuration with a C-axis spindle and driven tools.

The T1 has an 11.7 kW, 4,500 rpm, 140 Nm spindle and an 8-inch chuck whereas the T2 is powered by a 19.5 kW, 3,500 rpm, 319 Nm spindle and has a 10-inch chuck, bar capacities being 65 mm and 80 mm diameter. X-axis stroke is 232 mm and 300 mm respectively and the Z-axis figures are 410 mm and 730 mm. The lathes are highly productive; the T1, for example, is able to achieve a best-in-class depth of cut of 4 mm in carbon steel at a cutting speed of 240 m/min.

A robust machine bed and linear guideways in all axes ensure dynamic and accurate turning. Both lathes are fitted with a linear scale for feeding back the X-axis position to the Siemens Sinumeric One control, which has touch-screen data input and ShopTurn programming. The machines are pre-equipped with IoTconnector networking for integrating them into a digitalised manufacturing environment.

Each turning centre is available in three versions, Complete, Plus and Pro, to suit the user's production requirements. Both lathe types have been added to the range of machines offered under DMG MORI's PAYZR equipment-as-a-service subscription offering, based on pay-per-use rather than ownership. It allows manufacturers to acquire a new machine tool by paying a monthly subscription plus a fee per spindle hour used. No minimum number of hours is specified.

DMG MORI is a leading manufacturer of machine tools. With dynamic and excellence, it advances future technologies. Its portfolio comprises turning and milling machines, advanced technologies including Ultrasonic, Lasertec and Additive Manufacturing (AM) as well as consistent automation and digitisation solutions.

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The start of a new chapter

Leading precision subcontract specialist's latest investment in a new DN Solutions' DNM 3-axis vertical machining centre is indicative of the company's recently introduced continuous improvement programme and perfectly illustrates its future growth plans and ambitions

Mills CNC, the exclusive distributor of DN Solutions' and Zayer machine tools in the UK and Ireland, has recently supplied Helmrick Engineers Ltd., a family-owned, precision subcontract specialist, based in Dewsbury, West Yorkshire, with a new 3-axis vertical machining centre.

The machine, a popular and best-selling DN Solutions' DNM 5700 machining centre equipped with the latest FANUC 0iM control, a directly driven, Big Plus, BT 40, 18.5 kW/12,000 rpm spindle, a 30-position ATC and a 1,300 mm x 570 mm worktable, with a 1,000 kg table load, has replaced two, older machining centres and was installed at the company's 8,000 sq. ft facility in March 2023.

Since its arrival, the DNM 5700, which was also supplied with a Nikken 4th-axis unit and a Renishaw tool setter and probing system, has been put through its paces machining a range of high-precision valve-and flange-type parts and hydraulic and pneumatic fittings.

Mark Webster, Helmrick Engineer's general manager says: "The parts we supply are made from a range of tough and difficult-to-machine materials that include carbon steels, stainless, duplex and super duplex stainless steels and titanium as well as, increasingly, from exotic alloys.

"They are machined from either solid bar or near net-shape and 'upset' forgings, for customers operating predominantly, but not exclusively, in the oil & gas and petrochemical industries."

Parts machined on the new DNM 5700 are supplied in small batches, typically one- and two-offs through to 30-off and are characterised by their high-precision and exacting surface finishes.

The investment decision

The decision to invest in the new DNM 5700 was made to help the company increase its machining capacity and capabilities. An in-house review, conducted in Autumn 2022, into the performance of its existing milling machine tools revealed that production throughput and manufacturing output was being compromised by two older machines the company had at its disposal.

Mark Webster continues: "We identified a couple of productivity issues with two of our older machines. The first concerned their reliability which, in addition to potential spiralling repair and maintenance costs, could affect their uptime.

"The second involved the machines' ability to achieve, consistently, the fast-processing speeds we require while still meeting our customers' tight tolerances and high surface finish requirements."

As a consequence, the company made the decision to trade-in these two machines for a new machining centre with a larger working envelope and more powerful spindle technology in order to strengthen its milling resource.

Helmrick Engineers is no stranger to Doosan machine tools from Mills CNC having previously invested in a number of them over the past few years. The most recent of which was the acquisition of a heavy-duty Mynx 6500/50 machining centre in 2018.

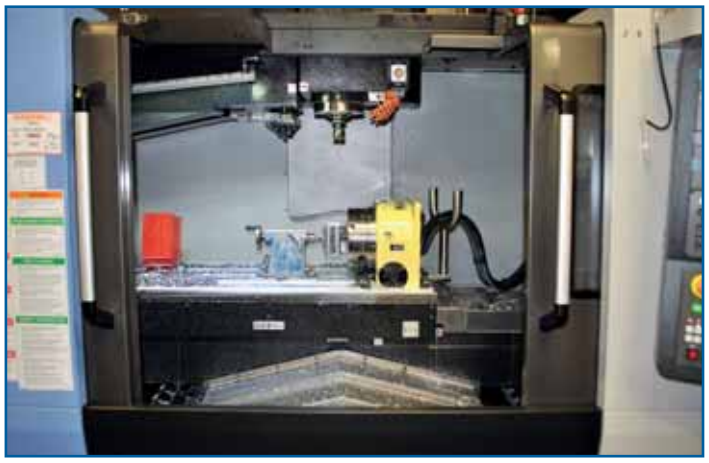
Mark Webster explains: "We have a good relationship with Mills CNC. We like their business approach and their after-sales service and technical back-up. Having discussed our plans with Mills and been presented with the technical specifications of the DNM 5700, we decided to place the order for the new machine with them."

Although the new machine has only been up and running for a few weeks, it is already having a positive impact on Helmrick Engineers' performance. On a specific valve component, for example, cycle times has been reduced by up to 20 percent with no compromise in part quality.

Mark Webster continues: "The DNM 5700 is a rigidly built machine and with its advanced spindle technology, we are able to

ramp up speeds and feeds to improve part processing times.

"Having been relatively quiet on the investment front over the last few years, we are now embarking on a new chapter in the company's history; one that will see more investment that will help facilitate diversification into new sectors."



Helmrick Engineers Ltd. was established in 1973 by the Brooke family and today employs eleven members of staff. Two years ago, current owner and managing director, Steve Brooke, took full control of the business and implemented a 'root and branch' continuous improvement programme designed to help the company grow, strengthen its position within existing customers' supply chains and diversify its operations to attract new customers from new sectors and industries.

The company-wide continuous improvement has, over recent months, resulted in Helmrick Engineers making significant investment and improvements in its people, in its plant and equipment and in its systems and processes.

It has recently achieved ISO: 14001 certification to add to its ISO: 9001 accreditation and expects to achieve ISO 45001 certification in the next few months. Helmick Engineers has introduced a strategic recruitment programme designed to increase its headcount and attract 'younger talent' into its ranks to alter the age profile of the company and address any potential future skills shortage issues.

The company has recently acquired additional premises, adjacent to its existing site, providing it with an extra 7,000 sq. ft. of floorspace which will be used to relocate its Anglo Stainless operation and free-up space for Helmrick Engineers' machine shop, offices and administration.

Helmrick Engineers, armed with a new vision and a commitment to growth, is actively exploring new business opportunities in the rail, nuclear and renewables' sectors whilst still continuing to work with its existing customer base.

It is anticipated that the company will continue to invest in high-performance machine tools and associated technologies and is investigating the potential of multi-axis and multi-tasking machines as well as automation to help it further improve its productivity and process efficiencies. Helmrick Engineer's owner and managing director Steve Brooke says: "It's an exciting time for the company and we are determined to realise our true potential."

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Competitively priced 5-axis machining centre makes low-cost jobs financially viable

Many prismatic machining contracts are ideally fulfilled on a 5-axis machining centre, which enables components to be produced cost-effectively. It is because the two rotary axes are able to position the component quickly and automatically in various orientations for milling and drilling, without the need for expensive fixtures and multiple setups by hand. A problem arises, however, if the components being produced do not command a high selling price, as most 5-axis plant tends to be expensive and investment often cannot be justified.

Subcontractor G&J (CNC) Services in Paddock Wood has apparently found a solution in the form of the Leadwell V-30iT 3+2-axis BT40 machining centre from WH-Lead, Towcester. The entry-level price of less than six figures belies the 5-axis machine's extensive capabilities. The hourly rate that the subcontractor charges based on the investment allows less complex prismatic components to be produced efficiently at prices that compare favourably with those quoted by competitors in low-wage countries.

The V-30iT is unusual in that the left-hand side of the swivelling trunnion with rotary table is supported by a bearing in the side of an adjacent fixed table, so 3-axis machining and 3- to 5-axis machining on the same part can be completed without it leaving the working area. Alternatively separate jobs may be undertaken on each table

Of novel configuration, the V-30iT has a 205 mm diameter rotary table mounted on a swivelling trunnion driven from one side. It is supported on the other side not by a simple bearing block, but by a similar unit built into the side of a 450 x 300 mm fixed table. It is unusual on a machine that is already inexpensive to find such a major addition. The fixed table can be used to complete a 3-axis operation on a part weighing up to 50 kg before it is transferred to the rotary table. By that time, the part must weigh no more than 35 kg if it is to undergo machining at up to 45° tilt, or 25 kg if the trunnion position is steeper.

The pair of Leadwell V-30iT 5-axis machining centres on the shop floor at G&J (CNC) Services' Paddock Wood factory. The compact machines, each of which occupies a footprint of just over 2.4 by 2.1 metres, raised the number of CNC machine tools on site to 18

The owner of G&J (CNC) Services, Charlie Naismith, is in a good position to comment on the merits of the Taiwanese-built machine compared with more expensive, fully interpolating 5-axis machining centres of German and Japanese origin used at his other four engineering sites in the south-east of England. The group of companies, CTN Group, boasts around 100 CNC machine tools of which 10 are 5-axis models.

Charlie Naismith says: "Depending on the value of the parts being machined, which is normally down to their complexity and the material used, you have to make sure the figures add up. Much of our throughput is fairly simple 3+2-axis work in mild steel and aluminium that customers will not pay a premium for, so the Leadwell machine is perfect.

"Actually we use it in 3-axis mode for much

of the time, but the 5-axis functionality is there for when we need it, saving costs associated with workholding, handling and work-in-progress. At the same time, it helps with accuracy by being able to access parts with shorter tools and by cutting down on manual refixturing."

Another view of the twin-table arrangement, showing Op1 on the right and Op2 on the left being carried out on an aluminium gearbox assembly part. A typical batch size of prismatic parts produced by G&J (CNC) Services is 300, although it can be as high as 3,000 or as low as one-off

He also appreciates the ergonomics of the V-30iT, pointing out that the rotary table when flat is at the same level as the fixed table, so there are no clearance issues. The machine is also well specified, with 800 mm of X-axis travel, 460 and 387 mm travels in Y and Z, roller bearing guideways, a 12,000 rpm spindle, a 24-position tool magazine with 1.8 seconds cutter exchange and 48 m/min rapids in X and Y, 36 m/min in Z.

Control is provided by a Fanuc 0i-MF Plus CNC system, although Siemens, Fagor and Heidenhain are optional, as are specification of 4+1 or full 5-axis interpolation. Another benefit of 3+2 CNC apart from the lower cost, according to Charlie Naismith, is that engineers in the Paddock Wood factory can step up to 5-axis machining and build a portfolio of new work around the enhanced capability, while taking advantage of the extra 3-axis capacity for regular work.

The first Leadwell machine, which was also G&J (CNC) Services' first 5-axis machine, was installed in 2021. Its purchase was prompted by the need to produce a particular agricultural industry component that would not have been feasible to put onto a 3-axis machine.

A second, identical machining centre followed a year later to provide extra capacity and equipment redundancy. Both machines were available ex-stock from WH-Lead's Towcester showroom and delivered within a fortnight, together with Renishaw tool and workpiece probing, Filtermist extraction and a post processor for the subcontractor's OneCNC CADCAM system. WH-Lead's customary high level of ongoing after-sales service and support is being provided.

Generally speaking, parts that previously required four or five separate operations are now produced in two, sometimes without leaving the V-30iT if pre-machining is done on one of the tables. A typical component cited by Charlie Naismith for a fluid transfer equipment manufacturer is produced in this way, resulting in a 30 percent shorter floor-to-floor time compared with when it was produced in four operations on different 3-axis machines.

A further advantage of the new process route is that operator walk-away intervals are longer, allowing more meaningful work to be performed elsewhere in the factory while machining is in progress. As a result, it is likely that more and more jobs at G&J (CNC) Services will be transferred to the 5-axis plant as time progresses.

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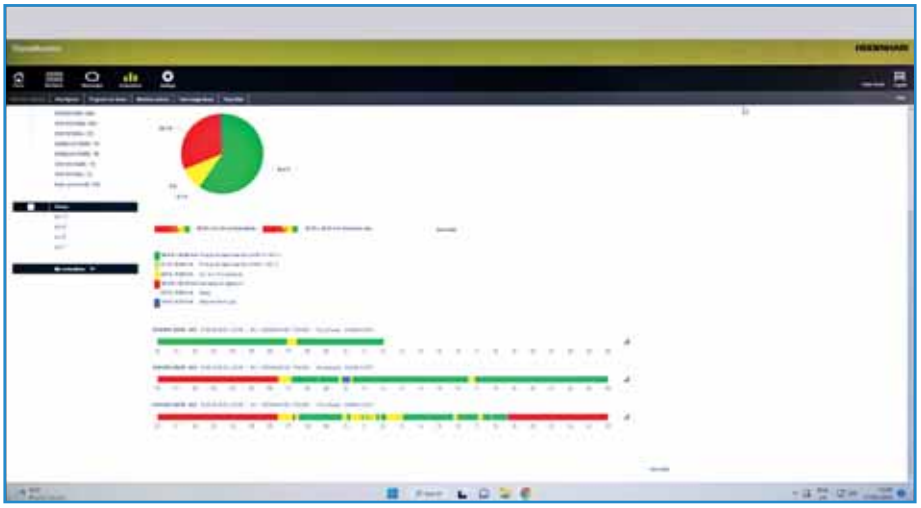
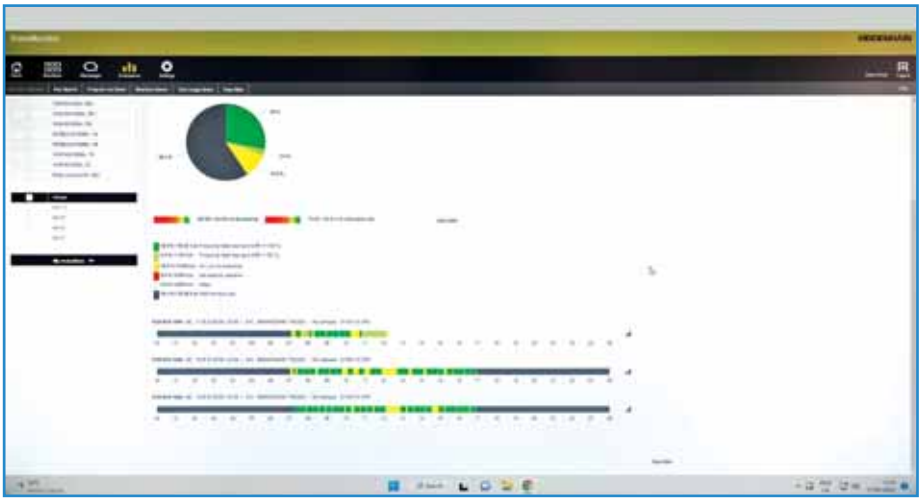
Shop floor monitoring software boosts aerospace subcontractor's productivity

Output of prismatic parts from automated machining cell increased by 26%

It is enormously helpful for production managers to be able to check remotely on the status of machine tools in their factory and find out whether or not a cutting cycle is in progress and the reasons for idle times. One subcontractor that has taken advantage of monitoring software that feeds data back automatically from the shop floor to an office is aerospace subcontractor Automatic Industrial Machines (AIM) in Clevedon, North Somerset. Its three 5-axis automated production centres (YCM, Hedelius and Micron) and nineteen 3-axis and 5-axis stand-alone machines, all controlled by Heidenhain CNC systems, have been connected to the control manufacturer's StateMonitor software.





Detailed knowledge of what is happening in every machining centre and collection of data for immediate troubleshooting and long-term analysis has increased output considerably. Stoppages can be rectified quickly, while analysis over time of how the production centres are being used allows the company to try out different methods for increasing throughput. The software shows the productivity of the machine clearly and visibly and thus productivity comes more into the focus. The long-term records are also useful for planning machine maintenance.

Rob Kendall, managing director of AIM said, "Having access to data in real time is part of what Industry 4.0 is all about. It makes you question why things are being done the way they are and prompts you to think of how production might be improved to raise efficiency."

He described the analysis of data from one of the company's automated 5-axis machining centres, a YCM NFX380 served by an Erowa Leonardo pallet storage system. It showed that over a 24-hour period of unmanned running, depending on the mix of components and the cycle times, which can be as short as 15 minutes, the machine was often idle for the last three to four hours as it had run out of work. Six extra Erowa pallets were purchased, bringing the total capacity to 66 positions, to enable the cell to run for a full 24 hours, right up to the 7.00 am start of the next day shift. The extra parts produced per day have quickly started to amortise the cost of the additional pallets.

Mr Kendall is a long-time user of Heidenhain-controlled machining centres, dating back to the days of operating Bridgeport mills, and has been close to staff at the German control manufacturer's UK headquarters in Burgess Hill for more than 25 years. Consequently the subcontractor was chosen by HEIDENHAIN GB in 2018 as a beta test customer to evaluate an early version of StateMonitor. It was less functional at the time and use of the software lapsed.

Since then, Heidenhain has invested heavily into its software solutions like StateMonitor and future products. New developments of software solutions are always based on customer feedback and machine shop needs, of both external shops and HEIDENHAIN's own extensive manufacturing facilities. The product is now fully rolled out in the machine shop and provides the user with all the tools and information needed to make strategic decisions. When the improved software was presented to Mr Kendall in the latter part of 2022, it had progressed to such an extent that AIM was happy to evaluate it again on five machines, both automated and stand-alone. By January 2023, the subcontractor had purchased 22 licences for all the machining centres on the shop floor.

Heidenhain (GB) provided a turnkey installation and commissioning service, during which the software was installed on AIM's server where all the subcontractor's programs are resident. Every machine's Heidenhain TNC control is connected by

Ethernet cable, although not necessarily directly. Two of six factory units on the other side of Concorde Drive in the Clevedon business centre communicate with the other four units over Wi-Fi to allow the server access to data from the remote machines.

AIM is celebrating its 50th anniversary in 2023. It has grown organically and consistently over the years, hence the fragmented location of its various operating units. 85% of turnover comes from the aerospace sector, the Airbus Filton site being less than 20 miles away. Mainly aluminium structurals such as stringers and skin panels up to 6.5 metres long are machined, plus some steel and titanium parts for conventional and electric aircraft. Aluminium, aluminium-bronze and plastics are also regularly processed. The subcontractor additionally supplies the automotive, motorsport, electronics, food processing, packaging, fluid control and other industries.

Dave Kinch, operations manager at AIM, takes a pragmatic approach to his use of StateMonitor. Although 22 machining centres are connected, he tends to focus on operation of five or six of them, notably the three automated cells, one or two stand-alone 5-axis machines and a 3-axis model that is often devoted to production of a critical titanium aerospace component. Regarding the latter, he was able to spot that the cutting parameters were 1% below optimal and adjust them accordingly. It represented only a small rise in metal removal rate, but over the course of a year it is adding up to a measurable increase in throughput. There would have been little chance of picking up on the productivity shortfall without StateMonitor.

Generally speaking, machines that are preparing billets and carrying out minor skimming operations are not monitored in the Clevedon factory, only those that are performing major finishing operations. However, periodic checks on all the other machines are able to identify inefficiency and trigger intervention. Concentration on keeping an eye on high added-value work avoids having to sift through a large amount of data. So also does restriction of information emailed to Mr Kinch's smartphone, which essentially only receives a notification if a machine has alarmed out or has been idle for an extended period.

A vast amount of additional data is available if wanted, including job changes, program status and run time, tool changes, spindle speed and feed rates, override settings and other machining parameters, all of which may be useful for some companies but is information that AIM does not presently require routinely. All data can be made available via web browser not only on smartphones but also on tablets, laptops, PCs and on the screen of controls on the shop floor. For the time being, Mr Kinch relies on a single PC in the programming office connected to a wall-mounted screen to monitor the six production areas.

When interviewed in mid-May 2023 he commented, "We have been using StateMonitor for just over six months, so it is still rather early to quantify its benefits.

"However its utility is clear in respect of our automated prismatic machining cells. For example I have calculated that the YCM NFX380 5-axis production centre, served by the recently expanded Erowa Leonardo store with 66 pallet positions, is already 26% more productive due to the changes we have implemented based on information collected from the Heidenhain StateMonitor software."

He added that the output from stand-alone machining centres is more difficult to assess, but his estimate is that they are running and producing parts during the day shift for 83% of the time, versus an industry average of 65%. It is down to better planning of work going onto the machines.

While StateMonitor has long been able to connect to many makes of CNC system other than Heidenhain's via OPC UA, umati, MTConnect, Modbus TCP, or using additional hardware, the latest version 1.5.0 includes for the first time a FOCAS interface for connecting machines with a FANUC control. It means that AIM has the possibility to connect its lathes and turn-mill centres fitted with FANUC CNC systems into the monitoring software to obtain similar optimisation benefits.

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Starrag shows its leading aerospace machining competence

Starrag's undisputed lead in providing machining solutions for the aerospace sector is underpinned by the company's aerospace and turbine competence centre in Switzerland, an initiative that showcases the group's long-established expertise in the manufacture of turbine blades, blisks and structural components.

Starrag has an established vast and diverse knowledge of machining aerospace parts and now, at the group's Swiss HQ, visitors to a dedicated 2,000 m^2 hall can see and witness the capabilities of Starrag's world-class machining centres: both the Ecospeed and STC models for aerostructures alongside a NB model for blisk machining and a LX blade machine.

These are used to test and optimise new machine processes under production conditions, usually in response to customer orders, they also include manufacturing solutions for vanes, impellers, casings, gearboxes, turbine housings and landing gear components.

Details of all these machines and a 'teaser' into a soon-to-be-announced new development for the machining of titanium workpieces were available to visitors to the Swiss Pavilion at the Paris-Bourget Airport show, alongside a display of typical smaller parts handled by Starrag machines and videos of solutions for the aerospace industry.

Prior to the show, Lee Scott, Starrag UK's director for sales and applications said: "Visitors to our stand in the Swiss Pavilion will also be able to learn how the Starrag Group and, by definition, its machine users are ideally positioned to embrace any and every new manufacturing strategy as the global aircraft industry readily adopts electric propulsion.

"We're really looking forward to aligning ourselves with aircraft OEMs and companies in all supply tiers to fulfil the burgeoning amount of manufacturing opportunities that electric propulsion offers.

He continued: "As a group, Starrag has historically always embraced such levels of progress. For example, Industrie 4.0 and the VDMA (German Engineering Association) Blue Competence strategy, as well as making our entire machine/system product range more energy efficient through the eeMC (Energy Efficient Machining Center) initiative.

"Producing machines to meet customers' electric propulsion machining needs will undoubtedly be the latest addition to Starrag's sustainability achievements."

With a global customer base of companies involved in aircraft manufacture, in particular OEMs and Tier 1 suppliers throughout North America and Asia as well as Europe, Lee Scott says Starrag's focus will, as always, continue to be on producing high-quality components in the shortest possible cycle times and at the lowest cost per part.

These demands will be achieved by, for example, multi-tasking, predominantly milling and turning, in a single setup on machines across the Starrag product ranges including Berthiez, Bumotec, Heckert and Starrag, as well as its TTL CAM/software operation.

Importantly, the starting point for every Starrag solution is the component, not a machine. Lee Scott added: "We vary machine configurations and machining concepts to determine the overall effect on cycle times; pushing everything to the maximum to develop an all-embracing solution that is specific to each workpiece.

"We are not in the market to sell 'standard' machines; we strive to continue to be the 'application champion' whether on specific parts required in either low- or high-volume. Our customers have to be competitive and, likewise, we have to remain focused on delivering cost-effective and efficient solutions time after time."

He is adamant that Starrag's 'Engineering precisely what you value' strategy is all-embracing: "Components are increasingly becoming more complex and require more demanding machining, so we work closely with customers to also develop and provide special-purpose fixturing and tooling, for example.

"Nowadays you need the whole package and it's a philosophy which will also apply to the manufacturing demands presented to our customers by electric propulsion."

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Titanium machining
Special materials for complete machining

Heavy duty cutting places particular requirements on the machine and working processes. If this involves a material such as titanium, which is particularly hard to cut, specific know-how is necessary to deal with these requirements. Thanks to its expertise, WFL Millturn Technologies GmbH & Co. KG impresses in this field with a machining solution for aircraft landing gear.

The aviation industry represents an important market segment for WFL. This industrial sector increasingly requires ever more materials that are deemed to be difficult to machine. Titanium machining, in particular, is a field in which WFL shines with its wealth of expertise.

Titanium 5553 (Ti5Al5V5Mo3Cr) is required for the production of landing gear in the aviation industry. This material stands out due to improved properties with regard to strength, toughness and increased heat resistance. However "Titanium triple-five-three" as insiders call it, is currently one of the most difficult-to-process materials

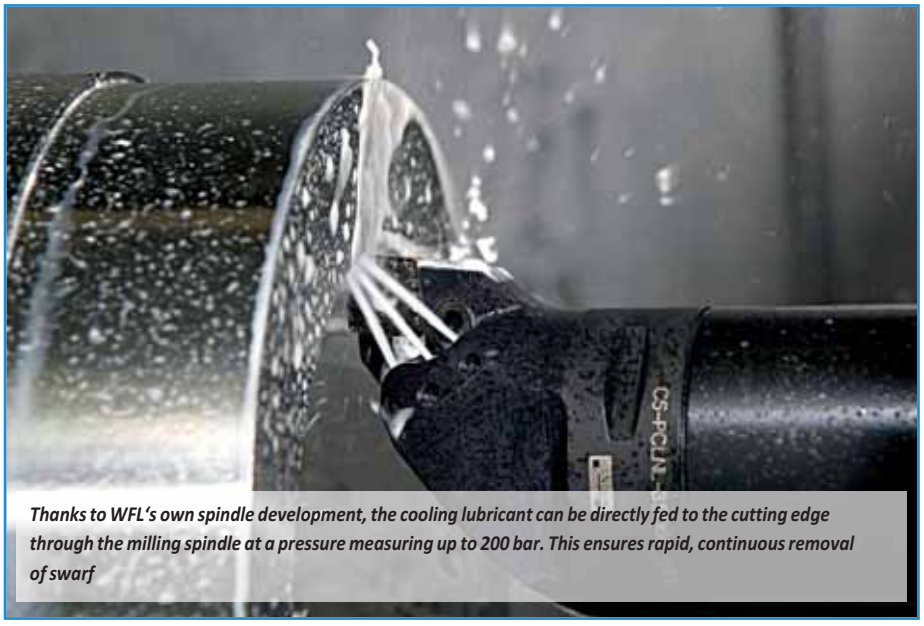
Material with particular properties

Titanium has always placed certain demands on tools and machines during the cutting process. In recent years, titanium 3.7165 has become prevalent among lightweight materials as a material with outstanding properties, especially in the aviation and space industries and also in the medical sector. It is one of the most frequently used titanium alloys, containing 6 percent aluminium and 4 percent vanadium. This alloy, normally referred to as Ti6Al4V, exhibits a very good combination of strength, corrosion resistance and capacity to withstand stresses. Although this material does have good empirical values and cutting data, processing it still remains one of the supreme disciplines in machining.

The titan of all metals

New titanium alloys are constantly being developed for special applications and these are often on the basis of specific customer requirements. A number of WFL customers require Titanium 5553, Ti5Al5V5Mo3Cr, for the production of landing gear in the aviation industry. This material stands out due to improved properties with regard to strength and toughness. It is also less sensitive to structural changes during heating. This material is indeed one of the real titans in the field of machining and takes its name from Greek mythology.

Ti5553 is at present one of the hardest materials on the market to machine. A cutting speed of 45 m/min should not be exceeded when it is being processed as shear stresses of up to 2,780 N/mm² can develop at cutting speeds as low as 60 m/min.



Thanks to WFL's own spindle development, the cooling lubricant can be directly fed to the cutting edge through the milling spindle at a pressure measuring up to 200 bar. This ensures rapid, continuous removal of swarf

Challenges in titanium machining

Problems like point heat due to poor heat conduction and associated chemical changes in the material, embrittlement at higher temperatures and the formation of built-up edges occur to a greater extent with this material than with other titanium alloys. Therefore, it is particularly important that cutting speed, feed rate and penetration depth are matched to one another accurately when working with Ti 5553. The use of suitable cooling lubricants is just as important as the correct cooling strategy. A quick and continuous removal of swarf must be guaranteed; the heat dissipation occurs to a much greater extent via the tool. Removal of the forging skin, referred to as "elephant skin" by experts, is an additional challenge with this material. The upstream forging process and the resultant thermal and metallurgical influences give this skin a very high level of surface hardness.

The low modulus of elasticity means that titanium tends to evade the pressure of the tool and to fuse with the cutting edge. The machining should therefore, as already mentioned, occur at a low cutting speed but with a relatively high and even feed rate. Vibration free, clamped, sharp tools must be ensured in any case. High speed steels with a high cobalt content, carbide or Stellite are used as cutting materials.

Experience is the decisive factor

All of this shows that titanium calls for a lot of experience in the selection and use of the tools as well as the machining strategies.

It is essential that the ability to cater for critical aspects of machining during manufacture is demonstrated as early as the design phase. For example, it is necessary to take into consideration the fact that different material thicknesses in the blank workpiece require modified machining strategies. Heat affected zones must also be taken into consideration together with the cutting forces which occur.

Materials which are hard to cut like titanium have influenced the development of the WFL machines. WFL provides individual solutions for precisely this kind of demanding application. These also cover aspects such as cooling and production strategy as well as the actual machine.

As well as the Millturn complete machining centres, WFL provides the necessary software solutions in the form of tailored machining strategies, process design and programming

Reinhard Koll, head of application engineering for WFL says: “In order to be able to offer WFL customers reliable solutions, WFL has developed components which make it possible for us to match the design of the machine precisely to the relevant application case.”

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700 percent growth in three years in partnership with XYZ Machine Tools

James White joined NSK Precision Engineering in 2015 and took the company over in 2019. His background in CNC machining made his top priority investing in a CNC machining centre and his first purchase was an XYZ 750 LR. This machine has 750 x 440 x 500 mm travel, Siemens 828D control with optional ShopMill and incorporates linear rail technology which increases acceleration and deceleration rates resulting in increased accuracy and faster machining.

James White says: "XYZ Machine Tools listened to where we wanted to take the business, asking the right questions and showing that it understood how our company works. It also came up with an attractive solution to get our CNC machining capacity started. We already had a 1994 XYZ turret mill with ProtoTRAK® control which is used daily and which came with the company so this gave us extra confidence in our decision."

Taking over NSK Precision Engineering, which has been in operation since 1995, was a steep learning curve, learning how to manage both the workforce and the day-to-day administration of the company. Additionally, James White has relocated the company from its previous 1,500 sq ft factory to a new 10,000 sq ft site near Reading while growing turnover by 700 percent and increasing his workforce from two to seven.

The early days of the takeover coincided with the Covid crisis but, NSK was able to keep going right through lockdown making parts for the Nightingale Hospitals which provided a massive boost to the company, opening up opportunities in more industry sectors.

James White continues: "Previously we were subcontracting a lot of work to local companies. Investing in CNC has enabled us to take this work back in house which gives us more control over quality and delivery while at the same time improving our profit margins. At the old factory, we were limited for space, restricting which XYZ CNC machine we could choose. With the new factory and the increase in workload we were able to make a further investment in a XYZ 1000 LR with 4th axis rotary table, Siemens 828D control with the ShopMill option, expanded 24 station tool carousel and a swarf conveyor. The machine was delivered within two months, which was important to us

because of rapidly growing demand, despite the difficulties of chip availability at the time."

Now the company produces parts for the oil & gas, pharmaceutical and motorsport industries. James White has a history of competing in the British Superbike Championships and he knows this industry demands 13-micron tolerances and very short lead times. Other parts are used in wind turbines and in the conversion of classic cars to an electric powertrain. By building a close relationship with customers from a diverse range of industries, NSK Precision Engineering is aiming to both secure its business and grow its revenues through customer loyalty.

On the XYZ 1000 LR the company makes parts ranging from a few grams to 100 kg. Much of the CNC programming is done offline using Autodesk Fusion 360 CAM but, the ShopMill conversational software on the Siemens 828D controls is also used daily. James White says: "We are aiming for maximum uptime on the machines, so we use tombstone fixtures so that we can machine multiple faces and multiple parts in one operation. Other techniques include using very thin tabs to hold awkwardly shaped parts. These can be snapped off, leaving just one face to clean up to get a finished job. The machine has plenty of power, so we can take big cuts, the optional 12,000 rpm spindle speed is good for aluminium jobs and for small tools, while the extended 24 station tool carousel makes a complete tool pack available, saving further time lost to tool setting. Probing enables us to do in process dimension checks where we can. Overall, it is a very versatile machine."

NSK Precision Engineering's next target is to introduce more automation. Like most companies, the skill shortage makes this necessary. James White concludes: "The machines have been very reliable, and we have not needed any spare parts, you really can't fault them."

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Dugard delivers for Dicker

Located near Eastbourne on the South Coast, Dicker Precision Components Ltd has recently taken delivery of yet another machining centre from Dugard Machine Tools. As a subcontract manufacturer serving a diverse range of industries from the medical and aerospace to the offshore, subsea and MOD. Dicker Precision needed a high-quality machine from a supplier with a track record of delivering within a short turnaround. Dugard was the first name on the company's radar.

Based in Hailsham in Sussex, Dicker Precision was founded in 1973 and for much of this existence, the ISO: 9001 certified manufacturer has purchased machine tools from Brighton-based Dugard. Mark Love, managing director at Dicker Precision says: "They have always been very good to us and we have worked with Dugard for 30+ years. We've had several Dugard machines down the years and we get a very good level of service. Furthermore, they are just down the road from us and so it just makes sense. With regards to the latest machine, Dugard had a machine in stock that we needed and that is one of the reasons why we went for it."

Dicker Precision has recently taken delivery of a Dugard 1100 vertical machining centre to complement its existing range of Dugard machine tools that include a Dugard 1000Y Plus and a heavyweight Dugard 1886B HD with a 4th axis and a BT50 spindle taper. Mark Love states: "I went to Dugard to see the machine and it was in the showroom with the guarding off, so I could see the build quality of the machine. The price point of the machine is particularly good, especially considering the extras we have on the machine. We bought the machine and it was in and running within two weeks."

Taking a look at the extra features on the machine, Mark Love adds: "We have taken the machine with a Nikken 4th axis unit and

we also have Renishaw probing which makes everything so much easier."

He concludes: "We are very happy with the machine. It was originally bought to replace an older machine that we were having reliability issues with. Now we have the new Dugard machine, it literally hasn't stopped working since it was installed and it has significantly increased our capacity."

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Sodick machines and Sodi-Tech support underpin RST success

RST Engineering, which currently has six Sodick EDM machines on site at its manufacturing facility in Leighton Buzzard, reports that 2022/23 was the best year in the company's history. The business bases this success not just on its commitment to ongoing investment in the latest Sodick machines, but in the back-up and support of exclusive UK distributor Sodi-Tech EDM, which has been providing impecable servicing, calibration, spare parts, consumables and applications advice since RST invested in its first Sodick machine back in 1996.

Robert and Maureen Taylor founded RST Engineering in 1986. Today, sons Jason, Sean and Paul help ensure the company continues to foster its reputation as a progressive and ambitious precision engineering business and with good effect. RST bounced back strongly following the pandemic, during which the company invested in two Sodick machines: an ALC600G high-precision wire EDM with linear motors and an AG80L die-sink EDM, the largest spark-erosion machine in its Sodick portfolio.

"We continue to invest in new Sodick machines because they play a big part in our success," states director Jason Taylor.

The 15-employee company serves numerous manufacturing sectors, but has a strong track record in scientific research and satellite communications.

"We currently have a scientific contract that runs continuously, 24/7, on two of our Sodick wire EDMs, producing 1,250 parts a week with tolerances down to 10 µm," explains Jason Taylor. "Hundreds of wire threads are required for each batch and with the back-up of consumables, spares and

service from Sodi-Tech, the project runs flawlessly."

The contract involves the manufacturing of two delicate mating components made from 316 stainless steel. One measures just 10 mm x 2 mm.

To keep the machines running continuously, RST Engineering relies on the wire, filters and resin consumables supplied by Sodi-Tech EDM, which also provides replacement wear parts such as guides and contact pick-ups.

"Sodi-Tech EDM has a huge stock of spare parts and consumables at its Warwick headquarters for all machines and we always receive very prompt delivery," states Jason Taylor.

RST Engineering runs six Sodick machines, three die-sink and three wire models. The company is currently considering trading in one of its older wire machines for another ALC600G, a model that is proving its reliability on the 24/7 scientific contract.

"At the weekend we set it going on Friday and it runs unattended until Sunday night with no unexpected stoppages," says Jason Taylor. "Our approach is to set up a double block of material, wiring in two directions to end up with 60 components per block."

The company's other recent investment is a Sodick AG80L die-sink machine which, with its 32-station toolchanger, was bought specifically for a project involving the manufacture of a satellite communications component. In total, RST Engineering had to produce 100 very large parts. Loading four at a time, each component required around 50 hours of spark erosion.

Of course, with so much non-stop machining to incredibly high levels of precision, the law of averages says that sometimes there will be a setback. However, when this rare situation arises, Sodi-Tech EDM is always on hand.

"The support and back-up from Sodi-Tech EDM is fantastic, first by phone to see if they can get us up and running without having to dispatch a technician, providing advice and things to try," says Jason Taylor.

"That often resolves the issue, but if not, Sodi-Tech is fast at getting personnel on site. Furthermore, the skill set of their technicians is very high, they are all highly trained. I can't fault them."

Sodi-Tech EDM also services and calibrates all of RST Engineering's Sodick machines on an annual basis. In fact, yearly machine calibration is an actual requirement of some RST customers.

As a final point, the company takes advantage of Sodi-Tech EDM's application support if ever it encounters an awkward job and/or challenging material.

Jason Taylor concludes: "If we want some advice or ideas, Sodi-Tech EDM is great at coming up with suggestions. Overall, we have a fantastic working relationship with them. We bought our first Sodick machine in 1996 and never looked back. We can't ask for more from the technology or the service we receive."

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Orthopaedic implant and instrument manufacturer replaces two EDM machines with one

A pair of outdated wire-cut Electric Discharge Machining (EDM) centres at orthopaedic implant and associated surgical instrument manufacturer MatOrtho® has been replaced by a single new U6 H.E.A.T. from Makino, Japan. The CNC wire erosion machine was installed at MatOrtho's manufacturing facility in Leatherhead towards the end of March 2023 by NCMT, sole UK sales and service agent for the machine manufacturer.

David Shand, operations director at MatOrtho says: "The new Makino wire erosion machine from NCMT will significantly increase our instrument production capacity compared with the two machines it replaces. The accuracy and speed of the machine will allow us to meet our R&D needs and support future sales. This latest significant investment by MatOrtho comes at an important time in the company's transformation as it expands to meet the growing demand from our worldwide customer base."

The Makino was selected in preference to other makes due to the quality of both the machine build and the service received during the sales process, right through to training at NCMT's Technical Centre in Coventry. Another important aspect was the environmentally friendly operation of the U6 H.E.A.T., which has low running costs particularly in respect of reduced wire consumption. David Shand says that it will help drive the company's transition towards net zero carbon footprint, especially as only one EDM machine is now drawing power rather than two.

NCMT's Jon Marshall, Makino EDM sales manager UK south comments: "The Makino U6 H.E.A.T. is geared towards high-performance production which, together with the machine's inherent precision, makes it a perfect fit for MatOrtho's requirements for both production and research.

"It has been a pleasure dealing with Paul Clancy, their production engineering manager and the whole team throughout the process and we at NCMT look forward to assisting MatOrtho with its future investments."

A video on this installation is available to view at: ***www.youtube.com/watch?v=z0Fv5Sx98j8***

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Premier is a 'cut above'

Supplying the demanding F1 industry isn't something that every subcontract manufacturer can achieve, but Premier Precision Tooling has been working with F1 teams and the supply chain for more than 20 years. To service this fast-paced and highly demanding sector for two decades is a challenge the Hampshire company relishes. This challenge is simplified and streamlined by the application of Mitsubishi EDM machines from the Engineering Technology Group (ETG).

As one of the UK's leading providers of subcontract EDM services, the Waterlooville company also works with clients in the wider motorsport arena, aerospace, marine, oil & gas, medical and toolmaking segments. To deliver impeccable quality, precision and service levels, Premier Precision Tooling has invested in a wide variety of Mitsubishi wire and spark erosion machines down the years with a plant list that includes the MV1200S, MV1200R, MV2400S and MV4800S wire erosion machines, the Mitsubishi EA12S and EA12D spark erosion machines and a Mitsubishi ED24 EDM hole drilling machine.

Adding to this comprehensive list, the ISO: 9001 company installed two new MV2400S wire erosion machines in November 2022. Chris Arnold, one of the three directors at Premier Precision Tooling says: "The company opened for business in 1997 and we had our first Mitsubishi EDM machine from the start. We started with the Mitsubishi CX20 wire EDM and this was followed by a second machine before we grew our business and moved to the second and third-generation Mitsubishi FX20 and FA20 wire machines. Up until 2010, we bought a multitude of these machines as the quality, reliability and service was exceptional. In 2010, we bought our first machine of the fourth generation, the MV1200S. This was a huge leap forward in technology."

The South Coast company operates several machining centres with a comprehensive plant list in the inspection department, but it is the Mitsubishi EDM machines that dominate the landscape at Premier Precision Tooling.

The eight employee business manufactures anything from prototypes and small batches through to production runs upwards of 2000-off on its EDM machines.

The new MV2400S at Premier Precision Tooling

Chris Arnold concludes: "The new MV machines are at least 25 percent faster than the previous BA24 Series and the auto wire re-feed is 100 percent precise and reliable for prolonged unmanned running, which was an issue with the previous machines. As a company that can run 24/7 when we're busy, maximum uptime is of critical importance to our business."

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FANUC'S 6-axis simplicity solves insert handling dilemma for Mitre Plastics

Automation expertise from FANUC has supported injection moulding firm Mitre Plastics to specify a flexible 6-axis robot cell during its latest project for a white goods manufacturer. After first considering a cobot solution, Mitre Plastics has instead, with FANUC's help, commissioned a faster, more cost-effective and more flexible industrial robot system, helping the company to fulfil its contract with a major customer.

Located in North-East England and boasting a 50-year history, in 2019, Mitre Plastics was invited to quote for producing a high-volume part with a brass insert for a white goods manufacturer, requiring a repeatable, high-speed insert loading solution. To get an idea of how the part could be produced on its existing FANUC ROBOSHOT α-S220iB injection moulding machine, Mitre Plastics asked an unnamed automation supplier to scope out a conceptual solution.

"They suggested using a collaborative robot in conjunction with our existing injection moulding machine and 3-axis robot to handle insert loading," recalls general manager Michael Breckon.

However, as an existing FANUC injection moulding customer and therefore confident in the company's automation knowledge and expertise, Mitre Plastics decided to seek FANUC's advice before committing to the cobot purchase.

An alternative approach

"When we took the proposal to FANUC to discuss providing additional hardware and integration work for the solution, it raised questions over how it would work in practice," says Michael Breckon.

The review highlighted a number of limitations with the proposed solution, with FANUC's engineers concluding that this application was not wholly suited to a cobot.

Mitre Plastics use a FANUC ROBOSHOT α-S220iB injection moulding machine where the key to injection moulding is to minimise mould open time for maximum productivity

FANUC's senior integration engineer James Pointer explains why: "Firstly, collaborative robots are intended to work unguarded, but in this case, a guard was required, adding cost. Secondly, the proposal was to mount the cobot on the moulding machine at head height, which would not comply with health & safety guidelines. Thirdly, cobots are inherently slow whereas the key with injection moulding is to minimise mould open time for maximum productivity."

A seamless partnership

Instead of a cobot, FANUC proposed a simpler, faster, more efficient and more flexible solution, comprising a 6-axis robot cell. To assist in this alternative approach it engaged Hi-Tech, its long-term strategic partner for injection moulding handling and integration. The two companies worked seamlessly to devise a solution that involved replacing the existing 3-axis robot with a side-entry 6-axis robot. This would take four inserts from a bowl feeder, enter the moulding machine through the side door, place the inserts into the mould in the correct orientation, demould the finished component and conduct post-mould checks all within the specified cycle time.

"With the aim of reducing cost and complexity to the existing system, we designed a self-contained industrial automation cell," says James Pointer.

With all parties happy with this concept, FANUC then simulated the cell on its proprietary ROBOGUIDE software and completed cycle time studies to determine the optimum robot model for the best price-performance ratio over the system's lifetime.

James Pointer continues: "ROBOGUIDE allows us to investigate how different

specifications can influence life cycle. These simulations told us we needed a 1.8 m reach and a 35 kg payload to accommodate the actuation and sensors needed for a double-sided gripper, which led us to the M-20iD/35."

The M-20iD/35 6-axis robot gives full rotation and free movement which is invaluable for a manufacture of plastic parts with over moulded inserts giving precision and accuracy

Flexibility foremost

Flexibility was also an important consideration in this project as, although the contract was large, other work still needed to be kept on the moulding machine. This made a 6-axis robot ideal, as James Pointer explains: "As the name suggests, with a 3-axis robot you have three axes of movement: up and down, left and right, forwards and backwards, so when the gripper comes down you can't change the angle. A 6-axis, in comparison, gives you full rotation and therefore free movement. For the manufacture of plastic parts with over moulded inserts, this freedom of movement is invaluable, as precision and accuracy are key to successful production."

Morale boost

While the new proposal seemed ideal, one problem with a change in approach at this stage was that the original cobot solution had already received capex approval. However, this concern was soon assuaged when the new system came in at a similar cost, as well as giving Mitre Plastics 6-axis robot capability and the option of re-tasking the 3-axis robot elsewhere in the factory. Hurdles overcome, the cell was installed just before Christmas 2021, ready for production start-up in mid-2022.

"This was a long-term investment that supports the company's ongoing commitment to technical development. It also demonstrated our commitment to the customer and gave them reassurance that we can take their requirements and translate them into a reliable and efficient manufacturing system," says Michael Breckon.

6-axis reservations

Despite the company's faith in FANUC, at the outset of the project Mitre Plastics harboured doubts over its ability to handle the 6-axis robot.

"We'd been aware of 6-axis technology for some years but were concerned that it was difficult to programme, that our staff wouldn't have the necessary skills and that we would end up relying on external expertise," says Dave Veal, technical manager at Mitre Plastics.

However, Dave Veal is pleased to report that these doubts were unfounded: "The programming software has evolved; we've found it to be straightforward and logical. Plus, the assistance we've had from FANUC has been excellent, our engineers have been able to pick up the phone and get on-demand support whenever they've needed it. What we have now is a better solution. We're really starting to see the benefits of 6-axis technology."

Gate removal

For Mitre Plastics there is a further advantage associated with using a 6-axis robot on this application, relating to gate removal. A secondary operation performed by the 3-axis robot had been the removal of gates, plastic left on the mould, using pneumatic cutting tools; however, this required several cutters set at different angles.

"The 6-axis has given us greater flexibility when removing gates from products. Instead of having to use several different cutters set at different angles we can now offer the part to one cutter alone. That makes quite a difference in terms of costs and changeover time," says Dave Veal.

"We would certainly consider FANUC for any injection moulding or robotics project in the future and would definitely look at 6-axis versus 3-axis robot technology when designing a general-purpose cell," he adds.

Michael Breckon concludes: "We are always looking to develop our capabilities through technology. We must, in order to remain competitive. That includes pushing harder on the technology on and around the moulding machine to produce parts to customer specification every cycle and minimise labour requirements. The robot is becoming the central hub for the thinking around the machine and the more sophisticated the robot, the more we can do to remain competitive.

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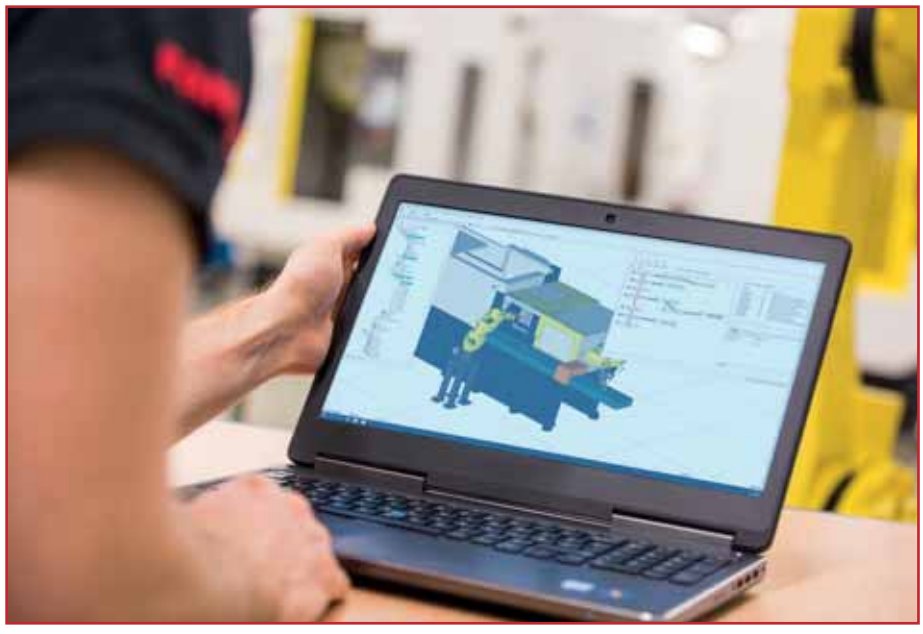


The ROBOGUIDE software allows Mitre Plastics to investigate how different specifications can influence life cycle

Schmalz innovative gripper technology supports collaborative robot applications

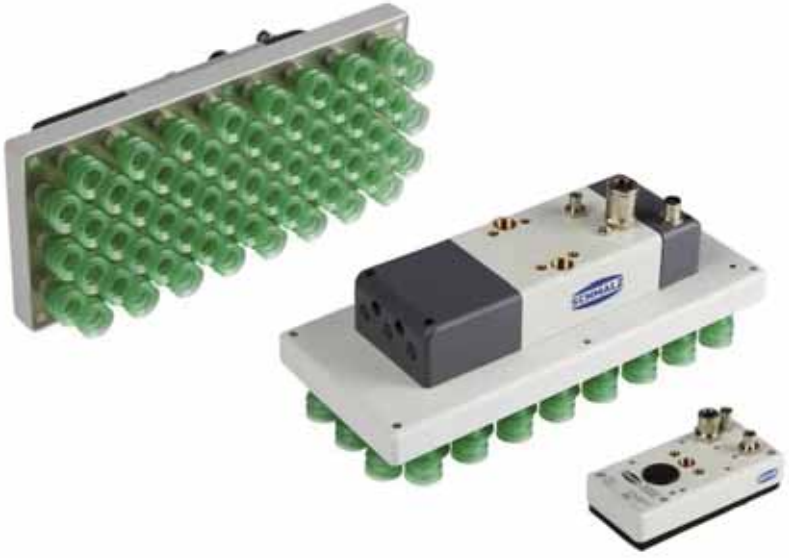
The adoption of collaborative robots, across multiple sectors, continues at a pace as increasing numbers of manufacturers realise the potential these robots have to provide a cost- effective and productive solution to a wide range of applications. Designed specifically to be able to work safely alongside humans, collaborative robots generally feature an aesthetically pleasing smooth rounded design, with no sharp edges which could cause injury if the robot accidentally comes into contact with an operator during its cycle. In addition, the arm joints are usually encapsulated to ensure that there are no pinch or trap points for human fingers or hands.

Just as these robots have evolved in recent years to provide greater reach and payload capabilities, so too have the gripper technologies they use, not only to cater for the wider range of applications where these robots are being applied, but also to ensure that the gripper design and functionality complies with ISO TS 15066, which provides guidance for collaborative robot use. In addition, to maximise the Cobot's potential for operational performance and flexibility, the gripper systems themselves need to exhibit characteristics which promote ease of integration and use across a diverse range of applications.

Collaborative vacuum gripper technology

There has been a significant uptake in the use of collaborative robots for product handling, palletising, and de-palletising applications in recent years. This has been the catalyst for the development by Schmalz of a comprehensive range of gripper systems targeted at collaborative robot applications.

To maximise the performance and payload capabilities of the collaborative robot, the weight of the gripper system should be optimised and, in keeping with the ease-of-use concept promoted by suppliers of collaborative robots, ideally the pneumatic vacuum generation technology should be integrated within the gripper unit to simplify integration and operation.



New additions to the Schmalz range include the FXCB/FMCB area grippers, which are designed to support handling tasks with collaborative robots. These gripper systems will be a valuable asset for a wide range of applications within intralogistics, such as end-of-line packaging and pick-and-place applications. The innovative design of these gripper systems, which uses 3D printing as part of the manufacturing process, complies with ISO TS 15066 and the FXCB variant also includes integrated vacuum generation. Additional features of this range include innovative communication technology via IO-Link and an integrated Near Field Communications (NFC) chip.

The Schmalz FQE range also offers flexible handling of workpieces, regardless of size and geometry from different pick-up positions. Also designed for use with collaborative robots, these gripper systems provide solutions to handling applications across multiple sectors such as the automotive, glass

or electronics industry, in addition to end of line packaging and intralogistics tasks.

The "X-variant" of this area gripping system comes compete with a particularly energy-efficient, fully integrated pneumatic vacuum generation system, with the alternative "M variant" designed for operation with an external vacuum generator. With their low weight and low noise levels, together with their smooth rounded design, these grippers are also suitable for human–robot–collaboration applications, meeting the ISO TS 15066 standard.

Enhancing collaborative robot operation

The design of these gripper systems from Schmalz promotes and supports the safe environment requirements for employees when working alongside collaborative robots. In addition, the low weight and dynamic geometry of these compact and energy efficient grippers, ensure optimum operational robot cycles, while the process and condition analysis functionality which is also available, provides useful information for maintenance personnel and which can be accessed using a smart-phone.

Schmalz is a leader in automation with vacuum and for ergonomic handling systems. The products of the international company are used in logistics applications as well as in the automotive industry, the electronics sector and furniture production. The broad spectrum in the vacuum automation business segment includes individual components such as suction pads or vacuum generators, complete gripping systems and clamping solutions for holding workpieces, for example on CNC machining centres. In the Handling business segment, Schmalz offers innovative handling solutions for industry and trade with vacuum lifters and crane systems. With the energy storage business field, the company is building up another mainstay in the area of stationary energy storage systems.

The combination of comprehensive consulting, a high focus on innovation and first-class quality ensures sustainable added value for customers. Intelligent solutions from Schmalz make production and logistics processes more flexible and efficient and at the same time fit for the advancing digitalisation.

Schmalz is represented in all important markets with its own locations and trading partners in more than 80 countries. The family-owned company employs around 1,500 people at its German headquarters in Glatten, Black Forest and in 19 other companies worldwide.

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The tool dentist with a mission

It has always been the case that when managing director, Chris Weeds, describes NTR as a Tool Dentist, his audience grimaces. No one likes to think about breaking or chipping a tooth, but he is adamant that just like a dentist, NTR will have your cutting tools working like new.

Founded 45 years ago, NTR Ltd has gone from strength to strength since its acquisition by Chris Weeds and his fellow investors; Martin Allison, Graham Allison and Mike Shotton in July 2016. Based in Wetherby, West Yorkshire, the business serves the UK and 14 countries across Europe and boasts an enviable customer list.

NTR has repaired close to 1.5 million damaged indexable milling and turning tools over the years, with the service growing in popularity due to two inescapable factors; economics and the environment. With its new EnvironmenTOOL Service, NTR aims to provide a practical solution for both.

Cost savings

As we all know, escalating material costs in tooling manufacture have seen prices rising year on year and cheaper alternatives are often of inferior performance. The NTR EnvironmenTOOL Service has come to the rescue saving businesses up to 60 percent of purchasing a replacement new tool.

In many workshops when a tool is damaged, it is simply scrapped and replaced with a new one. This same process happens month in, month out with little consideration of the cost to the business or the environment. This is where NTR disrupts the market and provides a realistic alternative at a lower cost and shorter lead-time.

Green tooling

While research has shown that only around 29 percent of UK manufacturers class Net Zero as a priority, NTR has found that most decision makers from large conglomerates to smaller private engineering companies are considering the environmental impact of their businesses.

Repairing damaged tooling is not only a cost-effective way to manage your tooling, but also a more environmentally friendly process. Working with local suppliers where possible and producing fewer carbon emissions, repairing and reusing your tooling is great for your budget and better for the environment. It's estimated that NTR, last year alone, recycled at least 268,000 kg of metal tools.

With ISO 14001 Environmental Management targets and companies tasked with lowering their carbon emissions, NTR have become a key element of their client's environmental strategy. The EnvironmenTOOL Service hopes to underline this for new and existing customers alike.

Commercial supervisor, Charlotte Foster, who joined the company as an apprentice, is unapologetically a believer: "As one of the younger members of the NTR team, I love the green aspect of what we do. The more we re-use the planet's resources, rather than plundering it further, the better it is for everyone. Recycling is second nature to NTR, and now we are celebrating our green credentials through our EnvironmenTOOL Service. Going forward I'm excited to say that all our repaired tools will be both figuratively and literally green!"

Turnaround

NTR aim to return tooling within the week and by following these simple steps allows it to plan your tooling into its schedule efficiently, even prioritising specific tools for production concerns.

EnvironmenTOOL Service: 5 simple steps

- Gather all damaged tooling together
- Package securely, arrange collection to NTR by courier
- We'll email an itemised quote within 24 hours
- Confirm the items you wish to repair
- Receive tools back ready for use within the week

NTR also offer a rapid repair service on a 48-hour turnaround for when disaster strikes, which are returned on a next day delivery service. You certainly won't be without your tooling for long.

The process

Much of what arrives at NTR looks so badly damaged that most machinists would never imagine that the tooling will be returned to them within the week as good as new.

The process is simple and is a major part of NTR's on-going success. Like arriving at the dentist's surgery, your tooling is checked in and all its details recorded. The initial examination gives a clear indication of the work needed and the associated costs. The customer then decides which tools are economically viable for repair and the work begins.

The first step is strip-down which is a more thorough assessment of damage and includes the preparation of the tool for machining. Most

tooling will initially be TIG welded back to a slightly greater dimension to that of its original size and shape.

The milling team will then mill the tool pockets back to their original geometry and tolerances. The tool then moves onto the grinding engineers who machine in a rotary plane to cut the tool back to its original diameter. Imperfections are removed and internal threads recut where needed.

Although a thorough inline inspection occurs throughout the process, the final inspection is the most rigorous using NTR's latest investment in geometry camera technology from Royal. Only then, will the tool be signed off, with a certificate of conformity.

Like all good dental patients, each tool is given a sticker to go home with too.

The NTR team

Many of the Team at NTR have worked there for over 20 years and their expertise in the field is second to none. A true understanding of the complex geometry involved in tooling is in their DNA and the care given to each cutting tool is impressive.

Sam Wood, general manager, explains: "The amount of experience on the shop floor is huge. There isn't a tool type that we haven't tackled at one time or another. From simple end-mill cutters through to incredibly complex porcupine cutters, the team love a challenge. Probably the largest tooling we have in regularly, are the cutters for railway tracks. The tooling obviously takes a lot of punishment, but we do take pride in knowing that in a small way, we help keep the trains running across the UK."

Skilled manual engineers are hard to come by and NTR are also developing an apprenticeship scheme to introduce school leavers to the world of engineering, introducing them to both manual skills as well as CNC machining to ensure their knowledge is well rounded.

Keeping the standards high, NTR is accredited to ISO 9001:2015 and Fit4Nuclear. NTR proudly holds these accreditations as an absolute minimum for the accuracy and product quality that the team achieve daily.

Driven/Live Tooling

It was probably an obvious progression as tooling experts that NTR would evolve its services to include other maintenance and repair solutions. The can-do attitude of Sam Wood and his management team has meant that they apply their expertise to a range of applications, gaining superior knowledge as they go.

Driven/Live Tooling was one such example when existing customers started complaining about the standard of repair services in the sector. When Sam Wood brought this to the attention of the team, the skills were already available in-house and a new NTR service was born.

He explains: As manufacturers ourselves, we understand that keeping machines running is crucial to a business. A machine down often means missed deadlines, resources not utilised and most importantly, unhappy customers. Offering a repair and service package has meant less downtime for a number of high-profile clients."

Every unit is dismantled and pre-inspected before work commences. The unit is then thoroughly cleaned and degreased with a close inspection of all the components. Bearings and seals are replaced and upgraded where appropriate, before it is regreased and sealed.

Concentricity and alignment checks are then carried out before the Driven Tool is finally rig tested by our qualified engineers. It is then logged on a register and the replacement parts documented against the date when the tool is to be next serviced. The tool is then returned in a ready-for-use state.

Chris Weeds is rightfully proud of NTR's achievements over the last few years and sees great things for it in the future as it reaches international audiences. He states: "For all of us at NTR, it's a matter of changing the mindset of machinists, tool room managers and business owners. The message is simple: stop wasting money and precious resources by throwing away broken tooling. Together we can make a small difference that can result in great change."

With its enduring investment into technology, new machinery and raising awareness of how we can all be greener, you can be sure that NTR will continue to grow and meet the tooling needs of the future.

Remember, the next time you crash a tool, the Tool Dentist is ready and waiting.

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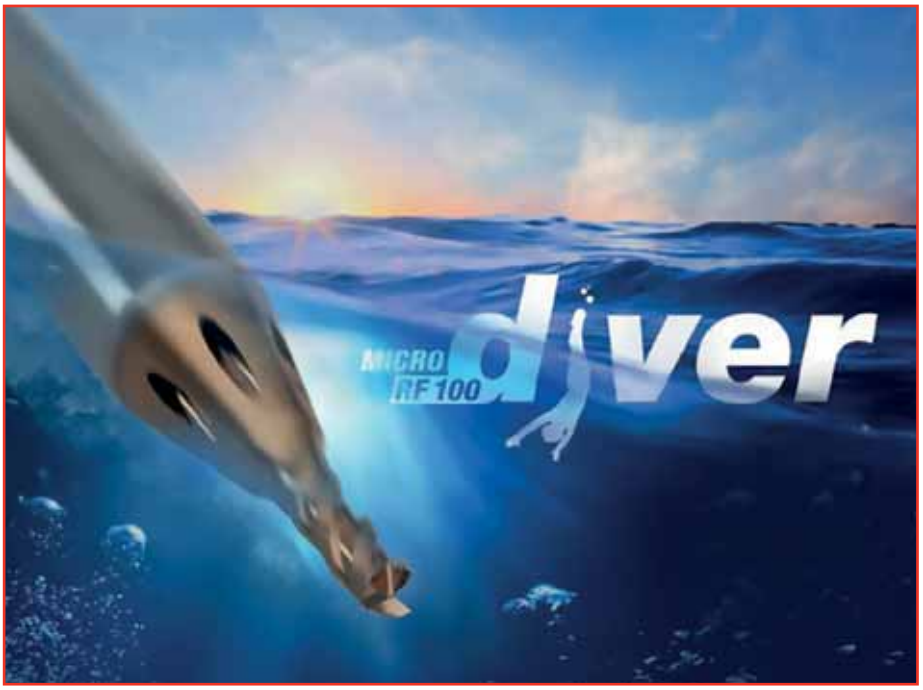
Guhring dives into micro milling

The Guhring Diver Series of end mills has been an unparalleled success since its market introduction and now Guhring is extending the multitude of benefits of this leading series to the micro machining sector. Recognised as the 'smallest diver in the world', the new RF100 Micro Diver end mills have been introduced for high-performance machining of small components.



The new micro-precision milling range is a universal tool that is perfect for every material and every application. Providing plunging and milling in a single tool, the new RF100 Micro Diver permits extreme cutting values with very high cutting depths that, until now, were beyond the realms of micro-precision cutting tools. Available in two variants, the 6808 and 6809, the RF100 Micro Diver features a symmetrical drilling face for stability when ramping and drilling, a new transition geometry to improve rigidity and an innovative flute form that further enhances rigidity and eliminates vibration.

The RF100 Micro Diver 6808 Series is a three-flute solid carbide end mill suitable for cutting materials up to 48HRC at depths up to 2.5XD. With a 40-degree helix angle to evacuate chips from the work area when conducting high-speed machining, the 6808 Series is available with a H5 4- or 6-mm shank diameter and a H8 cutting diameter from 0.79 mm to 3.175 mm with a multitude of dimensional increments available. This range has an overall length from 38.1 to 50.8 mm with a cutting length from 1.97 to 7.93 mm with the choice of four or six Guhrojet peripheral through coolant channels available. To enhance tool life further, the end mills incorporate a 45° corner chamfer to prevent edge chipping when machining challenging materials. This micro-fine corner chamfer ranges from 0.016 mm to 0.64 mm depending upon the tool diameter selected.

For the machining of pockets and slots up to 5XD, manufacturers can utilise the exciting new RF100 Micro Diver 6809 Series. Like the shorter length variant, the 6809 Series offers the choice of four or six Guhrojet peripheral through coolant channels, a H5 4 or 6 mm shank diameter and a 45° corner chamfer to prevent edge chipping. In comparison to the shorter 6808 variant, the 6809 offers an overall tool length from 45 to 57.15 mm with a 5.00 to 15.87 mm cutting length. Despite the impressive length to diameter ratio, the 6809 retains an unprecedented level of rigidity and stability for high-speed slotting, ramping, drilling and plunging, which is credit to the high-strength design that is presented through the transition geometry and ultra-fine carbide composition.

From a tool life perspective, both new end mills have an optimised geometry that adds strength and rigidity while the new HIPIMS Durox coating from Guhring enables the end-user to achieve a very high surface finish with optimal chip removal rates.

This innovative coating technology demonstrates outstanding resilience against wear and oxidation when wet or dry machining on a diverse material selection that includes everything from low and high alloyed steel, stainless, cast iron, aluminium and copper alloys as well as heat resistant alloys and hardened steels. If you want to dive into micro-machining with productivity and performance that exceeds all expectations, the multi-purpose RF100 Micro Diver is the tool for your business.

Guhring employs a team of field technical support engineers and in-house design and application engineers who are focused on offering customers a continuous stream of the very latest in cutting tool technology. The need to support manufacturing is the main goal and this is achieved by ensuring that optimised tools are designed, developed, manufactured and applied.

Guhring can offer all the above from the company's UK operation and this is complemented by an extensive stockholding of standard and special products. With a range of 1,620 standard products in over 44,000 sizes, the aim is to provide the ideal tooling solution in the fastest possible time.

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Nine-edged cutters raise circular milling productivity

Groove, cut-off and gear milling are just three processes that the circular interpolation milling system from Horn now performs even more productively following the introduction of a range of tools with nine cutting edges. The system can be used from an inside diameter of 8 mm for precise boring of grooves down to 0.25 mm wide, or for milling splines. Standard tools and special variants are available.

Smaller diameter circular interpolation mills from Horn were previously available with exchangeable heads having a maximum of six teeth. Three extra cutting edges offer higher material removal rates, raising productivity by shortening cycles and at the same time extending tool life.

The new nine-edged milling systems M911, M913 and M928 are stocked in widths from 1.5 mm to 3 mm. Maximum milling depths are 3.5 mm, 4.5 mm and 6.5 mm respectively. The cutter heads are available with different coatings to suit the material being machined. Due to its mass, the solid carbide tool shank ensures vibration damping during milling. All variants of the shank are designed for internal coolant supply.

New grooving and cut-off milling system

A new generation of tools for grooving and cut-off milling has been introduced by German tooling manufacturer Horn. The products are available in the UK and Ireland through its subsidiary in Ringwood, Hampshire. The cutter bodies are supplied from stock as side, shell and screw-in milling cutters, the two latter variants being equipped for internal coolant supply. Special surface treatment offers protection against abrasion from chips.

Horn offers the side milling cutters in diameters from 80 mm to 200 mm. Grooving

width is optionally 5 mm, 6 mm or 8 mm. As shell mills, the tools are available in diameters from 63 mm to 200 mm and with identical grooving widths. The screw-in cutters are for a groove width of 5 mm and may be ordered in diameters from 40 mm to 63 mm as standard. The effective number of teeth of depends on tool diameter and ranges from two to 13.

The M475 system employs precision-ground, indexable inserts with four cutting edges. Positive geometry and a round chip breaker groove together with a new grade, RC4G, deliver economical, productive machining performance.

Horn Cutting Tools Ltd Tel: 01425 481880
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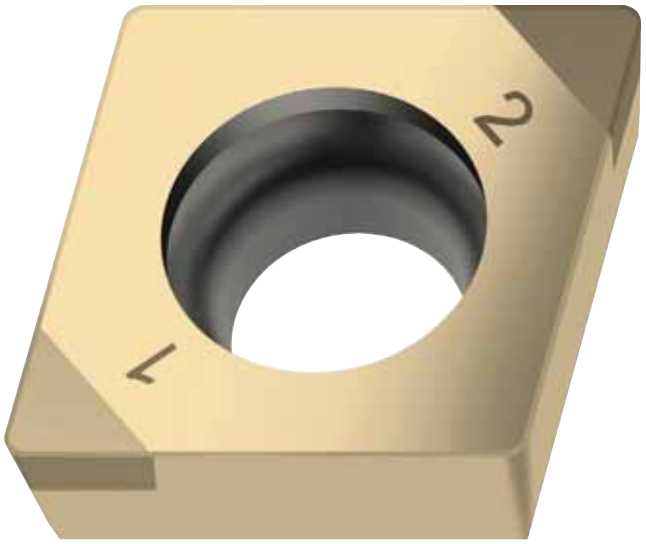
Walter presents Supreme solid carbide drills

The market for micro drills keeps growing. This is largely driven by the increasing desire for ever-smaller technology as well as intricate components, such as those used in medical technology, watchmaking, the food and drink industry or mechanical engineering. Premium manufacturers, such as Walter, are responding to this trend by constantly expanding the range of cutting tools.

The latest additions to the Walter range are the Walter DB133 and DB131 Supreme solid carbide drills. When used in combination with the DB131 Supreme fully coated micro pilot drill, the DB133 Supreme deep-hole drill, in particular, delivers impressive surface quality, tool life and process reliability. Specialist flute geometries are designed to optimise chip breaking to ensure that chips are kept short and therefore easy to remove.

Suitable for a wide range of materials and universal application, another integral factor in the solid carbide drill's performance is the point angle and diameter tolerances (p7/h7). Both drills are tailored to suit one another so that the pilot drill can deliver the best possible results for the deep-hole drill. The newly developed Walter processes, such as those for rounding the main cutting edges, increase the precision of the drills. This is particularly important in mould and die making, for instance, where fine tempering channels often have to be inserted close to the surface.

After all, lateral 'wandering', which is far more commonplace with HSS drills than with solid carbide drills can result in extensive damage to the component. Furthermore, the drills perform around six times faster than a gun drill. Both the DB131 Supreme and the DB133 Supreme are suitable for reconditioning and re-grinding. The solid carbide drills are available in diameters starting at 2 mm. Walter can also offer intermediate sizes for delivery within a number of weeks via its Walter Xpress service.



Reliable CBN turning grade solution for heavy-duty applications

With its indexable inserts featuring the new CBN WBH20C grade, Walter is for the first time launching a cutting tool material developed in-house. The tools are available with full-radius and V-shaped inserts with the positive engagement Walter Lock, either with or without wiper geometry for ISO inserts.

The CBN indexable inserts with the newly developed HiPIMS coating are the only one of their kind on the market. Patents are pending for the coating that consists of TiAlN PVD with a zirconium nitride top coat, the layer bonding to the CBN and the pre-machining process.

When used with the Walter Lock positive engagement, which was also developed in-house at Walter, the indexable inserts offer exceptional stability in the insert seat. This reduces micro-fractures on the cutting edge and ensures longer tool life and improved process reliability, making the inserts perfect for profile turning and dynamic turning.

The CBN turning inserts are suitable for operations involving interrupted cuts as well as finishing operations on hardened steels. They are suitable and recommended for use with coolant and can replace grinding in many cases. Alongside the increased process reliability, the wear resistance of the new grade is particularly appealing to users. This is the result of the combination of ultra-pure CBN and a new type of PVD coating with excellent layer cohesion. A light topcoat enables users to detect wear with ease. Potential areas of use are ISO H materials up to 65HRC, such as heat treatable steels or bearing steel.

Walter is one of the world's leading metalworking companies. As provider of specialised machining solutions, Walter offers a wide range of precision tools for milling, turning, drilling and threading applications. Walter works together with its customers to develop custom solutions for fully machining components for use in the aviation and aerospace industries, as well as automotive, energy, and general engineering.

Walter GB Ltd
Tel: 01527 839450
www.walter-tools.com

The ultimate packaging tube from rose plastic

The BlockPack from rose plastic is the safest square protection packaging tube. BlockPack is a diverse telescopic tube style packaging that can be used to pack and protect practically anything. Thanks to its length adjustment mechanism and special TwistLock closure technology, the BlockPack is easy to handle and can be adjusted to the desired product length in seconds and securely closed. The special base contours and reinforcing grooves ensure maximum product protection, while optional hangers and end caps made from ABS offer extra flexibility and safety.

About rose plastic UK

rose plastic is a world leader in environmentally-friendly plastic packaging for all industry sectors. Whether it is tools, monitoring, or sensitive instrumentation equipment that requires packing, we can provide a wide range of options. We manufacture a standard range of protective cases, individual packaging tubes, and storage solutions, rose plastic can help you develop a unique solution to meet all your needs.

With more than 800 staff in 10 worldwide locations, rose plastic is a brand you can trust to provide all your sustainable packaging and storage solutions. The standard portfolio of products expands beyond 4,000 product lines that are supported by a specialist team that can design, develop, and produce the perfect solution for your products and equipment. With an increasing number of manufacturers benefitting from our lightweight, hardwearing protective sustainable solutions, isn't it time you take a closer look at our portfolio?

Our packaging is now available from 100 percent recycled plastic

As part of its sustainability commitment, rose plastic now offers a wide range of packaging solutions manufactured from 100 percent recycled plastic. If you would like a sample of

100 percent recycled plastic, please get in touch. Email our sales team info@rose-plastic.co.uk

rose plastic UK Ltd
Tel: 01709 721794
www.rose-plastic.co.uk

Individual chuck jaws with just a few clicks

With the easy-to-use chuck jaw configurator easyJAW from Schunk, customers can order customised, application-specific chuck jaws with very little use of time and resources while also getting them delivered four times faster than comparable special solutions. The chuck jaw configurator easyJAW is one of the winners of the German Innovation Award 2023 in the category of "W2 Excellence in Business to Business - Machines & Engineering". The license-free online configurator can be accessed at schunk.com/easyjaw while a video tutorial is also available on YouTube.

Companies can use this tool to easily customise and order a growing number of selected standard variants of chuck jaws to suit their individual applications. It is so simple to navigate that no design knowledge is required. A 3D model in the browser always adapts to the modification that has just been applied, allowing the user to constantly keep an overview of the status configuration. All drawings and models are available as free downloads in all common file formats.

With the chuck jaw configurator easyJAW, companies can quickly and easily order chuck jaws that are precisely tailored to their application

Unique range

Soft top jaws, jaw blanks, full grip jaws and soft monoblock jaws can be configured. RAPIDO quick-change jaws have now also recently been added to the configurator. Claw jaws and intermediate jaws will be added to the portfolio this year. The easyJAW configurator offers the option of modifying jaws in terms of geometry, bore holes, interfaces and even the material. At this point, this range of design options is unique on the market.

Full transparency of costs and delivery time

Especially convenient for customers, easyJAW shows the calculated price and delivery time during configuration. The subsequent special production and delivery is exceptionally fast and is four times quicker than comparable special solutions. All soft jaws, for example, are delivered within a maximum of two weeks.

New sensor detects three clamping states

The versatile SCHUNK VERO-S modular system enables workpieces and clamping devices to be mounted, positioned and clamped in no time at all. With its new VERO-S AFS3 IOL monitoring sensor, reliable information is provided on the clamping states of the modules. The new monitoring sensor VERO-S AFS3 IOL offers more process transparency. It reliably indicates the clamping position of the modules.

Uncertainty in automated clamping has been consigned to the past: the new VERO-S AFS3 IOL brings greater transparency to the clamping process, thereby ensuring precision. Via an IO-Link signal, the sensor reliably reports the clamping slide positions and whether the module is "open", "clamped with clamping pin" or "clamped without clamping pin". An LED light indicates the clamping status, ensuring additional operating safety. The component can be combined with SCHUNK clamping modules of the NSE3 138, NSE3 99 and NSE3 100-75 series. An inductive proximity sensor also indicates whether there is a pallet above the modules. This smart electronic monitoring system interaction ensures greater safety in automated workpiece clamping for users. This ensures a consistently high level of process reliability. There is no need for pneumatic clamping slide monitoring.

As well as convenient indication of clamping status, the simple programming is another customer benefit. Training for the VERO-S AFS3 IOL is via the standardised IO-Link interface and is completed in no time at all. A wide range of process data can also be recorded via this interface. The VERO-S AFS3 IOL operates with an energy-saving nominal voltage of 24 volts. It is very easy to install and is mounted outside the clamping module support.

SCHUNK Intec Ltd
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FEIN launches powerful magnetic clamping solution in latest safety step

FEIN, a leading power tools and accessories manufacturer, has launched its first expandable clamping solution, the VersaMAG system, to the UK's metalworking market. The modular system, centred around a powerful magnet, features a range of attachments which can be interchanged for use in endless applications.

The VersaMAG, a neodymium magnet, forms the foundation of the clamping solution. Its innovative 2-rotor system generates a maximum holding force of 7800N, allowing end users to clamp securely onto all magnetic surfaces as thin as 4 mm. As a result, the system will enable users to complete tasks safely and efficiently across a huge range of work environments, such as shipyards, aircraft manufacturing facilities and steel and fabrication shops.

The clamping system's powerful magnetic base also eliminates the requirements to manoeuvre rigid worktop vices or materials in order to safely secure it while operating tools. This significantly reduces the required setup time across many applications, increasing productivity for those working across metal and steel construction, machinery and plant engineering and many more.

As well as the magnetic base, the system also consists of several attachments, each designed to support end-user requirements. The VersaMAG vice is easily mounted onto the magnet for quick and flexible use. The ability to set up the vice quickly and easily almost anywhere encourages workers to secure materials and not attempt to hold components in their hands whilst operating power tools, which helps to significantly reduce the risk of workplace accidents. The mobile aspect of the vice also allows for easy removal, creating extra workspace when not required for a task. For use with larger components, FEIN also offers 60 mm raising jaws to be attached to the mobile vice.

In addition to the vice and jaws, FEIN has developed a 16 mm welding plate for use with the magnetic base. Featuring a hole grid system, the welding plate enables simple and precise alignment of workpieces and its small and compact design makes it ideal for stationary and mobile use.

"As well as offering increased productivity and flexibility, the VersaMAG system expands our portfolio of safety solutions. We know from speaking directly to users that a lack of flexible vice options has historically led to frustration and safety risks, where material cannot be secured properly or operators have felt forced to use their hand, leaving only one hand free for tool operation. We are proud to be solving this issue with our new easy-to-use magnetic clamping system. The VersaMAG joins our growing collection of safety-led solutions, which also features recent launches including our high-safety angle grinder, the Protago, which pairs perfectly for a safer standard of grinding." comments Andy Mills, managing director of FEIN UK.

FEIN has a rich history of providing application-based solutions for end-users across metalworking sectors. With over 150 years of experience in manufacturing power tools, FEIN is research and innovation-led, continuing to meet the industry's needs with new product features year after year.

"The launch of the VersaMAG marks FEIN's first steps into the world of clamping technology, and we are already planning for its expansion, with action underway to offer our customers even more attachments for use in different application areas," concludes Andy Mills.

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IEMCA adds a third Maestro bar feeder to its range

The world's leading manufacturer of automatic bar feeders for CNC lathes, the Italian company Iemca, has introduced a third model to its Maestro range. All are designed to maximise productivity on fixed-headstock lathes and offer unattended production around the clock. They are available in the UK and Ireland through sole agent 1st Machine Tool Accessories, Salisbury.

The two existing models can handle round stock up to 100 mm diameter. They are both capable of bar changeover in 31 seconds, as is the new Maestro 52, which is designed for smaller lathes running material up to 51 mm diameter, 42 mm hex and 36 mm square. Bars up to 4.2 m in length to a maximum combined weight of 100 kg may be loaded.

Among the innovative design features incorporated into the new bar feeder, three have been granted patents. One protects ABACOS (Adaptive Bar Control System), a self-adjusting bar clamping arrangement designed to guide the material, damp vibrations and tighten on the pusher, all without changing the guide channel.

Vibration is avoided by another patented feature, the VIBRA-DAMP COLLET with interchangeable inserts. It restricts bar oscillation by reducing their amplitude and lowers bending and torsional stresses on the bar. A third patent has been granted for the HANDYLOQ quick change collet system, which allows manual exchange within three seconds without the need to use tools.

Additional advantages of all Maestro bar feeders are Industry 4.0 data sharing as an option and a choice of bar loading systems including an UP magazine that allows material to be presented at an ergonomic height. Built-in boxes at the front facilitate access to the electrics, lubrication system and tools and there is a drawer for storing remnants.

The Maestro is supplied with a modern, 7-inch touch-screen control that has the ability to adjust the magazine automatically for a new bar size, making it quick and user-friendly.

1st Machine Tool Accessories Ltd
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www.1mta.com

Solutions from Lang Technik UK

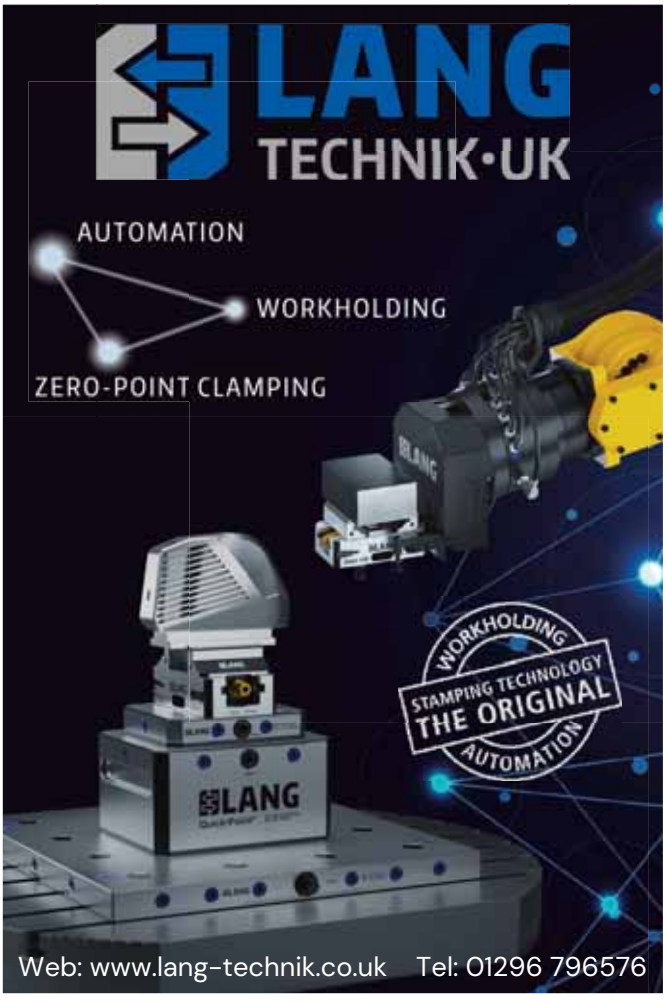
Lang Technik UK has been established to provide sales and application support for new and existing customers of leading 5-axis workholding and automation systems.

Its goal is to increase customer productivity by perfecting manufacturing processes. It offers a complete and proven package of workholding, Zero Point clamping and automation for machine tools. Its Pre-Stamping technology is considered a 'benchmark' in workholding making its 'all in one' solution truly unique.

All of its products are beneficial to machining processes which maximise manufacturing capacity. Simple operation and great versatility make the daily work of its customers easy and maximise their profits.

While its automation systems are a distinct feature in many production facilities, it is primarily the items that are inside the machine tool which often make the biggest difference. Companies of all sizes and from a vast range of industries trust its experience. Lang Technik UK shares its knowledge with machining companies and helps them maximise their manufacturing potential.

Lang-Technik UK Ltd Tel: 01296 796576
Email: sales@lang-technik.co.uk www.lang-technik.co.uk



Machine for producing dental prostheses employs bespoke zero-point workholding

Headquartered in Austria, Amann Girrbach manufactures innovative equipment to produce not only dental prostheses such as abutments, crowns, veneers and bridges, but also dentures. In its latest production system, the Ceramill Matik, the company has introduced a zero-point clamping system from Roemheld group company Stark Spannsysteme. It ensures enhanced repeatability when positioning raw material for 5-axis milling of the complex profiles that characterise the prostheses. The workholding products are available in Britain and Ireland through Roemheld UK, Hitchin.

Intended for extended periods of unattended production overnight and at weekends, the new machine is an intelligent solution that combines three operations in one - milling at up to 100,000 rpm, cleaning and automatic storage.

Marcel Humml, Senior Manager Operational Excellence responsible for R&D said, “The Ceramill Matik incorporates a 5-axis machining centre with a 36-workpiece changer, whereas other products on the market have a maximum of 12 workpiece positions and are considerably more expensive.”

He said that the company's aim was to bring increased efficiency to the dental laboratory. To make this work, a system was needed that could autonomously and consistently handle tools with radio frequency ID from a 27-position magazine, as well as store and handle diverse workpiece materials such as metals, polymers, zirconium dioxide and ceramics. Accurate location of the material blanks, each of which also has a readable RFID chip, prior to machining is only possible if a zero-point system is used.

Marcel Humml (right), Senior Manager Operational Excellence at Amann Girrbach, with the new Ceramill Matik dental prostheses production machine Michael Netzer from Stark Spannsysteme (left).

The modified STARK.basics.S Pneumatic zero-point clamping system supplied to Amann Girrbach for the Ceramill Matik

Up to 36 workpieces may be held in the material magazine, allowing extended periods of unattended machining

Michael Netzer from Stark Spannsysteme's technical sales department helped to draw up a specification sheet for Amann Girrbach with key parameters such as workpiece size, clamping force and required repeatability of positioning. Analysis showed that the optimal zero-point clamping system would be a STARK.basics.S Pneumatic. A week later, Mr Netzer delivered one to Amann Girrbach.

It is well suited to the application due to its high-quality, stainless tool steel construction and compact, modular, maintenance-friendly design. Spring force clamping with pneumatic release provides fail-safe workholding. Positioning is simple and reliable via an integrated recess in the STARK.basic.S and a corresponding locator in the holder.

Since cleaning was a high priority in this application, the decision was taken to use a zero-point variant with blow-off, an extended nozzle ensuring effective removal of debris. The cylindrical recess therefore remains free from swarf and due to optimal application of clamping force, no flexing or lifting is possible and high positioning accuracy is guaranteed.

A material holder in the Ceramill Matik being located accurately in the Stark zero-point clamping system. Prior to prosthesis production, a material blank is inserted into the holder

Typical dental prostheses produced in a Ceramill Matik

Marcel Humml added, “When testing the Stark zero-point system, we concluded that we would like to have a few modifications. We did not want any visible screws and we preferred the sides to be exposed so that water and dirt could run off better.

“Due to our compact holder size, we also requested a smaller support surface to save space. All of these modifications were duly made by Stark in the customised solution they provide to us.

“The cooperation with Stark during the development phase of Ceramill Matik was unbeatable, the relationship really couldn’t have been better.”

Michael Netzer concluded, “Our zero-point product was designed for metal machining on a factory floor and was not originally intended for a small production centre producing fine, delicate parts.

“However we were happy to make the necessary adaptations to support automation in the dental sector.”

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Hold tight with KTA Spindle Tooling from Leader and try it for free

Global precision toolholder manufacturer KTA Spindle Tooling has partnered with workholding and machining efficiency specialist Leader Chuck International to offer full technical sales and service support in the UK and Eire for the company's extensive range of hydraulic toolholders.

With over four decades of production knowledge and experience gained in the development and manufacture of toolholders, KTA is a leading manufacturer of these products with 350 skilled staff and the

capacity to make up to 30,000 holders per month. Around 60 percent of its production is exported globally, to some 20 countries in Europe as well as North America, and now the UK and Ireland.

KTA managing director, Vipul Chopda, says: "We believe that teamwork and quality leads to perfection and we have developed the mindset of our team to ensure that whatever we do, i.e. turning, milling, grinding and in fact any operation, accurate measurement is given the highest consideration. So, we have this ethos of checking and inspecting and reviewing every phase of production which has permeated our working culture. Therefore, quality is the essence and backbone of what we do."

It comes as no surprise then that the company's quality management system is ISO 9001 accredited. The 80,000 ft^2 shopfloor is also populated with 150 machine tools of global renown, such as Nakamura and DMG Mori turning centres and five Makino machining centres installed in recent years. Grinding is a vital part of the production process and 65 machines from Schaudt, Studer and Okamoto support this at KTA.

With almost 5,000 products in its extensive portfolio, the business is always focused on development, and this is where the KTA hydraulic range of toolholding solutions comes into its own. Over the past three years the company's engineering team has been refining its in-house designed hydraulic chuck range. Compatible with most leading brands, such as Schunk and WT, the hydraulic toolholders are recommended for spindle speeds up to 25,000 rpm and are balanced to G2.5.

Leader Chuck's managing director, Mark Jones, states: "Hydraulic toolholding offers a number of significant benefits to users in the machine shop. However, until now the price has been a major hurdle to overcome in order to attain these advantages. With the KTA range engineers can unlock the full potential of their high-speed machine tools for around 30 to 40 percent of the cost of the holders currently available."

Hydraulic toolholding is easier to manage than heat shrinking, with no machine required to heat the holder to fit the tools, you also do not have to wait for half an hour or so for it to cool down after heating making it a much faster process.

As well as the increase in concentric accuracy, the natural damping of the oil pocket within the holder provides benefits for the cutting tool, increasing tool life by a measurable margin.

Mark Jones concludes: "With tool life typically increased by up to 40 percent, improved surface finishes and reduced cycle times offered by simply using hydraulic tool holding the question has to be why wouldn't you? KTA is confident enough to offer machine shops the chance to try out its technology before spending any money. Once the benefits have been seen, customers have the opportunity to upgrade their machining capability in a timeframe and fashion that suits their business."

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Vision Engineering launches new version of its bestselling Mantis optical stereo microscope

Vision Engineering, a leading provider of innovative inspection, metrology and digital 3D visualisation solutions, has launced the Mantis 3rd Gen. It is the latest addition to the best-selling and award-winning range of ergonomic optical stereo microscopes. Mantis is in use in tens of thousands of R&D, manufacturing and analytical sites around the world. Mantis 3rd Gen incorporates the latest developments in optics, digital cameras and fully adjustable LED lighting, to keep Mantis at the forefront of stereo imaging.

Mantis is designed for precision engineering, electronic engineering, medical device manufacture and a wide range of other applications that require high-quality images and superior ergonomics. It features a unique, patented, eyepiece-less design that delivers a large, high-quality optical stereo image directly into the user's eyes, making it more comfortable and easier to view than traditional microscopes.

Manipulative, rework and restoration tasks need stereo images to allow easy hand-to-eye coordination and depth perception. Mantis 3rd Gen combines stereo optical images with high resolution camera options for manipulation and recording.

Mantis 3rd Gen features long working distance and excellent depth perception, now with a choice of three magnifications, making it ideal for a wide range of applications. It also now comes as standard with five different ways to illuminate your subject, giving you the flexibility to adjust the lighting to get the perfect image for your needs.

In addition to its outstanding image quality and ergonomics, Mantis also features a powerful digital imaging system that allows you to capture, review and share high-resolution images. This makes it easy to share your work with colleagues, document your findings and train new employees.

Substantial R&D has resulted in a new range of stand options, to allow flexibility, stability and reduced footprint.

"As our customers have told us for the last 28 years, Mantis is an ideal solution for anyone who needs to perform precise work with small objects," says Mark Curtis, managing director at Vision Engineering. "We invest substantial R&D time and effort in exploiting the opportunities that fast-moving optic, digital and lighting technologies offer our dedicated customer base. Mantis 3rd Gen offers the best of both worlds: superior ergonomics and optical image quality, combined with the latest digital imaging technology."

Mantis is available for purchase now. For more information, visit: ***www.visioneng.com/mantis***

Vision Engineering Ltd is a global leading-edge designer and manufacturer of patented ergonomic stereo optical and digital instruments, used for inspection, manipulation, measurement and analysis of manufactured parts, by most of the world's leading manufacturers and their extended supply chains.

Vision Engineering's contract manufacturing division offers comprehensive contract manufacturing, design and commercialisation packages, giving customers access to the latest technology, as well as a team of experienced designers and engineers.

Founded in 1958 and wholly British owned, Vision Engineering's Global HQ, design and manufacturing facilities are based in state-of-the-art modern premises in Woking, Surrey, UK, with extensive manufacturing facilities in the UK and US. Regional sales and tech support offices are located throughout North America, Europe and Asia, supported by a fully trained network of distributors.

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www.visioneng.com

30 years of Aberlink success

Innovation has been at the heart of Aberlink's success since its incorporation in 1993 and it is celebrating 30 years in business in July 2023. Its tagline, 'Innovative Metrology', has been a driving force behind its patent protected product development for the last three decades. Aberlink's best-selling Axiom Coordinate Measuring Machine was just the beginning as the company has since established itself as a global provider of affordable CMMs and Optical Measuring Systems known for their quality, accuracy, robustness, speed and ease-of-use. Its products are widely used in high-demand industries such as aerospace, automotive/autosport, electronics, oil and medical sectors, where precision is paramount.

Not only has it gained a reputation in the UK, but its products are now sold in virtually every country throughout the industrialised world, with 75 percent of its total output being exported. Aberlink has established an extensive network of overseas agents to provide excellent levels of service and training to match the quality of its products.

Behind its success is Aberlink's steadfast commitment to research and development, which has led to a steady stream of commercially successful product launches. Its innovative approach to metrology, use of advanced materials and understanding of design-for-manufacturing principles has resulted in leading performance. The skilled workforce is committed to producing the highest quality products possible, catering to the world's most demanding consumers: Quality professionals.

Aberlink's fully self-contained business model has enabled it to provide remarkable value for money. By machining all the components for the machines itself, the company understands the manufacturing process fully and can design for manufacture accordingly. This ensures reliable products with no redundant costs as all assembly is performed on-site, in Gloucestershire, where the software is also written in-house.

To mark its 30th anniversary, Aberlink is offering a 'limited edition Axiom CMM' with a colour scheme that pays homage to the original best-selling CMM, the Axiom.

Aberlink's remarkable achievements over the last 30 years is a true British manufacturing success story and is only strengthened by its continued commitment to innovation. Aberlink has established a global reputation for its metrology products which are innovative, easy-to-use and competitively priced.

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Bearing it all

How BNL has used CADCAM to turn products around faster

By Rupert Morgans-Wicks, on behalf of CDG 3D TECH

Bearings make the world go round, almost literally. These essential mechanical elements are a key ingredient in making sure that objects move the right way, with anything that turns requiring one. As a result, they're used in many of the major industries, from automotive to food processing and have hundreds of thousands of other applications. Without bearings and the motion that they allow, the world would come to a stand still.

Being a leader in producing integrated plastic bearings, BNL Bearings has been at the forefront of designing and manufacturing these rolling element bearings since the company's founding in 1970. Since then, its processes have been refined and perfected, despite becoming more complex, in order to allow it to produce bearings for an ever-increasing number of global markets and adapt to a constantly changing world.

Energy use
BNL's smaller, lighter bearing assemblies can have as little as a third of the torque to rotate a metal bearing, meaning that less powerful motors are needed to drive them and less power consumed on start-up and in operation.
bnl-bearings.com/environmental-responsibility

Picking plastic

However, with most bearings being made out of metal, BNL's dedication to making plastic ones begs the question: Why would a plastic bearing be preferable?

The answers are manyfold, a key one being that plastic bearings don't corrode. Naturally, many metals are susceptible to corrosion from water and chemicals, which leads to the premature wear of the bearing, so the bearing and the product it is used in will have a reduced operational life.

As a result, BNL's plastic non-corrosive bearings are common in industries where water is heavily present, such as shower doors or pool cleaners. Similarly, products that are built for outdoor use will need non-corrosive bearings, because they will be exposed to the elements. For example, plastic bearings used in a wind turbine will be protected from the elements, while bearings used in applications such as yacht and boat rigging will be protected from wear caused by salt water.

BNL's plastic bearings also boast chemical-resistance, which is particularly helpful when the bearings are used in certain environments. The BNL bearings that are made out of specialist materials, such as UHMWPE and PEEK, are put to use in hostile habitats such as the chemical baths used in LED screen processing, an environment that would cause many metal bearings to fail prematurely. Additionally, chemical-resistant plastic bearings are invaluable in the food industry, where avoiding contamination is vital. Disinfecting the conveyor systems is crucial, so it's important that the bearings used in the wheels aren't worn by the chemical disinfectants from the frequent washdowns. Another reason for opting for plastic bearings over metal ones is the fact that they don't require lubricant.

This is particularly useful in the paper path industries, where lubrication could otherwise ruin the paper. Whether it's an ATM depositing cash or a printer generating hard copies, lubricant can cause the paper to be blemished with unwanted markings, ruining banknotes or hard copies. The issues don't end there, either, when it comes to printers and photocopiers, because the toner can mix with the lubricant, which creates a grinding paste that then wears the bearing prematurely. With a BNL bearing, these problems can be avoided.

Evidently, plastic bearings that are free of lubrication help to make their products easier and more cost-effective to maintain. It's a notable benefit and one that, in fact, gave BNL its name. The acronym stands for Bearings Non-Lube.

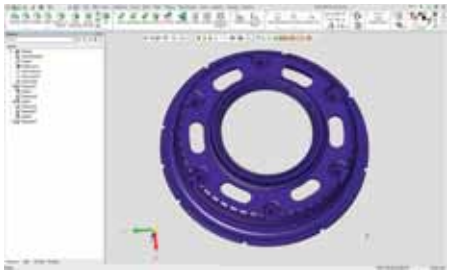
Plastic's inherent lightness can also contribute to energy efficiencies. BNL's plastic bearing designs are generally much lighter than a steel equivalent but using their trademark integrated design techniques to remove components and fixings from the product, custom designed bearings can be up to 50 percent lighter than an alternative multi-component solution. In reducing weight, they reduce torque to rotate on start-up and in operation, which means that smaller, less expensive motors can be used.

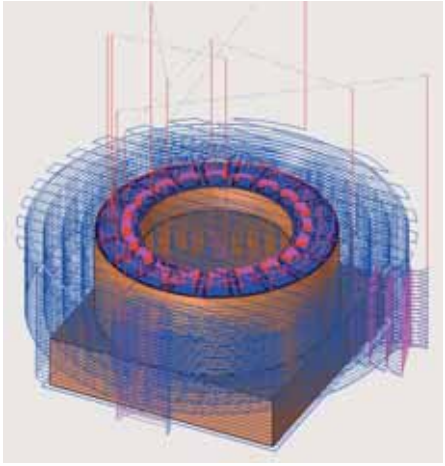
Moulding for precision

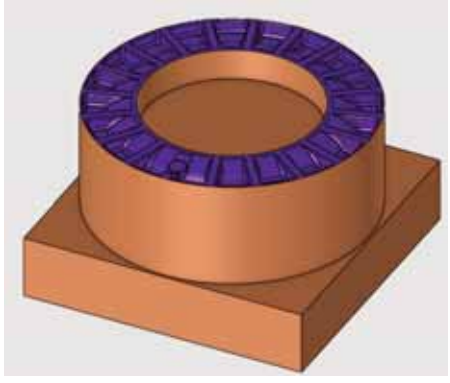
Injection moulding is the technique of choice for BNL and one that it has perfected for bearing manufacture. “About 99 percent of its products are injection moulded,” says Dave Clark, with the one percent that aren’t simply being such low volume that they don’t justify the tools.

The injection moulding process involves molten plastic being squeezed into a mould at high pressure, before water cools it and the plastic solidifies. It’s a process that allows for extremely high precision products to be made, which is crucial when dealing with bearings since they can come in all sizes. For example, an extremely small bearing will need to be intricately designed in order for it to work properly.

However, before the injection moulding process can begin, a design for the product and the mould needs to be created which is where Cimatron’s CADCAM software comes into play.







In-house tool design

BNL has found immense success with Cimatron since first embracing it in 2006 and that shows no signs of changing. “Prior to BNL doing its own in-house designs, it used to purchase all its tool designs externally,” says Dave Clark.

Though this was an ample way of operating, it found that relying on a toolmaker’s tool design had its shortcomings, because the toolmakers were simply less familiar with the processes and precision needed to manufacture moulded plastic bearings than BNL. Naturally, when the moulding process requires as many features and as much precision as injection moulding, familiarity is vital.

Dave Clark notes that “we got better control of the tool design by doing our own in-house tool designs. Control is important, allowing BNL to get exactly the dimensional development they want and we do all the programming in Cimatron.” From adjusting the tool design, which is done with the Mold Design package, to even the 3D CAM package that’s used for transferring to the machines on the shop floor, Cimatron provides an intuitive, efficient way to work.

Selecting Cimatron over other CADCAM softwares was the result of reviewing a number of different ones, as well as a recommendation from one of BNL’s toolmakers. Dave Clark explains: “We found that the Cimatron package targeted that plastic pack design and plastic tool design in a way that gave the company a much easier, much quicker process than other packages at that time.”

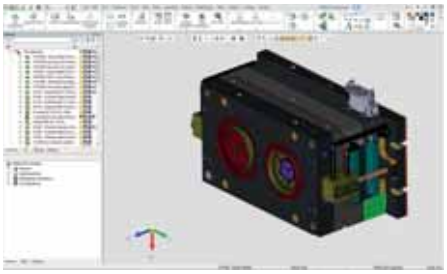
Does it still hold up after all these years? The answer is a resounding yes. BNL regularly talks to other subcontract designers who also use Cimatron, and the consensus is that it still provides a far quicker way of doing things.

The future

BNL’s plastic bearings are essential to an enormous range of industries. From conveyor systems to conference cameras and even smart controls to dishwashers, BNL’s print can be found everywhere and their reach will only expand.

One of the primary industries is the automotive world, where bearings are crucial to many parts of a vehicle, such as steering columns and infotainment control. However, with so many vehicles now moving to LCD touchscreens, you might imagine that there will be less of a need for knobs and their bearings - not so.

“Market research by the big OEMs have shown that drivers don’t like the fact that you have to take your eyes off the road to operate the screen and there are recognised safety concerns in the industry,” says Dave Clark. “Drivers still prefer the knobs and switch-type situation.” This is where one of BNL’s recent innovative ventures arises.



“We found that the Cimatron package targeted that plastic pack design and plastic tool design” in a way that gave the company a much easier, much quicker process than other packages at that time.

— Dave Clark, BNL tooling manager

Working closely with leading corporation Microchip Technology Inc., BNL has designed a control knob that can be positioned and fixed to a capacitive screen, where it then allows the driver to operate the screen menus and selections via turning and pressing the BNL control. Rather than needing to swipe and touch specific areas of the screen, which would require the driver to look away from the road, the BNL control knob rotates through the menu options and provides haptic feedback to the driver, who can then select their option with a push.

Known as “Knob-on-Display”, BNL’s design proves the desire for rotational function will continue but that bearing designs will need to adapt with the advancements of more digital technologies - and BNL’s integrated custom bearing designs are already advancing towards this future.

It’s an innovative concept from a company rife with new ideas and one that is able to be brought to life with Cimatron software and a team of highly skilled engineers.

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Mastercam 2024 is now released

Customer and industry input drives multiaxis, mill-turn advancements

Mastercam CADCAM software has announced the release of Mastercam 2024. It includes dozens of features and enhancements to keep your shop running with the latest that Mastercam has to offer the manufacturing industry.

Manufacturers worldwide got the chance to test-drive Mastercam 2024 during the Public Beta Program before it was released and provided valuable feedback to help shape the final 2024 product. Many of the improvements in Mastercam 2024 are directly driven by Mastercam users and shops. Feedback from Public Beta releases, shop visits, customer surveys and consultation with expert industry partners create the practical, shop-driven focus that helps ensure Mastercam users' success.

Mill-Turn additions and enhancements

Users can now use turret-mounted angled milling heads in Mill-Turn operations, allowing you to create toolpaths on angled planes using turret-mounted tools which results in enhanced productivity and ease-of-use for both milling and turning operations. B-Axis Contour Turning also sees three major enhancements: the ability to manually edit tool axis vectors, manually edit usable insert area and adjust stock function which allows for more in-process control and understanding of the motion of the B-axis head from within the toolpath interface. Process Hole and holemaking enhancements.

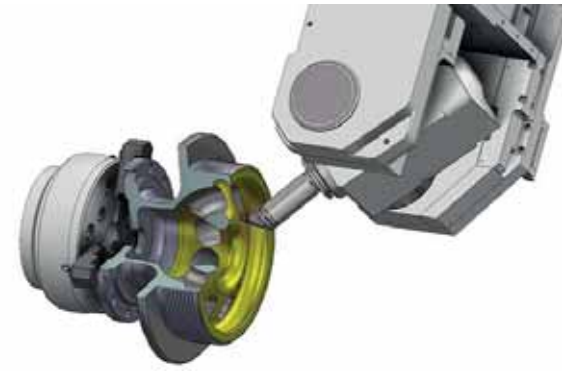
The Process Hole toolpath applies previously defined processes to a part's solid hole features, which consists of one or more holemaking operations' built-in functions library. The ability to import applicable processes into the working part file saves time and money while maintaining consistency with your processes. A displayed graphical elements button has been added to the holemaking and multiaxis toolpath dialog boxes, permitting you to show or hide graphical elements depending on the toolpath type. This allows for more customised control on a hole-by-hole basis or across the entire holemaking toolpath.

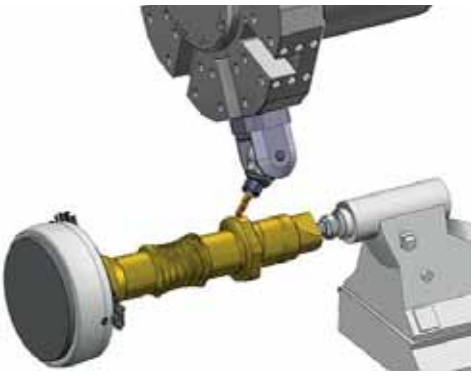
Milling enhancements

The Dynamic Mill, Face and Dynamic OptiRough toolpaths now include a new Maximize Engagement option, producing more nominal chips, minimising the number of small chips, and helping prevent problematic stand-alone material slivers. Waterline toolpaths are now aware of undercut stock conditions resulting in improvement to the toolpath motion and less air cutting.

General system features and updates

Mastercam's traditional on-screen gnomon has been augmented with the new Gview cube which is a more graphical way to show plane orientation and its interactive features allow users to control the cube and on-screen representation of the part. Machine Group Setup Stock has three new easier, more intuitive selection methods including: Add from two corners, Add rectangular stock and Add cylindrical stock. The Save/Load Toolpath Defaults List enhancement allows a user to specify individual files and operations to load from/save to. The ability to quickly switch between different default sets for different toolpath goals or transfer operational data from file to file delivers time savings, an enhanced user experience and improved functionality.





Mastercam is dedicated to providing state-of-the-art software tools for CADCAM manufacturing markets. Its goal is to provide superior software products based on users' needs to solve simple to complex design and machining problems.

Mastercam provides solutions for designers and NC programmers around the world, in a spectrum of applications including 2- through 5-axis routing, milling and turning; 2- and 4-axis wire EDM; 2D and 3D design and drafting; surface and solid modelling; artistic relief cutting and Mill-Turn. Customers range from one-person job shops to Fortune 100 manufacturers. With Mastercam, the same software that is used by corporations such as Boeing, IBM and Sikorsky is still affordable enough for the small job shop. To ensure an ongoing supply of trained programmers and machinists, Mastercam is available to educational institutions at sizable discounts.

As its flagship product continues to grow and expand into new markets and technology, the company's focus remains on its customers. CNC Software is committed to delivering solutions that support higher productivity and greater precision for the wide-ranging needs of manufacturing.

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Lantek launches EdgeLine Bevel module for Lantek Expert Cut

The EdgeLine Bevel module powered by Lantek Expert Cut simplifies programming and streamlines CNC programming of modern TRUMPF cutting machines for more efficient laser machining.

Lantek Systems, a leading provider of software solutions for the sheet metal and manufacturing industries, has announced the launch of a new module for its Lantek Expert Cut CADCAM nesting software. The EdgeLine Bevel module is designed to streamline the CNC programming of modern TRUMPF cutting machines, providing a more efficient and simplified process for laser machining and the preparation of components for welding operations.

The EdgeLine Bevel technology offers several key advantages over traditional methods that allow specific beveling techniques to be performed without tilting the laser head, reducing overall processing time and eliminating the need for separate work centre processes. The technology also has a significant impact on the preparation of components for welding techniques by enabling the automatic insertion of chamfers and countersinks of various sizes up to 45°, providing a faster and more efficient process with fewer errors compared to traditional manual methods.

"We are delighted to launch the EdgeLine Bevel module for Lantek Expert Cut," says Mario Rodríguez, product manager of Lantek. "This technology represents a major advancement in the field of laser processing and will significantly improve the efficiency and convenience of the manufacturing process. We're confident that our customers will appreciate the benefits of this module and that it will help them to stay ahead of the competition."

The EdgeLine Bevel module is currently available only for modern TRUMPF's laser machines. For more information, visit Lantek's website or contact a Lantek representative today.

Lantek is a multinational that is leading the digital transformation of companies in the sheet metal and metal industry. With its smart manufacturing software, it enables factories to be connected, turning them into Smart Factories. It rounds off its range of services with CADCAM, MES and ERP solutions for companies that manufacture metal parts from sheet metal, tubes and profiles using any cutting technology.

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Engineered to deliver, enhanced by VERICUT

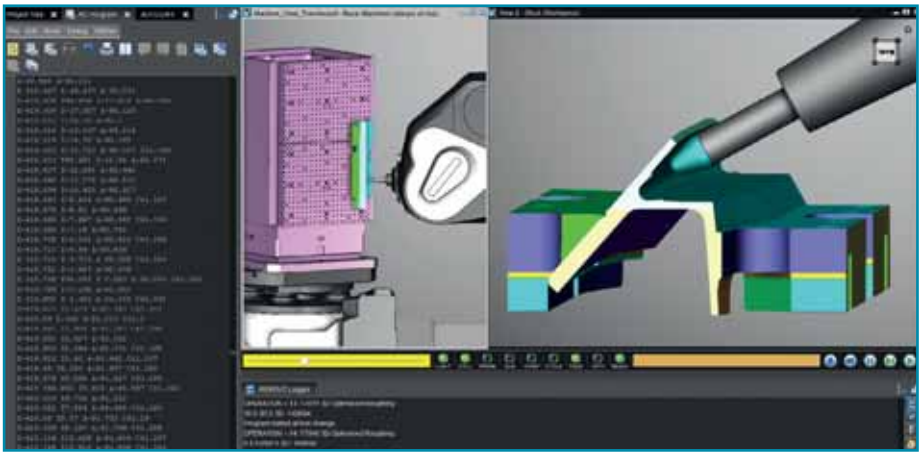
CGTech's VERICUT software has created a confidence boosting, reassuring safety net for Hyde Aero Products Ltd for well over 20 years. As one of the UK's largest independent engineering companies, Hyde Aero Products Ltd has developed a strong reputation for the design, manufacture and assembly of components for a wide range of customers, services and systems. From the manufacture of prototype and test components for the medical and tooling industries, through to the fast response AOG deliveries for aviation and defence clients Hyde Aero Products Ltd has an established customer base, supported by its highly developed engineering skillset and the verification capabilities of VERICUT.

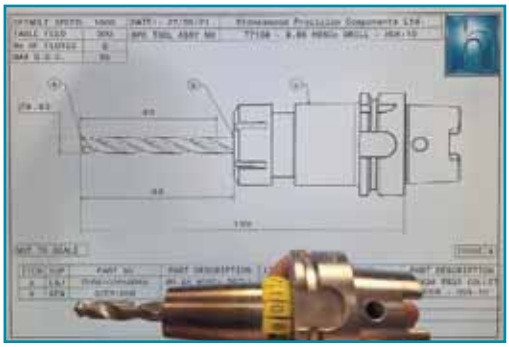
Comprised of over 20 manufacturing units specialising in all elements of metallic component manufacture and processing, Hyde Aero Products Ltd relies on VERICUT CNC simulation, verification and optimisation software across a number of its sites. In particular, Stoneswood Precision Components Ltd (SPC), which specialises in the subtractive manufacturing of soft and hard metal aerospace components, has harnessed the functions within VERICUT to deliver high quality components, first time.

To achieve the 'right-first-time' manufacturing ethos at Hyde Aero Products Ltd, VERICUT is essential and has cemented its place as the final check before any code leaves the engineering department. Its accurate, high resolution collision detection, partnered with its detailed level of measuring and analysis, ensures that safe and efficient NC programs are created and issued to the shopfloor.

Machine operators and programmers have confidence and peace-of-mind knowing that NC programs have been independently reviewed by VERICUT. 'First off' components and 'prove outs' pass through various departments within the facility with ease, as dimensional accuracy and overall quality is verified and assured.

Delivering better products and enhanced components through continuous improvement is top priority for Hyde Aero Products Ltd. Likewise, the engineering teams at sites such as SPC, have also seen VERICUT continually improved into an easy-to-use platform that independently and accurately verifies all machining types, from simple face milling to complex 5-axis closed wall barrel cutting toolpaths. It is also a great





tool for training employees and sharing knowledge. The live simulation cutstock display in the software provides a way to visualise and demonstrate machining strategies and toolpaths to shopfloor machine operators. In addition, CGTech's VUE (Vericut User Exchange) meeting and reliable technical support team have been invaluable to the installation of VERICUT over the years with the engineering team at SPC.

Using the Tool Management database, SPC create accurate detailed assemblies of tools that are perfectly scaled to the cutters. Engineers are then able to optimise tooling, in order to produce a higher quality product in a shorter time frame through the use of shorter cutters. Likewise, the high resolution and detailed analysis of the proximity between toolholders, stock and fixturing has also led SPC to manufacture complex components through standardised work holding methods. Fixtures can be used on multiple components through the confidence brought about by VERICUT, ultimately reducing manufacturing costs.

One of the most powerful modules in VERICUT is AUTO-DIFF, which SPC use on every job. The ability to spot even very minor human errors whilst programming, or an issue with a particular toolpath or post-processing script, can prove vital. Levels of scrap within SPC have been greatly reduced by AUTO-DIFF, which highlights gouges or excess material after simulating the machining of a component. By quickly analysing the full component and verifying that it conforms to customer-supplied data, without having to cross reference a drawing or measure individual features, has improved the quality and accuracy of programs produced.

The improved level of confidence brought about by VERICUT with features such as AUTO-DIFF also helps SPC optimise and re-engineer legacy components using the latest technology and strategies available, achieving more efficient and effective methods of manufacture and further improving the high level of component quality.

SPC also uses VERICUT to manage production capacity at the facility. The log and run time estimation output by VERICUT allows SPC to better review and optimise the balancing of workloads and manufacturing capabilities of the various machining cells within the factory.

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Aktiv Solutions optimises CNC machining processes with Tebis CADCAM

Aktiv Solutions purchased Tebis CADCAM software for its production in 2006 and since then the company continues to reap the rewards of the investment. Over the years, Tebis CADCAM software has helped to significantly reduce programming time, increase machining productivity and improve toolpath simulation for full machine collision avoidance.

Based in Nuneaton, Warwickshire, Aktiv Solutions was formed by Errol Brown in 2006 with Chris Neil joining the company in 2011. The company specialises in prototype model manufacturing, predominantly for the automotive sector.

Tebis CADCAM software has been used to drive their CNC machines for 3-axis and 5-axis machining. The company is very satisfied with the software and the results it has produced over the years. Errol Brown, director from Aktiv Solutions, explains: "The Tebis software was our first choice compared to other CADCAM software and during the years we have been using Tebis, we definitely can say it has fast speed of programming and enables us to complete full machine collision check. With Tebis software we can produce parts very quickly and with the highest quality."

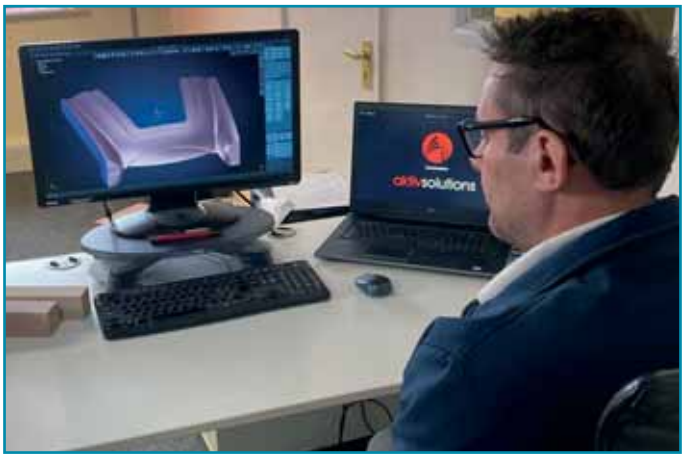
Aktiv Solutions are also extremely satisfied with Tebis software CAM automation supported by six Cloud libraries of manufacturing data. The libraries store optimised CNC machining process data for fast CAM programming through automation while also ensuring consistent machining quality. By adopting CAM automation, work pressure is reduced along with CNC and CAM work costs.

Chris Neil, director of Aktiv Solutions says: "Our machines work 24 hours per day and we needed software which we can rely on. With Tebis what you see in the software is what you get on the machine." As Aktiv Solutions workshop works 24 hours per day, the company has the full confidence for machining safety and it does not need to worry about unexpected machine movements.

Chris Neil also adds that the simulation and collision check/avoidance is very advanced. Tebis Virtual Machine helps to plan, program and verify NC machining operations all in the Tebis CADCAM programming environment. The toolpath calculation speed for large CAD models is very fast and comes with very advanced machine head collision check included for both 3-axis and 5-axis machines. This produces a perfect toolpath every time. Aktiv Solutions has the confidence in the finished product.

Errol Brown concludes: "Tebis for us is the right software. Tebis CADCAM software offers speed, quality, flexibility and safety. We have a very close relationship with Tebis, whenever we have needed support we have contacted the Tebis engineers and everything was sorted very quickly and efficiently."

For over 35 years, Tebis has provided CADCAM and MES software and associated services for mechanical component, model, pattern, die and mould manufacture. Tebis software offers leading advanced technologies for manufacturing process standardisation, automation and shop floor equipment and resources monitoring, production planning and control. Tebis' unique knowledge-based machining technology supports database libraries of machine tools, cutting tools with machining parameters, machining features, CNC toolpath templates and machining process templates. This allows customers' best machining practices to be built into Tebis database and shared among CAM engineers, which reduces the work pressure on CAM engineers while ensuring the best results.



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Mazak makes light work of heavy weights

Simon Watson vividly remembers the moment he made the decision to buy his first laser processing machine: "I used to have an office that overlooked the workshop and I could see all our welders spending most of their time cutting steel and drilling holes, rather than welding. I knew then we needed to get our skilled people doing what we pay them for."

He is the owner and director of Watson Gym Equipment, a premium supplier of exercise machines, dumbbells, barbells and weight benches. The company, which was set up in rural Somerset in 1999, has evolved to become one of the most renowned brands in the personal fitness industry.

"I've always had a twin passion for both fitness and engineering," says Simon Watson. "I was originally a welder by trade, so I started making some quite simple gym equipment in my spare time. All I had was an abrasive wheel, cut-off saw, a grinder, my welder and a sewing machine for doing the upholstery. I would take the finished equipment to local gyms and offer them for free for a week with an option to buy."

While the first few years of operation were challenging, he soon identified a gap in the market for producing high-end specialist equipment, made bespoke to a customer's requirements. This proved to be a pivotal turning point. As the company evolved, Simon Watson, who still designs all the products himself, began to introduce more product lines into the Watson Gym portfolio. However, this approach was not without its own growing pains.

Simon Watson continues: "Our biggest challenge is the sheer diversity of our portfolio. We manufacture over 250 different products, many of which are available in different variations. To cater for this high-mix, low-volume approach, we initially subcontracted a lot of the machining to third parties. However, retaining control of our inventory became increasingly difficult so we decided to bring all the machining in-house."

The company's first machine tool was a Mazak VCN-530C vertical machining centre, purchased in 2010, which was used to machine weight stack plates and stems. However, it was not long before the VCN-530C was operating at maximum capacity, so Simon Watson invested in a further Mazak lathe with a larger second spindle, followed by two QUICK TURN NEXUS 250-II MS turning centres.

"What really struck me when I was doing my research was Mazak's DONE-IN-ONE philosophy, where components come off the machine as a finished product. Knowing we had to rapidly change between components, that really appealed to me.

A strong commitment to customer service was also another key factor in Simon Watson choosing to partner with Mazak: "I have always placed great emphasis on customer service. It is critical to the success of my own business, so I expect the same attention to detail from my suppliers. It was very reassuring to know Mazak had a lot of engineers on the road who could respond quickly."

While the company was going from strength to strength, fuelled by a burgeoning in-house machine shop, its rural location soon presented Simon Watson with a scenario familiar to many OEMs: a shortage of skilled engineers. However, he was once more able to turn to technology to overcome this challenge.

He continues: "We knew how many plates we could produce running three shifts with three people loading the machine. We gave that information to Mazak and they came back with an automated machine tending solution for our VCN. That meant we could produce twice as many weight plates within a 24-hour period, with the labour cost virtually taken out of it."

However, his commitment to continuous production improvement led him to see another even bigger opportunity, which brings us back to his lightbulb moment: "I could see expensive, skilled welders doing quite menial tasks and I just thought there must be a better way."

This sparked further conversation with Mazak around the prospect of integrating laser processing into the company's in-house manufacturing process. It culminated in 2017, with Mazak recommending a 3D FG-220 II laser processing machine with the capacity to cut multiple types of tube while also undertaking operations such as drilling and tapping.

Simon Watson continues "It was a momentous investment for a small company, but I kept doing the figures and it all stacked up. Buying that first FG-220 II is the biggest jump forward we've had with a single machine. However, it has completely transformed how we operate. Our welders are now welding, not cutting steel. They're doing what we pay them for."

The FG-220 II was swiftly followed by a 3 kW OPTIPLEX NEXUS 3015 FIBER laser processing machine and then a second FG-220 II when the company moved into a new facility in 2018.

In 2021, Simon Watson further increased the company's productivity by upgrading the original OPTIPLEX to a 6 kW OPTIPLEX NEXUS 3015 FIBER version complete with a KST automation system. He explains: "We had an issue of storing sheet metal because we tended to pile the sheets on top of each other, which meant that we were forever moving pallets out of the way to get to something underneath, all of which impacted productivity.

"As soon as I saw the KST system I knew it could solve the problem. It stores all the steel out of the way and then is able to pick whatever you need and load it automatically. This has resulted in a huge increase in our overall operational efficiency, which in turn has helped shield us to a certain extent from the increase in steel prices."

Going forward the plan is to keep expanding. Simon Watson concludes: "The personal fitness equipment sector is growing all the time and we've only really scratched the surface of what is possible. There are a lot of markets we've either not yet tapped into or that we can exploit further. Australia is a particularly good market for us, while the Middle East also has huge potential.

"Mazak will be a big part of us realising our ambitions. The more I worked with Mazak and the more I got to see the factories and meet the management, the more I got the feeling that the company really cares about its customers. From my very first enquiry, through to the installation, commissioning and aftersales support for every machine we have purchased from Mazak, the service is second to none."

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Nukon fibre laser is clear choice for Steel & Glass Solutions

Dunstable-based Steel & Glass Solutions has taken delivery of a new Nukon Rex 315 6 kW 2D fibre laser cutting machine from Nukon Lasers UK. The machine was ordered at the UK's MACH 2022 machine tool exhibition, with installation postponed until Steel & Glass Solutions moved into purpose-built new premises.

Steel & Glass Solutions is renowned for producing incredible architectural metalwork for some of the UK's most iconic building projects, an accolade which means there is never room for compromise on specification or product quality. Earlier this year, with a growing order book, the business decided it was time to invest in its own flat sheet metal laser cutting capability.

"Traditionally, we have relied on outsourcing the laser cutting of the high-end polished steel fabrications and steel cladding panels used in our designs," comments production director, Warren Few.

"However, these would sometimes arrive with imperfections, meaning they would have to be sent back. Additionally, outsourcing laser cutting meant we couldn't always react quite as quickly as we would like to customer needs. We were also aware that having our own fibre laser cutting capability on site would help us to remain as competitive as possible in these times of high energy prices."

With MACH 2022 fast approaching, the Steel & Glass Solutions team decided that visiting the show would be the best way of comparing the various fibre laser technologies on offer. Knowing they would need a fairly powerful 2D flat sheet metal model, they drew up a shortlist of laser machines they would like to take a close look at.

"Before going to MACH, we had only given a cursory glance to Nukon's fibre laser machines as, although built in Europe, the brand wasn't one that was on our radar," adds Warren Few. "However, at the show, we couldn't ignore the quality, speed and value they offered or the exceptionally low running costs. Perhaps the thing that really convinced us to order the Nukon Rex machine was meeting Alan Pickering from tube bending machinery manufacturer, Unison Ltd., on the Nukon stand. He explained how for quite some time Unison had been looking to complement its British-built tube bending machines with high-quality laser cutting technologies and how, after researching the market, established Nukon Lasers UK as the official Nukon dealer for the UK and Ireland.

"Having owned and operated an all-electric Unison Breeze tube bending machine at a previous company," continues Warren Few, "I was well aware that Unison would only offer and support a product they had complete confidence in. It was a pleasure to deal with like-minded people."

Steel & Glass Solutions chose the Nukon Rex 2D fibre laser machine for its ability to cut intricate shapes and pieces with speed and precision, supported by fast, easy programming. This is essential for a business dealing with short product runs and complex,

different projects. A Nukon 315 Series machine, the Rex is able to accommodate sheet dimensions of 3,050 mm x 1,530 mm and is equipped with a powerful 6 kW nLIGHT fibre laser, with advanced cutline beam shaping technology for a superior edge finish. The machine also features the innovative Nukon NLCH cutting head that is fully field serviceable, further reducing running costs and downtime.

"Installation was quick and straightforward and the training provided by Nukon Lasers UK's Steve Haddrell was excellent," says Warren Few. "In fact, considering no one at Steel & Glass Solutions had ever used a laser cutting machine before, it's hard to believe that we were successfully cutting customer orders in 1.5 mm to 10 mm stainless steel within two days.

"We appreciate that the Nukon Rex is a very fast machine. But for us, the real benefit has been the quality of the parts produced and the ease of programming. The Nukon Lasers UK team helped immeasurably in getting our laser cutting capability up and running. Perhaps what's most impressive is that if they don't have an immediate answer to a cutting challenge, they don't blag it, they solve it. For example, a nesting issue for a particularly complex design was resolved with a quick call to Lantek, who linked up with our PC in under 15 seconds."

The Nukon fibre laser range includes 2D, 3D and laser tube cutting machines. High-spec standard features include: nLIGHT fibre lasers with adaptive beam optimisation and Lantek Expert software, which is one of the most advanced CADCAM nesting software packages on the market today. Nukon's range of 2D fibre laser machines includes models designed for first-time laser users and businesses adding value to in-house manufactured products, as well as high-performance machines for demanding flat-bed laser metal cutting requirements in subcontract environments.

About Nukon Lasers UK

Nukon Lasers UK is the official UK and Ireland distributor of Nukon's European-built 2D, 3D and tube fibre laser cutting machines and loading and unloading solutions. Equipped with American-made nLIGHT fibre lasers and advanced Lantek CADCAM nesting software, Nukon fibre lasers combine high speed and high precision with exceptional value and build quality, as well as incredibly low running costs. The Nukon Lasers UK team offers first-class machine tool service, training, maintenance and technical support, in addition to service contracts and service level agreements that can be tailored to specific requirements.

www.nukonlasers.co.uk

About Steel & Glass Solutions

With over 20 years' experience in architectural metalwork, the Steel & Glass Solutions team takes great pride in delivering the highest quality solution to every brief. Projects include the design and manufacture of complex, intricate metalwork for the Whitechapel and Bond Street Crossrail stations, as well as exquisite balustrades, framework and metalwork for many high-end, bespoke residences and office buildings in London and the South of the UK.

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Smart access to fibre laser technology

Now in a new design and with power for every requirement

The brand new, enormously flexible ByCut Smart 3015 cuts steel, aluminum, stainless steel, brass and copper precisely and reliably, thanks to high laser power with 3 to 15 kilowatts, an optimised cutting process and smart features all at an extremely attractive price.

From the BySmart Fiber to the ByCut Smart

Bystronic presents the new generation of laser cutting machines from the "Smart" series. The new machine impresses with a sharp and modern design, as well as high power for every requirement.

Plenty of power

Laser power levels from 3 to 15 kW ensure excellent cutting performance and high parts output for thin to medium sheet metal thicknesses. Depending on the production range and customer request, the ByCut Smart 3015 is available in a selection of different laser powers of 3, 4, 6, 8, 10, 12 and 15 kW.

Sheet metal processing enterprises benefit from this with a broad application spectrum: In addition to steel, stainless steel and aluminum, non-ferrous metals can also be processed with world-class cutting quality.

Upgradeable with clever features

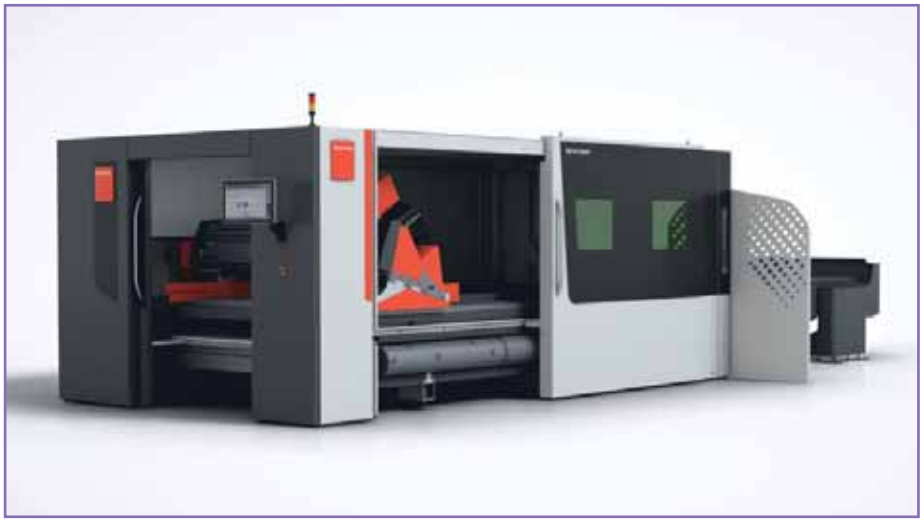
The ByCut Smart is extremely flexible and stands out due to its maximum degree of configurability. Smart features such as the Nozzle Control Tool (NCT) and KerfScan, the Parameter Wizard and cutting with MixGas, in addition to more laser power, ensure higher cutting quality as well as increased productivity.

NCT & KerfScan

The NCT provides automatic nozzle centring at the beginning of a cutting plan and after collisions. As a result, manual interaction from the operator is no longer required, reducing time expenditure by up to 95 percent. Centring is completed within seconds, rather than minutes.

KerfScan also serves as a monitoring function, thus increasing process reliability. Through greater autonomy, customers benefit by producing less scrap due to incorrect settings, poor material quality, or hot sheet metal, which reduces waste costs and makes production with flame cutting more cost-effective and reliable.

All of this ensures consistently high process quality, as well as a high degree of autonomy in lightly-manned operation and markedly reduces waste.



Parameter Wizard

In only a few minutes, the Parameter Wizard determines the perfect parameters for you with N2 and MixGas for steel with thicknesses of 4 to 15 mms. The Parameter Wizard optimises the entire cutting process and ensures its smooth functioning, which guarantees the customer optimal utilisation and improves production time without downtime.

MixGas

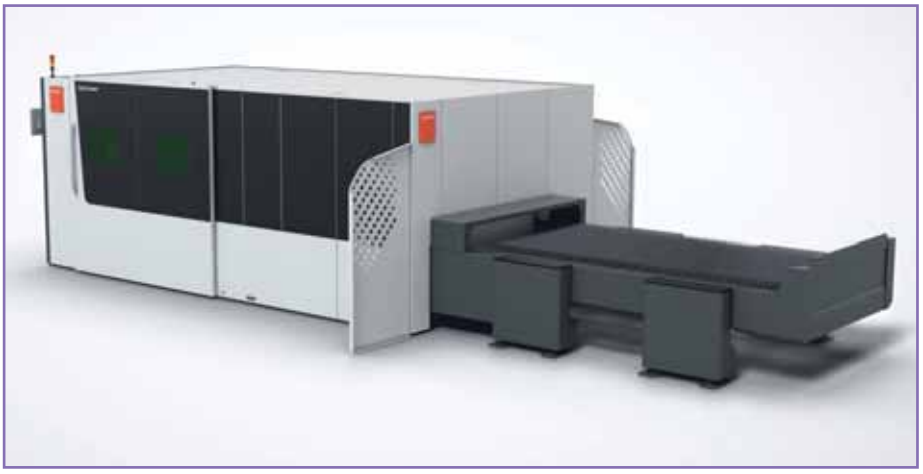
MixGas combines the benefits of O2 and N2 and is thus an alternative to cutting with pure nitrogen or oxygen. Cutting with MixGas, a unique mix of nitrogen and oxygen, massively improves cutting quality in thicker steel at increased cutting speeds. Additionally, MixGas contributes to achieving better cutting results with varying qualities of steel. The higher the laser power, the greater the advantage.

More loading capacity thanks to a new shuttle table concept

A further benefit speaks in favour of the new laser cutting machine: With the new shuttle table concept, users load their ByCut Smart up to 40 mms over the entire surface on both tables, or 60 mms over the entire surface on one table. This means operators achieve a significantly higher maximum load on the shuttle table compared to the status quo of 30 mm and thus cut significantly thicker parts.

Better access

In addition, the new ByCut Smart cuts a distinctive figure: New, modern contours create a sharp look and match the machine's performance. Furthermore, the new design significantly increases user friendliness. Different access door configurations provide perfect flexibility in the design. This includes front and/or side access as well as multiple windows with direct views of the cutting process. Overall, the new design offers better access to the interior space as a result.



Completing with automation

For many users, automatic laser cutting is a criterion that is decisive for success. Automation solutions for fibre laser cutting provide clear benefits: They increase utilisation of the laser cutting system to the maximum and they relieve operators of time-consuming material handling. Both of these lead to cutting orders being carried out faster or more economically.

The Bystronic software and automation solutions optimally integrate the ByCut Smart into your sheet metal production. Loading and unloading solutions can be selected in a variety of designs and degrees of automation. The Bystronic systems organise the material flow fully and semi-automatically according to the order situation and provide enough flexibility to process smaller orders manually as well.

The ByCut Smart 3015 proves itself to be robust and stable, guaranteeing low operating costs: A fast cutting process and extremely low maintenance requirements guarantee a high machine uptime and longevity and thus more profit per part.

Bystronic is a leading technology company in the area of sheet metal processing. The focus is on the automation of the complete material and data flow of the cutting and bending process chain. The intelligent connectivity of laser cutting systems and pressbrakes with innovative automation, software and service solutions is the key to comprehensive digitalisation in the sheet metal industry.

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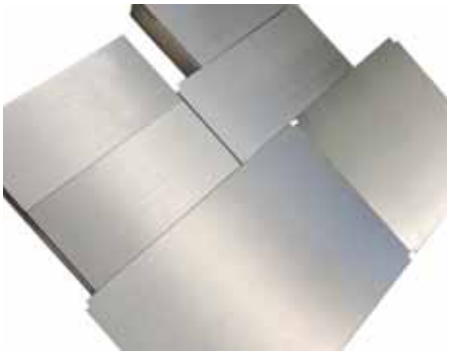
AMADA machines help Q-Laser meet growing demand

Q-Laser, a precision subcontractor offering laser cutting, bending, waterjet cutting and fabrication services, is investing in the latest manufacturing technologies from AMADA, including a laser cutter, press brake and production monitoring software. The investments are helping to meet growing demand at the company, which has seen a 22 percent increase in turnover over the past year alone.

Based in Washington, Tyne & Wear, Q-Laser was founded in 2012, primarily providing laser cutting and press brake services on a subcontract basis. The company also has a waterjet cutting facility in nearby Hebburn, with a fabrication shop in Middlesbrough that offers services such as spot, MIG and TIG welding. “We provide our services to a vast array of customers in sectors that include oil and gas, construction, commercial vehicle, defence, telecommunications and general precision engineering,” reports the company's owner, Colin Hewitt.

On this basis, Q-Laser is performing strongly. The company turned over 3.4 million in its most recent financial year, ending January 2023, which is 22 percent up on the previous year. In fact, this ambitious and progressive company says it has recorded year-on-year growth since its foundation, expanding its headcount to 25 people. Furthermore, in 2022 Q-Laser moved to a new facility that doubled its previous floor space. This was necessary to invest in additional manufacturing technology,



identifying another laser cutter as its top priority. “We needed more cutting hours with the benefit of production flexibility," reports Colin Hewitt. "Importantly, we recognised the need to keep expanding the business, where a second machine would support the laser cutter already on site. Our customers expect to have their orders processed and delivered within a few days, so it was our duty to try and accommodate that demand.”

Colin Hewitt and his team considered two potential laser cutting machines, ultimately opting for a new AMADA ENSIS-3015AJ 6 kW fibre laser. "Not only was the price within our budget, but the technology and features offered, along with the machine's ease-of-use, made our decision easy," explains Colin Hewitt.

"It was actually our laser operators that made the final call after visiting and operating the machine at AMADA's UK headquarters in Kidderminster."

Describing the installation, commissioning and training period as "well managed", Colin Hewitt says that his manufacturing team are today using the AMADA ENSIS-AJ to process mild steel, typically 3-25 mm thick, galvanised steel, 3-5 mm, stainless steel, 1.5-20 mm and aluminium, 3-15 mm. The company's

laser-cutting operation is currently running across a single shift, with the aim of achieving two shifts in the near future.

"The AMADA ENSIS-AJ has given us a distinct boost over our existing laser cutter, providing higher speed, better cut quality, greater consistency and more ease-of-use," says Colin Hewitt. "We particularly like the ability to see the recording/live feed on the laser, which is very beneficial, as is the V-factory monitoring software and some of its options. In addition, our staff like the simple setup of the laser head, along with the machine's ease of maintenance."

The AMADA ENSIS-AJ fibre laser cutting machines offer high-speed piercing and fast cutting, making them ideal for a wide range of materials and thicknesses. Available with 3-, 6-, 9- and 12-kW fibre laser engines developed by AMADA using 3- and 4-kW diode modules, the ENSIS-AJ range offers a proven way to increase production capacity. The 6-, 9- and 12-kW versions utilise AMADA's Auto Collimation system for unrivalled laser beam spot control. In combination with AMADA's original Variable Beam Control technology to adjust the laser mode, this system can process different materials and thicknesses with a single cutting lens.

Q-Laser also takes advantage of the AMADA V-factory monitoring system, which makes it possible to maintain an overall picture of production operations, from current machine status to the use of materials, energy consumption and analysis of manufacturing processes. All this through the VCBOX and My V-factory App, a software application available for PCs and smartphones.

Another imminent arrival at Q-Laser will be an AMADA HFE-2204M2 press brake, which will provide much-needed extra bending capacity. Easy to use and simple to program, AMADA HFE-M2 press brakes deliver consistent results over the entire bend length. With a digital touchscreen control and energy saving technologies, the HFE-M2 series are environmentally friendly and flexible solutions.

The HFE-1703/4M2 already installed at Q-Laser will bend materials that include mild steel, stainless steel, aluminium, brass and copper, as well as Durban@* hot-rolled structural steel floor plate.

"We always consider investment in the latest manufacturing technologies as vital to our success, although each one has to demonstrate benefits," says Colin Hewitt. "This is why we selected AMADA machines."

Aside from Q-Laser's commitment to customers regarding ongoing investment in new machines and equipment, there are many other factors that set this forward-thinking business apart from its competitors.

"We have the ability to be flexible and offer what others may not, such as helping with drawings and going above and beyond to ensure parts are correct and delivered on time," explains Colin Hewitt. With its impressive investment strategy underpinning notable growth and success, Q-Laser is clearly proving itself a force in the subcontract sheet-metalworking arena. Based on its current upward trajectory, the company's future looks extremely bright with yet more growth anticipated moving forward.

*Durban@ is the trademark of Tata Steel UK Ltd.

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Axe & Status partners with ACCURL

Uniting strengths in the laser & bending market

Axe & Status Machinery Ltd has announced a collaboration with ACCURL, forging a powerful partnership that holds immense promise for the laser market. Following an in-depth visit to ACCURL's facilities in China, Steve Thomas, the owner of Axe & Status Machinery Ltd and his team were impressed by the capabilities and quality of ACCURL's products. After days of extensive discussions, the two companies reached a mutual agreement to authorise Axe & Status Machinery Ltd as the exclusive distributor of the ACCURL brand in the UK. This partnership signifies a significant milestone for both organisations as they set their sights on capturing the rapidly growing laser market together.

ACCURL

ACCURL is renowned for its cutting-edge technology and innovative solutions in the field of laser machinery. With a commitment to excellence and precision, ACCURL has established itself as a leader in the global market. Its extensive range of CNC press brakes, laser cutting machines and other equipment has garnered a strong reputation for superior performance and reliability. ACCURL's dedication to research and development, coupled with its customer-centric approach, has earned it a loyal customer base worldwide.

Axe & Status Machinery Ltd

Axe & Status Machinery Ltd is a well-established machinery distributor based in the UK. Led by Steve Thomas, the company has built a solid reputation for delivering high-quality machinery and exceptional customer service. Its team of experts possesses deep industry knowledge and a keen understanding of market demands. Axe & Status Machinery Ltd has successfully catered to the evolving needs of customers across various sectors, making it a trusted partner for businesses seeking cutting-edge machinery solutions.

Significance of the collaboration

The partnership between Axe & Status Machinery Ltd and ACCURL holds great significance for both companies, as well as for the laser market in the UK. By combining ACCURL's technologically advanced products with Axe & Status Machinery Ltd's strong market presence and expertise, this collaboration creates a synergy that is set to revolutionise the industry.

For Axe & Status Machinery Ltd, this partnership opens up new avenues for growth and expansion. As the exclusive distributor of ACCURL in the UK, it can offer customers access to a comprehensive range of state-of-the-art laser machinery, ensuring that businesses stay at the forefront of technological advancements. This collaboration also strengthens Axe & Status Machinery Ltd's position in the market, reinforcing its commitment to delivering excellence to its valued customers.

For ACCURL, the partnership with Axe & Status Machinery Ltd provides an ideal gateway to the UK market. Leveraging the established network and expertise of Axe & Status Machinery Ltd, ACCURL can reach a wider customer base and showcase its cutting-edge products to businesses seeking advanced laser solutions. This collaboration aligns with ACCURL's mission to expand its global footprint and provide innovative machinery solutions to customers worldwide.

The partnership between Axe & Status Machinery Ltd and ACCURL represents a dynamic alliance that combines expertise, innovation and market presence. As ACCURL's exclusive distributor in the UK, Axe & Status Machinery Ltd is well-positioned to cater to the growing demand for advanced laser machinery, empowering businesses to achieve greater precision, efficiency and productivity. Together, these companies are poised to shape the future of the laser market in the UK, delivering unrivalled technology and unparalleled customer satisfaction.

Contact Axe & Status Machinery at sales@axestatus.com or 01908 647707 for further information on the Accurl range. New stock will be arriving into its showroom in early September. The first high power lasers will also be installed in the UK in September and available for demonstration.

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New laser business agreement – Penta Laser UK Ltd

As part of a new key association agreement with Penta Laser Shanghai, MSS Lasers will move all of its UK laser sales business to Penta Laser UK Ltd.

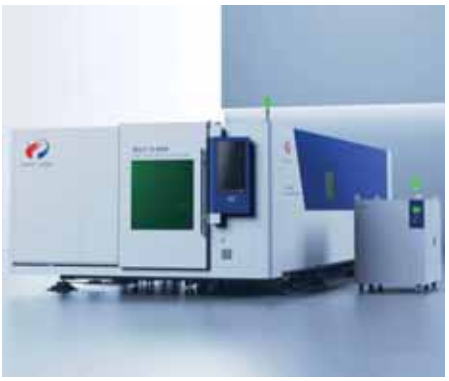
Chris Smith, sales director comments: ''This is a major development in our ongoing relationship with Penta and it gives a very clear message to the UK laser market that Penta laser products are now here in a very serious way. Over the past 4 years we have steadily grown a respectable population of laser cutting and welding systems and we expect that this new arrangement will further accelerate business growth especially with the higher power systems that Penta have already excelled with in other markets.''

Penta has an impressive model range of flat bed and tube laser cutting systems with a brand new 60 kW flagship model recently launched at the recent 2023 Shenzhen Expo.

The entry level Swing model offers incredible performance and value for money with laser powers up to 12 kW, the heavy-duty Bolt range offers 4G performance and laser power 12 kW-60 kW.

Penta Laser UK has dedicated showroom facilities in Rugby currently featuring 12 kW 4 x 2 m systems and 4 kW 3 x 1.5 m systems.

All UK specification Penta systems are available with IPG or Maxphotonics laser sources and come equipped with Precitec cutting heads as standard including full UKCA certification. Flatbed cutting bed sizes range from 3 x 1.5 m to 12 x 2.5 m. Laser welding systems are also available in 1.0, 1.5- & 2-kW power options.



Penta Laser UK will offer full UK sales and aftersales support including a huge UK stock of Penta spare parts.

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‘Edition’ robots ease entry into automated arc welding

KUKA "Edition" robots help new customers automate welding tasks efficiently in price-sensitive markets. These focused robots offer an ideal cost-benefit ratio within the current KUKA technology portfolio. Initially, the KR CYBERTECH nano ARC will be available in two "Edition" variants, with other KUKA robots to follow.

No one would drive a Formula 1 vehicle on a highway, so why use a highly specialised process robot for very simple applications? The new KR CYBERTECH nano ARC HW Edition robot is made for simple arc welding. This hollow-wrist robot provides the ideal entry into efficient automation with KUKA as a reliable partner.

Smaller investment, easier automation

"Edition" robots draw on the current KUKA technology portfolio, including the newly updated KR CYBERTECH nano series, the latest-generation KR C5 controller and appropriate welding software, such as KUKA.ArcTech Basic. “Instead of downsizing, we are opting for rightsizing,” explains Markus Hollfelder-Asam, portfolio manager at KUKA. “The "Edition" robot variant offers simplified, focused, reliable technology that remains a genuine KUKA original.” For customers in highly dynamic and price-sensitive markets, the adapted design of the "Edition" robot significantly lowers procurement costs.

‘Typical high KUKA quality’

The KR CYBERTECH nano ARC HW Edition robot is designed for payloads of 6 kg and can be installed on the floor or ceiling. To match varying requirements in the entry-level segment, KUKA offers two versions of the "Edition" robot: one with a reach of up to 1,440 mm and one with a reach of 2,010 mm. The standard version uses a 50 mm hollow wrist with bearings on one side, whereas the "Edition" robot features a hollow wrist with bearings on both sides, a diameter of 46 mm and 0.04 mm repeatability.

“This is exactly right for entry-level applications in the field of arc welding,” Markus Hollfelder-Asam confirms. “We were determined to deliver typical high KUKA quality. This means the hollow wrist supports optimal positioning for the welding process and avoids additional disruptive contours. Additionally, "Edition" robots include a maintenance-free cable set like the KR CYBERTECH nano series.”

"Edition" robots incorporate industry-proven quality perfectly suited to the global requirements of entry-level welding applications. KUKA will launch the KR CYBERTECH nano ARC HW Edition robot first, followed by additional "Edition" robot types.

Mike Russell joins KUKA Systems UK with a focus on developing welding portfolios and overseas channels

With an impressive background of business development in advanced welding and a passion for cultivating strategic partnerships, Mike Russell brings a wealth of experience and expertise to KUKA, supplemented by formidable academic credentials that include a Master’s degree in Materials Engineering and a Ph.D. on the ‘Development and Modelling of Friction Stir Welding’.

He has a proven track record of driving growth and establishing successful collaborations in diverse markets that will elevate KUKA’s presence in the international advanced welding arena. With a deep understanding of market dynamics, coupled with his innovative approach, Mike Russell will enable KUKA to identify and capitalise on new opportunities overseas.

Jeff Nowill, KUKA Systems UK CEO, said of Mike’s appointment: “We are thrilled to have Mike on board and we are confident that his contributions will propel our company towards greater achievements in the advanced welding solutions marketplace. His keen eye for identifying emerging trends and consumer demands will guide our company's portfolio development, ensuring that we remain at the forefront of the industry.

“Advanced welding is a rapidly growing market due to several factors that have contributed to its increased demand and adoption. One of the key drivers is the advancement in technology, which has led to the development of innovative welding techniques and equipment. Mike’s proven experience and deep understanding of these techniques, their features and benefits, will enable us to navigate new, international markets.”

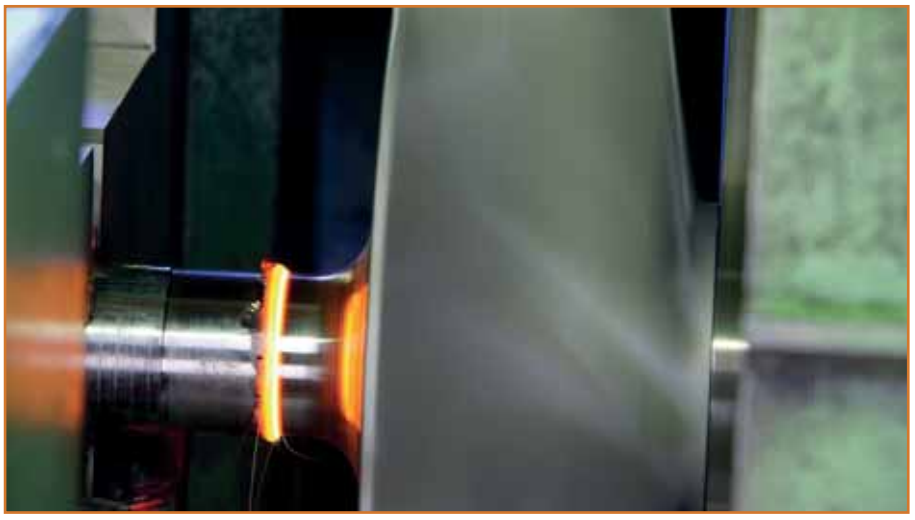
With project delivery successes in collaboration with some of the world’s biggest brands, such as: Airbus, Apple, Boeing, Bombardier, Lockheed Martin, Sapa and Tesla, plus many others, Mike Russell’s experience of strategic portfolio development is impressive.

On joining KUKA and of his immediate future ambitions within his new role, Mike Rusell said: “I would like to develop and deliver an R&D roadmap and research

programme, to support the generation of new capabilities and new market opportunities for the business. My ambition is for KUKA's solid-phase team to be unequivocally recognised as being the best in the world at what we do."

Advanced welding finds application in a wide range of industries where the joining of high-performance materials is crucial and the demand for high-quality, energy efficient welding solutions is paramount. Rotary friction welding, linear friction welding and friction stir welding are much sought after, with demand arising from the need for stronger, lighter and more durable materials in sectors such as automotive, aerospace, energy, construction and manufacturing. These industries also require welding solutions that can support the transition to Net Zero manufacturing, via the efficient fabrication of high-performance components, and the tailoring of products by incorporating dissimilar materials. Solid phase joining processes have unique capabilities in this field.

Mike Russell continues: "Having worked with KUKA in the past, I have always been impressed by the quality of the equipment produced and the business's strong focus on customer service. This role is a great progression for me from the world of solid-phase research and an opportunity to experience, first hand, the supply of specialist equipment and solutions."



KUKA Systems UK warmly welcomes Mike Russell to its family and it looks forward to the contributions he will make in driving the company forward.

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The right torch whatever the challenge

Fronius packs more than seventy years of welding know-how and extremely strict quality requirements into developing and manufacturing welding torches in-house. The technology leader's response to escalating demand was to double production capacities at its Pettenbach production site in Austria. The portfolio includes an impressive variety of MIG, TIG and plasma welding torches for manual, stationary and robot-assisted welding applications.

Ergonomically designed torch

Customers always find the right welding torch for many different demands and requirements at Fronius and can use this to unleash their full welding potential. The spectrum ranges from lightweight, easy-to-handle TIG welding torches, which precisely penetrate every nook and cranny, to durable robot welding torches, that can be relied on to robustly withstand high temperatures in continuous operation. Common to all is that they combine innovative technology, a long service life and repairability, as well as maximum ease-of-use.

Greater capacity for a growing demand

"By doubling our production capacities for welding torches, we created new production lines and new jobs. Output is steadily increasing and we are now ready for the future, as our quality welding torches are envied throughout the world," says Harald Scherleitner, Global director of sales and marketing, business unit perfect welding, Fronius International GmbH. "A general feature of our manufacturing is that the energy for all our Austrian sites comes wholly from renewable sources and we have been manufacturing 100 percent gas-free since 2023. This reduces the ecological footprint of all our welding torches and welding systems."

Perfectly matched

The quality welding torches and high-end welding systems are developed by Fronius experts at the same location and are tailored to one another, right from the start. This allows the respective advantages and technological innovations to be merged into a perfect system, and maximises the potential. So, it is also only logical that in popular welding packages such as Low Spatter Control (LSC) or Pulse Multi Control (PMC), the welding process is at its most stable with original Fronius welding torches. It is also possible to benefit fully from the precision and user-friendliness of Fronius welding torches with many other power sources of course.

Everything well under control in manual welding

It makes no difference whether it is MIG, plasma, or TIG welding torches. What is important with manual welding is how the welding torch feels in the hand, whether it is well-balanced, for example and how helpful the controls on the handle are when working. The welder's personal preferences are also crucial, as the quality of the result is literally in their hands. "Along with all the technological refinements we pack into our welding torches, the human operator has the most important role. We place great emphasis on the ergonomics and user-friendliness of our welding torches," stresses Christian Aitzetmüller, welding torch and robot peripherals product manager, at Fronius International GmbH. "To help welding specialists in their everyday work, we make our welding torches as light as possible, with handles that are comfortable to hold. That is why our range includes different user interfaces."

Designed and built with long service in mind

Whether a welding torch for manual welding, or a robot torch they are all designed for an especially long service life and undergo extensive testing. All welding torches, just like newly developed welding systems, go through exhaustive ruggedness tests before

entering series production. They have to pass heat tests, drop tests and duty cycle tests, as well as gas shield tests, leakage tests, and movement tests. When it comes to efficiency, safety, and reliability, the benchmarks Fronius sets in-house are far more demanding than required standards.

Wear part replacement and repair made easy

As they are subjected to high loads, wear parts must be regularly replaced to ensure consistent quality. Original parts are perfect for this and enable maximum precision. The Fronius range of wear parts such as gas nozzles or MIG contact tips, inner liners or TIG torch caps and tungsten electrodes, is extensive. Thanks to the targeted user guidance, making repeat orders from the online spare parts catalogue is easy.

Should welding torch maintenance or repair be due, however, then "time is money". For this reason, it is easy for you to carry out maintenance or minor repairs on Fronius welding torches yourself, so that the welding torches are working again in next to no time. Certified Fronius service partners and repair centres worldwide are happy to help, as is the major repair centre at Steinhaus in Austria.

Numerous patents and welding torch innovations

The range is consistently enhanced by in-house developers and experts. Fronius has already been able to make an impression with numerous innovative patent solutions for welding torches, such as the practical Multilock System for quickly changing the torch body. This allows the welding torch to be turned through 360°, permitting the greatest possible welding flexibility on components with challenging geometries. Another innovation: cooling solutions that extend the service life of the welding torch yet make little difference to weight and handling. For TIG welding torches, the new Tungsten Fast Clamp system (TFC) for quickly changing the electrode and the optimised wirefeeder stand out in particular and in MIG/MAG welding, the highlight is the ingenious Exento fume extraction torch that extracts welding fume directly at the source, making the best-possible contribution to health and safety.

In short, increased production capacities,

decades of experience and strict quality control, mean that with Fronius, the right welding torch is available, whatever the challenge.

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Nederman provides breath of fresh air for 'At-Source' welding extraction

As a leader in industrial air filtration, Nederman is now bringing a breath of fresh air to the welding industry with its new on-torch extraction system. Superseding the existing Fume Eliminator 841 series, the new FE860 is now available with a raft of benefits to comply with new regulations while introducing safety features that will guarantee improved respiratory health in the workplace.

Like its predecessor, the FE860 is a portable device that attaches directly to the welding torch to capture weld fume 'at-source'. From a functionality perspective, that is where the similarities end, as the FE860 incorporates a host of new technologies to improve performance, user-friendliness and safety. It is acknowledged that all welding torches and applications require different extraction flow rates to extract all the fumes whilst not extracting the shielding gas which can impact the integrity of the welding process. With the new FE860, Nederman makes it possible to alter the suction rate with a new adjustable control panel. This makes it easier and more intuitive for the welder to understand the ideal setting parameters for specific torches and types of welding.

In addition, the FE860 introduces a pressure sensor that will automatically maintain the desired flow rate by increasing the speed of the 1.25 kW motor as the filter

gets saturated. This new advancement ensures the FE860 that generates an airflow rate of up to 180 m^3/hr and always maintains the desired suction rate. When the filter is 85 percent full and again when it is 100 percent full, an alarm will notify the operator that action is required. Furthermore, the alarm will sound if the specified flow rate cannot be maintained or if sudden pressure changes are detected. These new features comply with the requirements of ISO: 21904, the new standard succeeding ISO: 15012 (W3). This new standard requires a minimum airflow and speed at the nozzle and that all possible measures are taken to alert the user of any type of extraction unit malfunction that could result in inadequate airflow. Since the HSE re-classified weld fume as carcinogenic and updated the safety regulations in 2019, it is imperative that any facility undertaking welding complies with the Local Exhaust Ventilation (LEV) regulations to prevent enforcement action.

To accommodate the enhanced motor and the extraction regulations, the FE860 incorporates a larger 2.5 m by 50 mm diameter hose and an upgraded mechanical design that reduces leakages. This improves performance by 50 percent, enabling the FE860 to work in more demanding on-torch applications while extending the filter life and enabling the desired suction to be maintained for longer periods.

The new FE860 incorporates a host of additional features that include an auto stop/start feature with a fixed delay time, so when the welder stops welding, the motor will stop after 10 seconds, providing a fixed delay on the system. Additionally, Nederman has introduced a new Nanofiber filter material to improve efficiency when protecting users from sub-micron particulate. The strategy being undertaken by Nederman is to roll out Nanofiber technology for all its mobile units and the FE860 will include an F9/MERV 14 Nanofiber filter that has been reinforced to support the higher motor pressure. The new 5.3m^2 filter provides improved performance levels when compared to the previous FE840/841 units.

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